COMPUTERISED TRANSPORTATION INFORMATION SYSTEM

BY

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DECLARATION

I hereby declare that this thesis is an original work of mine and has never been presented elsewhere in any form for the award of Diploma or Degree certificate.

KOLADE M. YETUNDE

Certification

I certify that this work was carried out by Kolade M. Yetunde of Department of Mathematics/Computer Science Federal Universit of Technology, Minna.

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DEDICATION

THE PROJECT WORK IS DEDICATED TO GOD ALMIGHTY, BY WHOSE MERCY I AM ABLE TO SEE THIS DAY, MY PARENTS MR. D. M. KOLADE, MRS. M. KOLADE AND MRS. F. I. OLUFELO.

ABSTRACT

This write-up gives a full account of the work done on the computerisation of the transport information system of the Niger State Transport Authority (N.S.T.A).

The objective of the project is to improve the present transportation organization system, in order to be able to effectively monitor the movement of the vehicles, and the revenue generated as well as to ensure that the best services are offered to the masses.

A research was carried out by personal interviews with senior personels of N.S.T.A and the existing system was also looked into.

Finally the design work, which resulted into the development of a computer based TRANSPORTATION INFORMATION SYSTEM will give an optimum result, if utilized properly.

CHAPTER FOUR

CHAPTER FIVE

CHAPTER SIX

This project has endeavoured to explore these advantages of the computer by designing and developing a computer - based transportation system for the Niger State Transport Authority.

1.1 DEFINITIONS

Transportation: This is the conveyance of persons or property from one place to another. It has always been an important human activity from the most primitive to the most advanced stages of development.

Information: This is knowledge given or details about an event.

System: This is the group of things or parts working together in a regular relation. It is an ordered set of ideas, theories, principles etc.

1.2 NEEDS FOR ROAD TRANSPORTATION

The transportation of persons arises from the need of individuals to go from one place to another to satisfy some need, whether connected with business or related to social, cultural or recreational interests. The need for the conveyance of goods arises from the fact that they are often produced in one place and desired in another.

The distance between the location of goods and where they are desired, or between where an individual finds himself and where he wants to go, may be looked upon as an obstacle in time and cost. Transportation improvement, therefore, is focused on the objective of overcoming the difficulties inherit in distance. Other aspects, including safety, convenience, and comfort, may be important vallues as well as in improved transportation service. Any

The importance attached to the transport sector is not peculiar to Nigeria alone. Other developing countries have voted large sums of money to the sector. The developed countries , during their early stages of development, laid substantial emphasis on the transport sector with a view to enhancing social, cultural and economic development (Holyk, 1973).

It is, the general belief that for these heavy capital investments in transportation to be optimally productive, the transport network should be extended to all areas in the country be it rural or urban environment. It is of recent that most governments of developing countries are designing programmes aimed at developing their rural areas. In the past, this was not so because much more concentration was given to the urban sector which benefited only a small segment of the population, to the detriment of the rural majority. Transportation was identified to be a factor which can accelerate development with provision of social amenities. It was in recognition of this country (Nigeria) introduced the mass transist programme being implemented at state levels.

1.4 **RESEARCH METHODOLOGY**

The project was undertaken in stages. The various stages are outlined below.

(a) **Problem Definition:-** This involves determining exactly what the problem is, as the term implies, by personal interviews with senior personels of N.S.T.A. and the existing system was also looked into.

(b) **Feasibility study:-** The feasibility study was conducted on existing mass transportation management information system. Involving the detailed study of the existing documents. All the investigation carried out was by interview, discussions and observation of the system in operation. It is observed that there is inefficiency in the returns from drivers.

(c) **System Analysis:-** The objective of this stage is not to actually solve the problem, but to examine the system in depthe in order to analyse past strengths and weakness,determine information needs and the best methods by which they may be achieved. In this stage rough estimate of cost and benefits were also evaluated.

(d) **System Design:-** This stage is to determine inbroad from how the problem might be solved by using computer. Here we move from logical model to the physical. The answer to be given to the problem can be solved is crucial to both the user and the programmer. Next, is the development of the design system. From the design work a computer based system is developed to improve the present transportation management information system.

CHAPTER TWO

2.0 TRANSPORTATION IN NIGER STATE

2.1 History Of Transportation In Niger State

The importance of a good, effective and efficient transportation system of the country in general and Niger state in particular cannot be over - emphasised. A reliable and functional transit system is considered to be a key factor that contributes to the economic advancement of the country. Mass Transportation was not given priority by Niger State Government at the inception of the state in 1976 due to the deplorable condition of its roads. However, the state Government was virtually forced by circumstances to consider the implementation of this venture in 1981 when private transporters indiscriminately hiked transport fares at will.

