COMPUTER APPROACH TO PAYROLL SYSTEM IN AN ORGANIZATION
(A CASE STUDY OF NITEL PLC, ABUJA).

BY

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DEDICATION

To God Amighty for making my goals and aspirations achievable. Also dedicated to my loving wife and children. You are all very special to this course.

ACKNOWLEDGEMENT

Nothing is impossible for the willing soil to this, my special Glory to God Almighty to making it possible for me to achieve this greater height. Really, it has not be too easy, but with courage and support of the almighty God, things have worked out perfectly well.

I wish to place on record my special gratitude to a brother, lecturers, and my project supervisor, our only Prince R.O. Badamosi. You are indeed a wonderful individual whose concern for others takes better part of your life. May the Lord in his mercies continues to shower his blessings protection and guidance over you. I am indeed short of words to express my inner feelings towards your concern over us all, but wish to say that I feel highly honoured by your presence in my life. Despite your tight academic and coordination of the program, you still found time to read through my project and that of others. We are indeed highly indebted. May God bless you more in life, Amen.

I also wish to acknowledge with special gratitude to my Head of Department - DR K.R. Adeboye, your concern makes the whole program very easy. We are grateful sir. To my special lecturers, you have all been exceptionally good. Keep it up.

To my employer - NITEL PLC, Abuja, thanks for the support given to me despite the high demand of time you still made it available. To my friends and

classmates, we have all benefitted much from the contact and the program. May the Lord bless you all wherever you might be. You have been very wonderful.

To my family, especially my kids and wife. What else can I say then to say thanks for been supportive during the course of this program.

Finally, I owe a specie gratitude to all too numerous to mention. You have all been there when the need arises. Thanks and may the almighty father bless us all.

APPROVAL /CERTIFICATION

This project has been read and approved as meeting the requirements of the school of science and science Education, Department of maths/computer science, Federal University of Technology, Minna Niger state.

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MR R. O. BADAMOSI DATE
PROJECT SUPERVISOR

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DR K.R. ADEBOYE DATE
HEAD OF DEPARTMENT

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EXTERNAL EXAMINER DATE

ABSTRACT

This study is aimed as using the relational database approach in designing a computerised payroll system for the organisation (NITEL PLC, ABUJA).

The organisation has been having a lot of problems with the manual system of paying staff salary. This manual system was rather cumbersome, tiring and demand a lot of efforts and resources in both human and material interview of these problems, the need for a new system to replace the existing one has been proposed

The main thrust of this work is to make the payroll section of the organisation to produce the staff salary faster and accurately at the end of each month with the maximum of delays and effort input.

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CHAPTER ONE

INTRODUCTION

Management has been viewed as activities involving the collection, storing and mobilization of all human and material resource in a particular system.

Organisations depend largely on how the available resources are wisely uses data management is therefore, seen as a major task as a significant part of an individual working and personal time is spent searching for, recording, processing and absorbing it as information before any meaningful good is attained.

Computers are able to assist management to project and analyse the effects of various alternative methods of processing information. When computers are introduced in to business information processing, this is referred to office AUTOMATION. Office Automation systems are computer - based to enhance the effectiveness and productivity of people who work in offices. The workers need to learn new office skills and different ways of using new equipment and procedures.

Some of the skills they need to learn include the preparation of the monthly salaries of workers in all the departments of the organisation and keeping efficient records of the movement of cash and other valuables.

Payment of salaries to workers is done through the payroll system. It involves getting relevant information from personnel and finance departments about an employee, processing this information to get the monthly salary payable to each staff

and up - dating the records accordingly. Thus, large amounts of data are being handled from time to time, new records are been added, some deleted while others are completely updated as the need arises. The computerisation of the NITEL payroll system has not been fully implemented even though the organisation has computers that can effectively, handle this. As a result, preparation of monthly salaries of staff is being done manually. This is quite a tedious job that requires at least eight to term serious minded staff of the accounting department to handle. This has to be cross-checked by some two - three senior staff. Indeed, this is quite monotonous and time consuming, A lot of calculations are involved and so it is prone to mistakes too.

PROBLEM DEFINITION

The payroll system of the organisation is at present being processed manually. This involves writing our the salaries details of each and every staff and carrying out the calculations involved with hands. This is a rather crude and obsolete method of processing of information as relevant as the salaries.

The main concern now is how to devise a method of handling this relevant aspect so that all the draw - backs that are associated with the manual methods are eliminated.

The only ways forward is the computerisation of the payroll function so that at the end of very mouth when the salaries calculation are been done, the minimal

input of labour and time is expended while the maximum achievable level of accuracy and speed is achieved.

AIMS AND OBJECTIVES OF THE STUDY

The main aims and objective of the study are: -

1) To determine the problems associated with processing the payroll system manually and how computers can be used to solve this.
2) To relief staff of tedious routine work.
3) To prepare timely and accurate returns of payment vouchers.
4) Provision of efficient and effective payment procedures to the staff members.
5) To improve quality of centralization of salary.
6) To eliminate duplicated conflicting and unnecessary names on the payroll.

METHODOLOGY OF STUDY.

The approach used here include the followings:-

a) ***Interviewing*** - this is used mainly to confirm sone information gathered; and also used to obtain suggestion that can be considered relevant to the proposed system.

b) ***Record searching***:- Written information such as cards, forms and reports used in the operation of the system were reviewed and analyses.

c) ***Observation***:- This method is used to directly study the operations of the existing system.

SCOPE AND LIMITATIONS

This project focuses mainly on NITEL payroll processing problems and does not consider other functions of the organisation.

The following are some of the limitation encountered during the process of working on this project:-

1) ***Time*** - No sufficient time to do all the necessary things since it is a very large establishment

2) ***Finance*** - Funds were insufficient, since the writer was self - sponsored for the program. One had to pay much to effectively do certain aspects of the project, like typing, binding cost and programming cost.

CHAPTER TWO

LITERATURE REVIEW

An Overview

A good deal has been written on the evaluation of computers and information systems. According to A.X. Smith in his work listed four roads to computer profits. These are:- (a) Incremental benefit (b) reduced working capital (c) Improve use of resource capacity (d) Improve decision taking.

Also Bedford and Onsi said that information is traditionally applied and evaluated by the accountant. The accountant is likely to appreciate the uses and benefits of the information generated .

Computers do not operate in a vacuum, but are an integral part of our lives. They are capable of relieving us of boring and routine task.

John Dearden has explored the role of computer with great thoroughness and point out that, the digital computer is well suited to handling all kinds of problems which requires:-

(1) Many interacting variables

(2) Reasonably accurate values.

(3) Speed

(4) Repetition

(5) Large number of records to process.

THE FEASIBILITY STUDY

This was carried out to achieve certain relevant objectives which include thus:-

(a) To reduce the issue of Omission and otherwise of names of entire staff of the organisation.

(b) To avoid excessive duplication and manipulation of names of staff.

(c) To remove fraudulent practices among the users of the manual system.

(d) To allow proper reconciliation of accounts books at the end of each end of year closing of books.

(e) To have an up to date staff list of the organisation as a means of planning and management decision making.

(f) To reduce to the bearest minimum level the untimely preparation of payroll at the end of the month.

PROBLEMS WITH THE PRESENT SYSTEM

The current method of data processing and management in the organisation is the traditional manual system of accounting, processing of vouchers, files etc. With this method, many problems are identified in the following areas:-

(a) Large number of Employee

(b) Staff Training (cost of training is high).

(c) Prove to many human errors.

(d) Rather very slow

(e) Storage in terms of files kept by different department often locate audit problems during checking by the auditors.

MANUAL PREPARATION OF PAYROLL

The requirements for the preparation of payroll manually for an organisation includes:-

- Copy of staff strength
- Payroll form,
- Personal Emolument form
- Payslips form and data for the entries

The staff strength is the total listing of employee whose names are to be included in the payroll of the establishment, the staff are usually listed according to their departments. It is usually prepared by the personnel department of the organisation and later said to the accounts department.

The staff strength is updated every month to reflect the current staff that should be included on the payroll.

The entries are classified into four groups are follows:-

(a) ***Earnings***:- This includes basic salary, acting allowance, overtime and salary arrears.

(b) ***Taxation:***- This involves the computation of the tax due.

(c) ***Deductions:***- This includes all loans and advances that must have been given to staff. They include motor vehicles advance, Rent/water, Housing Loan, Salary advance, Touring advance and car refurbishing.

(d) ***Non-Taxable Payments*** - This includes all allowances or payment accured to the employee, such as, leave grant, Housing allowance, Transport allowance, Night allowance, Meal subsidy, children allowance

CHAPTER THREE

SYSTEMS ANALYSIS AND DESIGN

Introduction

The detail investigation of the present system or the exploratory survey, commonly referred to as system analysis, involves collecting, organizing and evaluating facts about the present system and the environment in which it operates.

This section considers the logical design of the proposed system which contains the design specification of the system. It focuses on the features of the system in relations to the output specification, input specification, files and procedures.

The importance of doing a thorough exploratory survey cannot be over emphasised. It is extremely essential for the future well -being of the orgsanisation that this time - consuming must be done accurately and methodically.

TESTING THE PROJECT FEASIBILITY

Testing or a review of the methods and procedure of the present project feasibility is necessary. The purpose of such a test is to verify that the outlined benefit are, infact, being achieved.

(1) Operational feasibility:- This is concerned with the workability of the proposed system. When developed and installed, generally what is considered is that, the project has to receive the support of the management and user.

(2) ***Technical Feasibility***:- This seeks to clarify of the proposed project can be done with the current equipment, existing software and personnel.

(3) ***Financial/Economical Feasibility***:- This aspect is taken into consideration to access cost of implementing a proposed project along side with the benefit to be derived from implementing it.

REQUIREMENT SPECIFICATION FOR THE PROPOSED NEW SYSTEM

Requirement for the proposed new system is a feature that must be included in a new system. The requirement determination entails studying the existing system and collecting detailed information about the system so as to find out what their requirement are:-

Requirement determination consist of three activities which must be adhered to:-

(1) ***Requirement Anticipation***:- These are problems or features that the analyst wished the new system to have as a result of the analysts previous experience.

(2) ***Requirement Investigations***:- This activity used variety of tools and skills to study current system and document its features for future analysis.

(3) ***Requirement Specification***:- This activity leads to description of features for a new system based on the analysis of data produced during the fact - finding investigation.

In line with this, Requirement Specification should be thoroughly done, for the quality of the work performed at this point would reflect later in the characteristic of the new system evolved.