In an attempt to break this monopoly, the state Government found it necessary to establish an urban bus service to provide a social service which was a delibrate policy to alleviate the sufferings of the public. This decision gave birth to the defunct Shiroro Line which operated as a semi parastatal under the supervision of state Ministry of Works and Transport. The management of Shiroro Line scheme was answerable to the Hon. Commissioner of the Ministry. The scheme took off smoothly initially only to be ridden with problems due to lack of adequate planning and proper execution. The bureaucratic tendencies of the civil service was grossly responsible for the failure of the scheme which eventually led to its collapse two years after it was established.

The Military administration of 1987/88 placed more emphasis on reconditioning roads as a first step towards realising a functional mass transit system instead of sinking more funds in the reactivation of Shiroro Line. Thus, more township roads were constructed and others rehabiliated. However, following the recent pronouncements by the Federal Military Government on the introduction of mass transit system in the country, the Niger State Government established the Niger State Transport Authoriy (N.S.T.A).

The decision to run Shiroro Line transport service purely as social service is appreciated, more so as it was designed to alleviate the sufferings of the general public. However, the new dispensation is not only to provide cheap and reliable transport service, but to ensure that enough revenue is generated to sustain its operation atleast at break - even.

Niger State Transport Authority officially took off August 13th, 1988 it is sited at the entrance of Minna town by the right of Paiko Major way.

2.2 PRESENT ORGANIZATIONAL CHART OF N.S.T.A

The organizational is the pictorial representation of Niger State Transport Authority structure. It is necessary to mention the principal duties and the responsibilities of the key positions in the N.S.T.A.

The sectional organizational chart is shown in figure 1 and may be summarised as follows.

The Niger State Transport Authority is headed by the Sole Administrator who liases with the state Government, and

Federal Urban Man Transit Program (F.U.M.T.P). Also he co-ordinates the activities of the Authority.

The Internal Auditor is resposible for auditing of payment vourcher (PV) before payments are effected.

The Traffic Manager does the routing of vehicles, that is he allocates routes to vehicles.

Operation Manager attends to fueling and lubrication. He supervises minor repairs and spare parts etc.

The Commercial Manager's function is to see to the revenue trend, passenger trend, issueing of tickets and giving quartely report to Federal Urban Man Transit Program.

Accounts Manager does the collection and banking of revenue, payments for debts and other expenses.

The Workshop Manager mainly repairs vehicle.

Administration Manager sees to the administration of the various units.

2.3 **VARIOUS SECTIONS IN N.S.T.A**

The Niger State Transport Authority is divided into five major sections by structure. They are as follows together with their functions:

(a) **Administration section:-** This section sees to the welfare of staff, co-ordinates the activities of other departments, taking minutes of meetings and responsible for any State Transport Authority's properties.

(b) **Accounts Section:-** This section is incharge of daily takings such as revenue. It is also in charge of expenses.

(c) **Workshop Section:-** This section is concerned with the daily maintenance of vehicles. This includes servicing of vehicles and keeping records of the vehicles maintained.

(d) **Operations Section:-** This is the largest department, it is incharge of inputs such as making available spare parts, engine oil, lubricants, fueling, Inssurance and taking care of accident cases. Also the daily movement of vehicles and Issueing of tickets are being done in this section. Furthermore, the department is responsible for Booking of conductors, allocating vehicles to drivers, keeping of operational records, monitouring of returns, studying new routes to see their viabilities or otherwise and advise the management accordingly.

(e) **Planning and Monitouring Section:-** About to be fully functional.

In general, the staff of N.S.T.A resume work by 6.00 a.m and close 7.00 p.m daily making twelve hours of operation per day. This practice is operated throughout the week (that is Sunday through Saturday).

2.4 SOURCES OF INCOME

The organization's sources of income include sales of tickets and hiring of vehicles out to individual requesting for them.

2.4.1 Sales Of Tickets

Sales of tickets for inter-state trips involve booking down a day ealier to the date you intend travelling. This booking process starts about 2.00 p.m everyday. No previous booking is required for intra-state trips.

2.4.2 **Hiring Of Vehicles Out**

The hiring of vehicles is done on demand and the prices are fixed on daily basis. The amount chargeable depends on the type of vehicle demanded for.