SYSTEM ACTIVITIES - REQUIREMENT

Basically there are two levels of activities in requirement determination

(1) ***User Transaction Requirements***:- This transaction level captures, processes and stores data. To understand the transaction requirement of a system, a relevant enquiries should be made.

(2) ***User Decision Requirement***:- This utilizes process (UTR) to provide new information for decision making. Timing, Frequency, Specific information needed to make decision, its source, method of processing and how information ought to be presented are basic to the UDR.

COST BENEFIT ANALYSIS OF THE NEW SYSTEM

(1) HARDWARE PROCUREMENT

486 DX 2/66/MH2 processor	190,000.00
14" MONITOR	60,000.00
CPU	160,000.00
102, UK KEYBOARD	35,000.00
Laser Jet Printer 6L	55,000.00

UPS (1000 KV)	50,000.00
Mouse Pad	3,000.00
	₦553,000.00

(2) **SOFTWARE**

Word Processor (6.1 Version)	20,000.00
DBase Program	25,000.00
Current WINDOW	15,000.00
	60,000.00

(3) **DEVELOPMENT COST**

System Analysis and Design for 4wks	
at ₦7,000/week	28,000.00
Software Development for 4wks at ₦5,000	20,000.00
Personnel Training & development for	
4 wks ₦5,000	40,000.00
(4 personnel Regd)	***88,000.00***

OPERATING COST

-	Consumable for 1 yr	100,000.00
	(stationeries, Diskettes etc)	
-	2 Store officers	120,000.00
-	Utilities	25,000.00
-	3 A/c (2 HP)	120,000.00
-	Miscellaneous Expenses	50,000.00
		109,000.00

OVERALL COST = ***₦810,000.00***

SYSTEM BENEFIT

(1) Reduction in the use of stationeries

(2) Sorting and arranging of information in various ways can be done easily and quickly.

(3) Reduction in printing of Bin cards, ledgers and kalamazzo binder.

(4) Recovery from over time

(5) Elimination of many repetitive work of book - keeping.

(6) Automatic updating of records and maintenance.

CHAPTER FOUR

SOFTWARE/PROGRAM DEVELOPMENT

Introduction

This is the stage of Program development and implementation when the conceptional requirement of the new system and the overall objectives are to be transformed into physical reality. This stage is very important because it is the most crucial stage in achieving a successful new system.

CHOICE OF LANGUAGE

The programming language used for this project is Dbase IV.

Dbase IV is database management system, a powerful tool for managing data, this means that vast amount of information can be stored, related manipulated and retrieved with speed and efficiency.

FEATURES OF LANGUAGE CHOSEN

(1) It provides a full relational database environment to users.

(2) Data can be verified automatically as they are entered into field, up to 255 field can be specified per record.

(3) Pop - up menus and windows can be designed.

(4) It has a larger number of memory variables, user - defined functions up to 99 files can be opened at a time.

(1) HARDWARE REQUIREMENTS

The proposed system requires the followings:-

(a) Personal computer 836 main processor

(b) RAM 16 mB

(c) Floppy disk Drive - 3.5/5.25

(d) Colour monitor

(e) Laser Jet Printer (AL least 5L or 6L)

(f) Stabilizer 500 VA

(g) UPS 2000 VA

(2) SOFTWARE REQUIREMENT

(a) MS - Dos 6.0/6.1 version

(b) WINDOW 95/96 Version

(c) TEXT EDITOR (MS - DIS)

(d) DBASE IV/FOX PRO/CLIPPER

STAFF TRAINING

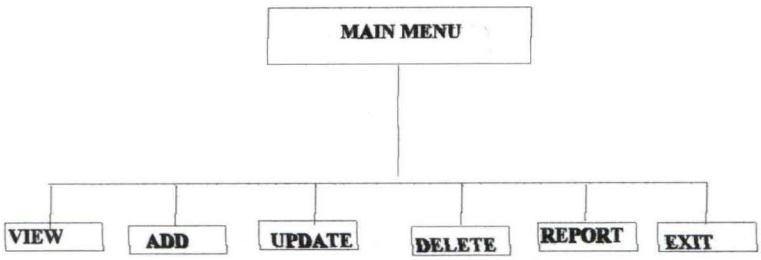
The amount and period of training for this system will depend upon its complexity and the available skill on the ground presently.

The proposed system will be Users-friendly. However, it is necessary to have an in-house training for the various personnel in the organisation.

The training will cover areas like Basic computing and operation guidelines

THE MAIN MENU

The main menu in the new system is made up of six options viz:- View record, Add record, Update record, Delete record, Report generation and Quit.



At this main menu, the system will prompt the user to enter the first letter of any of the available option to pick a choice.

STARTING THE SYSTEM

To operate the system written in DBASE IV, it could be accessed as follows:-

(1) Type DBase at the prompt to display the control center.

(2) Press ESC key to take you to the Dos Prompt

(3) At the Dos prompt type:-

CD/DBase IV press ENTER.

This is to change the directory to the DBase IV directory, when the following message appears:-

for the accounts staff in general. This training should not exceed four weeks of rigorous practical in the usage of the designed packages.

SYSTEM TESTING

System Testing is a vital stage in program implementation. This involves the use of test data on the new system in order to ensure that system works accurately and efficiently before live operation commences.

System testing serves as a confirmation that all is quite okay and correct as well as an opportunity to show the users that the system works as required.

SYSTEM CONVERSION

The following approaches could be used during conversion:-

(1) ***Parallel Approach***:- This is a method whereby the old method is operated simunitaneously for sometime with the new system to make sure that the new system meets the requirements that the old system has been meeting all along and to determine whether the new system will be able to stand the test of time.

(2) ***Direct Method***:- This is a method where the old system is discontinued and the new system becomes operational immediately.

(3) ***Piecemeal Approach***:- This is a method whereby changing to a new system is done gradually until the desired result is installed in other parts of the organisation gradually.

Based on the above approaches, the Parallel method was recommended.

C:/DBASE IV

then type

DO PAYROLL ENTER.

A screen then appears with messages on how to process the PAYROLL

VIEWING STAFF RECORD

This allows the user to see an existing record and it is done by first entering the staff number of the employee.

(2) ***ADDING STAFF RECORD***

This submenu will afford the user an opportunity to add new payroll data into the system.

(3) ***UPDATE***:- The update menu is used to update all the reference files used in the system. Once this menu is selected, updating is carried out by the user.

(4) ***Report generation***:- this option offers an opportunity to the users to prints out any of the reports that is to be generated by this system. Once this option is chosen, the required report required can be generated either on an individual or the entire staff strengthen.

(5) **EXIT/QUIT**:

Once this option is chosen, the user is taken back to the main menu. With that the whole work is done and the user is taken back to Dos prompt.

OUTPUT SPECIFICATION

Output refers to the results and information that are generated by the system. The output from a computer system are required primarily to communicate the results of processing to users or other system.

The output will generate the following reports:- Payslip advice, Payroll total, deduction list, staff list, annual/monthly returns of PAYE.

INPUT SPECIFICATION

The following are the main input specification for the system:

a. The Employees Personal Records

b. Allowances Tables

c. Tax Deduction Tables.

d. Advance/Loans files.

CHAPTER FIVE

SUMMARY, CONCLUSION & RECOMMENDATIONS

Computerization in any organisation is carried out with the hope of eliminiting or reducing to certain minimum level the use of manual method in carrying out its activities. It is also done with the sole aim of improving the speed, accuracy and efficiency in collection, manipulation, storage, reporting and dissemination of data.

Indeed, with automation, reports can be generated in good time, thus enabling the organisation to take quick and effective decision over her financial obligations.

RECOMMENDATIONS

Systems are bound to face changes, as technology, economy, and society change, therefore, the new system should be modified from time to time. The following are been recommended:-

(1) The hardware requirements for this new system should be provided immediately.

(2) The users/operators of this systems needs to be travel for about 4 weeks on the proper usage, maintenance ethics of the system.

(3) The organisation should endeavour to see their all activities connected with funds and accounting are fully computerised to ensures proper accountability.

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COMPUTE.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
@ 0,0 TO 24,79 DOUBLE
@ 2,20 TO 5,50 DOUBLE
@ 3,30 SAY "COMPUTATIONS"
*SET COLO TO W+/BG,W+/B+
MEMPNUM = SPACE(10)
MEMPNAM = SPACE(15)
MDAT = CTOD("  /  /  ")
MHRS = 0
MTYPOVAT = SPACE(1)
MRAT = 0
MEMOL1 = 0
MEMOL2 = 0
MEMOL3 = 0
MEMOL4 = 0
MALLOW = 0
MBONU = 0
MFIXEMO = 0
MTAX = 0
MOVAT =0
MVAREMOL = 0
MGROS = 0
MNET = 0
MASSINC = 0
MNPF = 0
MCPF = 0
MTAXINC = 0
MUNIDUE = 0
MTOTDED = 0
USE TRANFILE
DO WHILE .T.
    @ 5,63 SAY "DATE:" GET MDAT
    @ 7,2 SAY "EMPLOYEE NUMBER:" GET MEMPNUM
    @ 7,40 SAY "FIXED EMOLUMENTS"
    @ 8,40 SAY "----------------"
    @ 9,2 SAY "EMPLOYEE NAME:" GET MEMPNAM
    @ 9,40 SAY "BASIC SALARY:" GET MEMOL1 PICT "99,999.99"
    @ 10,2 SAY "VARIABLE EMOLUMENT"
    @ 10,40 SAY "HOUSING ALLOWANCE:" GET MEMOL2 PICT "99,999.99"
    *@ 11,3 SAY "---------------------"
    @ 12,2 SAY "HOURS WORKED:" GET MHRS PICT "999"
    @ 12,40 SAY "TRANSPORT ALLOWANCE:" GET MEMOL3 PICT "99,999.99"
    @ 13,2 SAY "BONUS:" GET MBONU PICT "99,999.99"
    @ 13,40 SAY "LUNCH ALLOWANCEE:" GET MEMOL4 PICT "99,999.99"
    @ 14,2 SAY "OVERTIME        :"
    @ 14,40 SAY "TOTAL EMOLUMENT:"
    @ 15,2 SAY "VARIABLE EMOLUMENT:"
    @ 15,40 SAY "LEAVE ALLOWANCE:" GET MALLOW PICT "99,999.99"
    @ 16,2 SAY "ENTER RATE:" GET MRAT PICT "99,999.99"
```