2.5 **N.S.T.A TICKET ISSUED CARD**

This is the form on which is manually maintained the records of the following:- the conductor's name and the vehicle number, the amount of tickets sold and unsold, together with dates, the signatories of the cashier and the conductor. A copy of the form is attached see (Appendix II).

2.6 **AREAS COVERED**

The areas where vehicles are allocated to are based on where more passengers are heading most. The factor includes socio-economic roles of the area concerned.

CHAPTER THREE

3.0 PROBLEMS AND INEFFICIENCIES OF PRESENT TRANSPORTATION SYSTEM.

3.1 SCARCITY OF FUEL

Oftentimes, scarcity of fuel is generally experienced in Niger State. Although NSTA maintains a private filling station, the organisation sometimes finds it difficult to get required petroleum products. This problem causes inefficiency of operation for the organisation.

3.2 BAD ROADS

Most routes being allocated to vehicles are bad. Yet the organisation is forced to render services to the passengers along such routes due to their large numbers. A Direct implication of these bad roads is the quick damage caused to the vehicles. This hinders the organisation from performing maximally.

3.3 INAPPROPRIATE MONITOURING SYSTEM OF TICKETS

Since the tickets are monitoured manually, it is prove to high mistakes in keeping the records, as such, there can be unofficial manipulations. It was observed that due to this lack of effective monitoring, drivers go and bring little or no returns, especially those operating the town service. Some drivers running inter-state carry extra passengers in order to fulfil their defraud attitude.

3.4 MANUAL MAINTENANCE OF STAFF RECORDS SYSTEM

There is rough handling of staff records since it is being maintained manually. It is possible that all these records kept on paper get loss, mistakenly torn, or even

misplaced and therefore difficult to trace. This leads to gross inefficiency, which need to be rectified.

3.5 **MANUAL MAINTENANCE OF ACCOUNTING SYSTEM**

The handling of the accounting system is also being done manually. This constitutes a problem for the day to day revenue generated. This causes inefficiencies like defrauding. In summary, arising from the foregoing problems and inefficiency, the need for computer aid, cannot be over emphasised. Specifically, if the transportation system is computerized, there will be an effective keeping of records monitouring of vehicle's movement, and the passengers needs.

CHAPTER FOUR

4.0 SYSTEM DESIGN

The system design stage, in general attempted to answer the question. "How should the problem be solved"?.

In designing the system, there were a number of criteria that were put into consideration, to make the system successful. The characteristics of meeting the design objectives include cost effectiveness and operating reliability, also the following attributes were noted for the successful system:

-Efficiency

-User friendliness

-Maintainability

-Flexibility

-System security

Efficiency: A major deficiency of the manual handling of the transportation management information system was the disregard for the cost of running the system. The computerised system was designed bearing in mind the need to improve the present manual system of the organization in order to be able to monitor the movement of the vehicles properly, as well as the returns while giving the best service to the masses.

User friendliness: This computerised system was so designed to be menu driven, giving the operator a choice of different transactions for implementation.

Maintainability: That is, ease of maintenance of the system. Maintenance is necessary in order to eliminate errors in operational model in use and to make changes requested

for by users of the proposed system. So this is ensure in the development of the programme.

Flexibility: This is been able to modify the system. A new system is expected to have a life span of several years. It has to operate in an environment that is dynamic rather that stastic. It was against these backgrounds that the basic design was as flexible as possible.

System security: Adequate cognizance was taken in building necessary system security to the computerised system, to prevent unauthorised users from using it.

4.1 INPUT DESIGN

This is the process of converting an external user oriented description of the inputs to the new system into a machine oriented format. Input design takes into account the human element in order to ensure fast and accurate data entry from the input document. (see chapter 5.4 for detailed layout of input specification).

4.2 OUTPUT DESIGN

Computer print charts and display system layout were used as the output design aids for the computerised system. Computer print charts show the contents and location of all lines of characters that are to be printed. (see chapter 4.4 for detailed output specifications).