```
    @ 16,40 SAY "PAYEE TAX:"
    @  18,2  SAY  "TYPE  OF  OVERTIME(Normal/Weekend/Pubic):"  GET
MTYPOVAT PICT "@!"
    @ 19,2 SAY "GROSS:"
    @ 19,40 SAY "NET PAY:"
    READ
    @ 20,4 CLEAR TO 23,74
    @ 20,4 TO 23,74 DOUBLE
    ANS=SPACE(1)
    @ 21,20 SAY "ARE ENTRIES CORRECT?(Y/N)" GET ANS
    READ
    IF ANS $ "nN"
       @ 20,4 CLEAR TO 23,74
       LOOP
    ELSE
    IF ANS $ "yY"
       MFIXEMO = MEMOL1+MEMOL2+MEMOL3+MEMOL4

     IF MTYPOVAT $ "nN"
       MOVAT = MHRS*MRAT
     ELSE
     IF MTYPOVAT $ "wW"
       MOVAT = MHRS*MRAT*1.5
     ELSE
     IF MTYPOVAT $ "pP"
       MOVAT = MHRS*MRAT*2
     ELSE
      LOOP
  ENDIF
  ENDIF
  ENDIF
   MNPF = 0.4*MEMOL1
   MUNIDUE = 0.2*MEMOL1
   MCPF = 0.5*MEMOL1
   MTOTDED = MTAX+MNPF+MUNIDUE+MCPF
   MGROS = MFIXEMO+MOVAT+MBONU
   MASSINC = MGROS-(MNPF+MCPF)
   MTAXINC = MASSINC-MTAX
   MVAREMOL = MOVAT + MALLOW
   *DO PAYTAX
  DO CASE
   CASE MGROS <=0
      MTAX = MGROS * 0.05
   CASE MGROS <2000
      MTAX = MGROS * 0.1
   CASE MGROS >=2000
      MTAX = 2000 * 0.1 + (MGROS - 2000) * 0.1
   CASE MGROS <=4000
      MTAX = 2000 * 0.1 + (MGROS - 2000) * 0.15
   CASE MGROS <=6000
      MTAX = 2000 * 0.1 + 2000 * 0.15 + (MGROS - 4000) * 0.2
   CASE MGROS <=8000
      MTAX = 2000 * 0.1 + 2000 * 0.15 + 2000 * 0.2 +(MGROS - 6000)
* 0.25
```

```
   CASE MGROS <=10000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ (MGROS - 8000) * 0.30
   CASE MGROS <=12000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ 2000 * 0.3 + (MGROS - 10000) * 0.35
   CASE MGROS <=14000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ 2000 * 0.5 + 2000 * 0.35 + (MGROS - 12000) * 0.4
   CASE MGROS <=16000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ 2000 * 0.3 + 2000 * 0.35 + 2000 * 0.4 + (MGROS - 14000) * 0.45
   CASE MGROS <=18000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ 2000 * 0.3 + 2000 * 0.35 + 2000 * 0.4 + 2000 * 0.45 + (MGROS -
16000) * 0.5
   CASE MGROS >=20000
      MTAX = 2000 * 0.10 + 2000 * 0.15 + 2000 * 0.2 + 2000 * 0.25
+ 2000 * 0.3 + 2000 * 0.35 + 2000 * 0.4 + 2000 * 0.45 + 2000 * 0.5
+ (MGROS - 1800) * 0.55
   *OTHERWISE
       *LOOP
   ENDCASE
   MNET = MFIXEMO+MVAREMOL+MGROS-MTOTDED
      @ 14,56 SAY MFIXEMO
      @ 16,55 SAY MTAX
      @ 14,20 SAY MOVAT
      @ 15,20 SAY MVAREMOL
      @ 19,20 SAY MGROS
      @ 19,55 SAY MNET
     ENDIF
     ENDIF
     DO REPLACE
     RETURN
ENDDO

PROCEDURE REPLACE
   SET CONS OFF
   @ 20,4 CLEAR TO 23,74
   STORE SPACE(1) TO ANS1
   @ 21,10 SAY "SAVE RECORD NOW?(Y/N):" GET ANS1
   READ
   SET CONS ON
   IF ANS1 = "Y"
    LOCATE FOR EMPNUM = MEMPNUM
    IF .NOT. FOUND()
      APPEND BLANK
      REPL EMPNUM WITH MEMPNUM
      REPL EMPNAM WITH MEMPNAM
      REPL DAT WITH MDAT
      REPL HRS WITH MHRS
      REPL TYPOVAT WITH MTYPOVAT
      REPL RAT WITH MRAT
      REPL EMOL1 WITH MEMOL1
```

```
        REPL EMOL2 WITH MEMOL2
        REPL EMOL3 WITH MEMOL3
        REPL EMOL4 WITH MEMOL4
        REPL ALLOW WITH MALLOW
        REPL BONU WITH MBONU
        REPL FIXEMO WITH MFIXEMO
        REPL TAX WITH MTAX
        REPL OVAT WITH MOVAT
        REPL VAREMOL WITH MVAREMOL
        REPL GROS WITH MGROS
        REPL NET WITH MNET
        REPL ASSINC WITH MASSINC
        REPL NPF WITH MNPF
        REPL CPF WITH MCPF
        REPL TAXINC WITH MTAXINC
        REPL UNIDUE WITH MUNIDUE
        REPL TOTDED WITH MTOTDED
     ENDIF
    ENDIF
WAIT
USE
RETURN
```

MASTER.PRG

```
SET TALK OFF
SET CONSOLE OFF
SET BELL OFF
SET STATUS OFF
STORE SPACE(10) TO MEMPNUM,MNAME
STORE SPACE(4) TO MINIT
STORE SPACE(1) TO MSEX,MMARITSTA,MEMPCAT,MPAYMODE
STORE SPACE(10) TO MNPFNUM
STORE SPACE(8) TO MBANKACC
MDATEMPL = CTOD("  /  /  ")
STORE SPACE(15) TO MPOST
STORE SPACE(15) TO MQUALIF
USE MASTFILE
   CLEAR
SET COLO TO GR
@ 2,2 to 22,75 doub
@ 4,3 TO 4,74
SET COLOR TO BG
@ 3,3 SAY REPL(CHR(219),72)
I = 5
 DO WHILE I < 22
    SET COLOR TO B
    @I,3 SAY REPL(CHR(219),72)
    I = I + 1
    LOOP
 ENDDO
SET COLOR TO W

DO WHILE .T.
SET COLOR TO G/B
@ 3,30 SAY "MASTER FILE"
SET COLOR TO GB/RB
@ 7,6  SAY "EMPLOYEE NUMBER" get mempnum
@ 9,6 SAY "EMPLOYEE NAME" get mname
@ 11,6 SAY "EMPLOYEE INITIAL" get minit
@ 13,6 SAY "SEX" get msex
@ 15,6 SAY "POST HELD" get mpost
@ 17,6 SAY "DATE EMPLOYED" get mdatempl
@ 7,40 SAY "QUALIFICATION" get mqualif
@ 9,40 SAY "MARITAL STATUS" get mmaritsta
@ 11,40 SAY "NPF NUMBER" get mnpfnum
@ 13,40 SAY "EMPLOYEE CATEGORY" get mempcat
@ 15,40 SAY "BANK ACCOUNT" get mbankacc
@ 17,40 SAY "PAY MODE" get mpaymode
read
ANS1 = " "
    @ 19,25 SAY "ARE THE ENTRIES CORRECT(Y/N):" GET ANS1
    READ
    IF UPPER(ANS1) = "Y"
       REPL EMPNUM WITH mempnum
       REPL NAME WITH mname
       REPL INIT WITH minit
```

```
        REPL SEX WITH msex
        REPL POST WITH mpost
        REPL DATEMPL WITH mdatempl
        REPL QUALIF WITH mqualif
        REPL MARITSTA WITH mmaritsta
        REPL NPFNUM WITH mnpfnum
        REPL EMPCAT WITH mempcat
        REPL BANKACC WITH mbankacc
        REPL PAYMODE WITH mpaymode
     ENDIF
       ans = " "
       @ 19,25 CLEAR TO 19,60
       @ 19,25 SAY "MORE RECORDS (Y/N)" GET ANS
       SET COLOR TO W
       READ
       IF ANS = "Y"
          LOOP
       APPEND BLANK
       ELSE
          EXIT
       ENDIF
ENDDO
USE MASTFILE
RETURN
SET STAT ON
SET TALK ON
SET BELL ON
```

PAYROLL.PRG

```
clear
set status off
set talk off
set bell off
set date to british
set console off
set echo off
@ 2,2 to 23,79 doub
@ 3,20 say "A PAYROLL SYSTEM"
@ 4,3 to 6,78
@ 9,3 TO 9,78

 DEFINE MENU MNU
 DEFINE PAD ADD OF MNU PROMPT "ADD" AT 5,5
 DEFINE PAD EDIT OF MNU PROMPT "EDIT" AT 5,20
 DEFINE PAD DELET OF MNU PROMPT "DELETE" AT 5,35
 DEFINE PAD CALC OF MNU PROMPT "COMPUTE" AT 5,50
 DEFINE PAD EXT OF MNU PROMPT "EXIT" AT 5,65
 ON SELECTION PAD ADD OF MNU DO MASTER
 ON SELECTION PAD EDIT OF MNU DO MAST_EDIT
 ON SELECTION PAD DELET OF MNU DO MAST_DEL
 ON SELECTION PAD CALC OF MNU DO COMPUTE
 ON SELECTION PAD EXT OF MNU DO MAST_EXT
 ACTIVATE MENU MNU PAD ADD

 ********** EXIT PROCEDURE ******************
 PROCEDURE MAST_EXT
 DEACTIVATE MENU
 CLEAR
 RETURN

************ ADD PROCEDURE ********************
PROCEDURE MASTER
SET TALK OFF
SET CONSOLE OFF
SET BELL OFF
SET STATUS OFF
STORE SPACE(10) TO MEMPNUM,MNAME
STORE SPACE(4) TO MINIT
STORE SPACE(1) TO MSEX,MMARITSTA,MEMPCAT,MPAYMODE
STORE SPACE(10) TO MNPFNUM
STORE SPACE(8) TO MBANKACC
MDATEMPL = CTOD("  /  /  ")
STORE SPACE(15) TO MPOST
STORE SPACE(15) TO MQUALIF
USE MASTFILE
   CLEAR
SET COLO TO GR
@ 1,1 to 22,75 doub
SET COLOR TO BG
@ 3,3 SAY REPL(CHR(219),72)
I = 5
```

```
 DO WHILE I < 22
   SET COLOR TO B
   @I,3 SAY REPL(CHR(219),72)
   I = I + 1
   LOOP
 ENDDO
SET COLOR TO W

DO WHILE .T.
SET COLOR TO G/B
@ 3,30 SAY "MASTER FILE"
SET COLOR TO GB/RB
@ 7,6  SAY "EMPLOYEE NUMBER" get mempnum
@ 9,6 SAY "EMPLOYEE NAME" get mname
@ 11,6 SAY "EMPLOYEE INITIAL" get minit
@ 13,6 SAY "SEX" get msex
@ 15,6 SAY "POST HELD" get mpost
@ 17,6 SAY "DATE EMPLOYED" get mdatempl
@ 7,40 SAY "QUALIFICATION" get mqualif
@ 9,40 SAY "MARITAL STATUS" get mmaritsta
@ 11,40 SAY "NPF NUMBER" get mnpfnum
@ 13,40 SAY "EMPLOYEE CATEGORY" get mempcat
@ 15,40 SAY "BANK ACCOUNT" get mbankacc
@ 17,40 SAY "PAY MODE" get mpaymode
read
ANS1 = " "
    @ 19,25 SAY "ARE THE ENTRIES CORRECT(Y/N):" GET ANS1
    READ
    IF UPPER(ANS1) = "Y"
       USE MASTFILE
       APPEND BLANK
       REPL EMPNUM WITH mempnum
       REPL NAME WITH mname
       REPL INIT WITH minit
       REPL SEX WITH msex
       REPL POST WITH mpost
       REPL DATEMPL WITH mdatempl
       REPL QUALIF WITH mqualif
       REPL MARITSTA WITH mmaritsta
       REPL NPFNUM WITH mnpfnum
       REPL EMPCAT WITH mempcat
       REPL BANKACC WITH mbankacc
       REPL PAYMODE WITH mpaymode
    ENDIF
      ans = " "
      @ 19,25 CLEAR TO 19,60
      @ 19,25 SAY "MORE RECORDS (Y/N)" GET ANS
      SET COLOR TO W
      READ
      IF ANS = "Y"
         LOOP
      APPEND BLANK
      ELSE
         EXIT
```

```
      ENDIF
ENDDO
USE MASTFILE
SET STAT ON
SET TALK ON
SET BELL ON
@7,1 clear to 22,79
deactivate menu
return

**************** EDIT PROCEDURE ********************
PROCEDURE MAST_EDIT
@7,1 clear to 22,79
store space(10) to mempnum
@7,6 say "Enter employee number:" get mempnum
read
USE mastfile
locate for empnum=mempnum
if .not. found()
  store ' ' to que
  @22,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif

MEMPNUM=empnum
MNAME=name
MINIT=init
MSEX=sex
MMARITSTA=maritsta
MEMPCAT=empcat
MPAYMODE=paymode
MNPFNUM=npfnum
MBANKACC=bankacc
MDATEMPL=datempl
MPOST=post
MQUALIF=qualif
@ 7,6  SAY "EMPLOYEE NUMBER" get mempnum
@ 9,6 SAY "EMPLOYEE NAME" get mname
@ 11,6 SAY "EMPLOYEE INITIAL" get minit
@ 13,6 SAY "SEX" get msex
@ 15,6 SAY "POST HELD" get mpost
@ 17,6 SAY "DATE EMPLOYED" get mdatempl
@ 7,40 SAY "QUALIFICATION" get mqualif
@ 9,40 SAY "MARITAL STATUS" get mmaritsta
@ 11,40 SAY "NPF NUMBER" get mnpfnum
@ 13,40 SAY "EMPLOYEE CATEGORY" get mempcat
@ 15,40 SAY "BANK ACCOUNT" get mbankacc
@ 17,40 SAY "PAY MODE" get mpaymode
read
ANS1 = " "
    @ 19,25 SAY "SAVE CHANGES TO FILE?(Y/N):" GET ANS1
    READ
    IF UPPER(ANS1) = "Y"
```

```
        USE MASTFILE
        REPL EMPNUM WITH mempnum
        REPL NAME WITH mname
        REPL INIT WITH minit
        REPL SEX WITH msex
        REPL POST WITH mpost
        REPL DATEMPL WITH mdatempl
        REPL QUALIF WITH mqualif
        REPL MARITSTA WITH mmaritsta
        REPL NPFNUM WITH mnpfnum
        REPL EMPCAT WITH mempcat
        REPL BANKACC WITH mbankacc
        REPL PAYMODE WITH mpaymode
      ENDIF
    @ 7,1 clear to 22,77
    deactivate menu
    return

**************** DELETE PROCEDURE ********************
PROCEDURE MAST_DEL

@7,1 clear to 22,79
store space(10) to mempnum
@7,6 say "Enter employee number:" get mempnum
read
USE mastfile
locate for empnum=mempnum
if .not. found()
  store ' ' to que
  @22,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif

MEMPNUM=empnum
MNAME=name
MINIT=init
MSEX=sex
MMARITSTA=maritsta
MEMPCAT=empcat
MPAYMODE=paymode
MNPFNUM=npfnum
MBANKACC=bankacc
MDATEMPL=datempl
MPOST=post
MQUALIF=qualif
@ 7,6  SAY "EMPLOYEE NUMBER"
@ 7,25 SAY mempnum
@ 9,6 SAY "EMPLOYEE NAME"
@ 9,25 SAY mname
@ 11,6 SAY "EMPLOYEE INITIAL"
@ 11,25 SAY minit
@ 13,6 SAY "SEX"
```

```
@ 13,25 SAY msex
@ 15,6 SAY "POST HELD"
@ 15,25 SAY mpost
@ 17,6 SAY "DATE EMPLOYED"
@ 17,25 SAY mdatempl
@ 7,40 SAY "QUALIFICATION"
@ 7,56 SAY mqualif
@ 9,40 SAY "MARITAL STATUS"
@ 9,56 SAY mmaritsta
@ 11,40 SAY "NPF NUMBER"
@ 11,56 SAY mnpfnum
@ 13,40 SAY "EMPLOYEE CATEGORY"
@ 13,56 SAY mempcat
@ 15,40 SAY "BANK ACCOUNT"
@ 15,56 SAY mbankacc
@ 17,40 SAY "PAY MODE"
@ 17,56 SAY mpaymode
ANS1 = " "
    @  19,15  SAY  "ARE  YOU  SURE  YOU  WANT  TO  DELETE  THIS
RECORD?(Y/N):" GET ANS1
    READ
    IF UPPER(ANS1) = "Y"
       SET FILTER TO MEMPNUM=EMPNUM
       DELETE
       PACK
       @10,1 clear to 22,79
     use
    endIF
return
```

EARN.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   MNET = MFIXEMO+MVAREMOL+MGROS-MTOTDED
ENDDO
SET STAT ON
SET BELL ON
SET HEADING ON
SET TALK ON
RETURN
```

DEDUCT.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   MNPF = 0.4*MEMOL1
   MUNIDUE = 0.2*MEMOL1
   MCPF = 0.5*MEMOL1
   MTOTDED = MTAX+MNPF+MUNIDUE+MCPF
ENDDO
SET STAT ON
SET BELL ON
SET HEADING ON
SET TALK ON
RETURN
```

OVERTIME.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   IF MTYPOVAT .NOT. "NWP"
      LOOP
     ELSEIF
          MTYPOVAT = "N"
          MOVAT = MHRS*MRAT
       ELSEIF
            MTYPOVAT = "W"
            MOVAT = MHRS*MRAT*1.5
              ELSE
                 MOVAT = MHRS*MRAT*2
       ENDIF
    ENDIF
  ENDIF
ENDDO
SET STAT ON
SET BELL ON
SET HEADING ON
SET TALK ON
RETURN
```

PAYTAX.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   IF MGROS <=0
      MTAX = MGROS*0.05
   ELSEIF MGROS <2000
      MTAX = MGROS*0.1
   ELSEIF MGROS >=2000
      MTAX = 2000*0.1 + (MGROS-2000)*0.1
   ELSEIF MGROS <=4000
      MTAX = 2000*01 + (MGROS-2000)*0.15
   ELSEIF MGROS <=6000
      MTAX = 2000*0.1 + 2000*0.15 + (MGROS-4000)*0.2
   ELSEIF MGROS <=8000
      MTAX = 2000*0.1 + 2000*0.15 + 2000*0.2 +(MGROS-6000)*0.25
   ELSEIF MGROS <=10000
      MTAX  =  2000*0.10  +  2000*0.15  +  2000*0.2  +  2000*0.25
+(MGROS-80
00)*0.30
   ELSEIF MGROS <=12000
      MTAX = 2000*0.10 + 2000*0.15 + 2000*0.2 + 2000*0.25 + 2000*0.

3 + (MGROS-10000)*0.35
   ELSEIF MGROS <=14000
      MTAX = 2000*0.10 + 2000*0.15 + 2000*0.2 + 2000*0.25 + 2000*0.

5 + 2000*0.35 + (MGROS-12000)*0.4
   ELSEIF MGROS <=16000
      MTAX = 2000*0.10 + 2000*0.15 + 2000*0.2 + 2000*0.25 + 2000*0.

3 + 2000*0.35 + 2000*0.4 + (MGROS-14000)*0.45
   ELSEIF MGROS <=18000
      MTAX = 2000*0.10 + 2000*0.15 + 2000*0.2 + 2000*0.25 + 2000*0.

3 + 2000*0.35 + 2000*0.4 + 2000*0.45 + (MGROS-16000)*0.5
   ELSEIF MGROS >=20000
      MTAX = 2000*0.10 + 2000*0.15 + 2000*0.2 + 2000*0.25 + 2000*0.

3 + 2000*0.35 + 2000*0.4 + 2000*0.45 + 2000*0.5 +
(MGROS-1800)*0.55
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
   ENDIF
```

GROSINC.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   MGROS = MFIXEMO+MOVAT+MBONU
   MASSINC = MGROS-(MNPF+MCPF)
   MTAXINC = MASSINC-MTAX
ENDDO
SET STAT ON
SET BELL ON
SET HEADING ON
SET TALK ON
RETURN
```

VARIAB.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
   MVAREMOL = MOVAT + MLALLOW
ENDDO
SET TALK ON
SET BELL ON
SET HEADING ON
SET STAT ON
RETURN
```

FIXDEMOL.PRG

```
SET STAT OFF
SET BELL OFF
SET HEADING OFF
SET TALK OFF
DO WHILE .T.
 MFIXEMO = MEMOL1+MEMOL2+MEMOL3+MEMOL4
ENDDO
SET STAT ON
SET BELL ON
SET HEADING ON
SET TALK ON
RETURN
```