4.3 ALGORITHM FOR THE MODULAR PROGRAM OF THE PROPOSED SYSTEM.

Start by displaying main menu

Choose an option

If option = P

```
            Display personel inform menu

          Else
            If option = A
               Display Acct inform menu
             Else
               If option = V
                  Display Vehicle inform menu
              Else
                 If option = R
                   Display  Route inform menu
                 Endif
             Endif
           Endif
        Endif
Display Personel inform menu
     Choose an option
       If option = D
        Do Data capture program
      Else
        If option = W
         Do Welfare inform program
      Else
        If option = DR
         Do DRiver record program
      Else
         If option = U
          Do Update record program
```

```
                Else
                    If option = RE
                     Do REport generation  program
                    Endif
                Endif
              Endif
            Endif
          Endif
        Display Vehicle inform menu
          Choose an option
            If an option = D
             Do Data capture program
           Else
            If option = M
             Do Maitenance program
           Else
            If option = U
             Do Update record program
           Else
            If option = RE
             Do REport generation program
           Else
            If option = E
               Exit
            Endif
          Endif
        Endif
      Endif
    Endif
```

```
Display Audit inform menu
  Choose an option
    If option = D
     Do Data capture program
      Else
       If option = F
        Do Financial update program
       Else
        If option = E
         Do Expenses analysis program
        If option = RE
         Do REport generation
        Endif
      Endif
    Endif
  Endif
Display Route inform menu
  Choose an option
   If option = I
    Do Inter program
  Else
   If option = IN
    Do INtra program
  Else
   If option = RE
    Do REport generation
   Endif
  Endif
Endif
End.
```

4.4 OUTPUT SPECIFICATION

VEHICLE INFORMATION

	FIELD NAME	TYPE	WIDTH	DEC
1.	CONDUCTOR'S NAME	CHARACTER	20	
2.	CASHIER'S NAME	"	20	
3.	VEHICLE NO	"	10	
4.	ROUTE	"	15	
5.	TICKET DENOMINATN	"	10	
6.	AMOUNT	NUMERIC	13	2
7.	TICKET SOLD	CHARACTER	10	
8.	TICKET UNSOLD	"	10	
9.	DATE RECEIVED	DATE	8	

ROUTE INFORMATION

	FIELD NAME	TYPE	WIDTH	DEC
1.	ROUTE	CHARACTER	12	
2.	DRIVER	CHARACTER	20	
3.	CONDUCTOR	"	20	
4.	DEPARTURE TIME	CHARACTER	6	
5.	DATE ARRIVED	DATE	8	
6.	TYPE OF VEHICLE	CHARACTER	10	
7.	NUMBER OF COMMUTERS	NUMERIC	3	
8.	RATE	"	5	
9.	REGISTRATION NO	CHARACTER	10	

4.6 PROGRAM CODING

```
*program :main menu
* Author : Yetunde M.Kolade
Set talk off
Set echo off
Clear
Store " " to REP
Do while .T.
STORE  'TRANSPORTATION INFO. SYSTEM MAIN MENU' to header2
header2 = ltrim(header2)
ctre = 40 - len(header2)/2
DO MENU
@4,ctre say header2
@ 8,28 Say "(P) Personel Information "
@ 10,28 Say "(V) Vehicles Information "
@ 12,28 Say "(A) Audit Information "
@ 14,28 Say "(R) Route Information "
@ 16,28 say "(E) Exit "
 Do while .not. REP $"PVRAEarevp"
 rep = ' '
@ 20,50 Say "Enter your choice " Get REP
Read
 Enddo
DO CASE
  Case upper (REP) ="P"
     DO PERSINFO
  Case upper(REP) ="V"
     DO VEHINFO
  Case upper(REP) ="A"
     DO AUDINFO
  Case upper(REP) ="R"
     DO ROUTINFO
  Case upper(REP) ="E"
     EXIT
ENDCASE
ENDDO
RETURN
****End of Program Main menu *********


*PROGRAM: PERSINFO
SET TALK OFF
SET ECHO OFF
CLEAR
STORE " " TO REP
store 'PERSONEL INFORMATION MENU' TO HEADER15
HEADER15 = LTRIM(HEADER15)
CTRE = 40 - LEN(HEADER15)/2
DO WHILE .T.
DO MENU
@4,CTRE SAY HEADER15
@8,15 SAY "(A) Add an Employee "
@9,15 SAY "(W) Employee Welfare Record"
```

```
@10,15 SAY "(D) Driver's Record"
@11,15 SAY "(U) Update/Edit Form"
@12,15 SAY '(R) Rrport Generation'
@13,15 SAY "(E) Exit"
@20,40 SAY " ENTER YOUR CHOICE" GET REP PICTURE '!'
READ
  DO WHILE .NOT. REP$" AWUDERrawude"
   REP =" "
   @20,40 SAY "ENTER YOUR CHOICE" GET REP PICTURE '!'
   READ
  ENDDO
 DO CASE
   CASE REP ="A"
   DO PERS01
  CASE REP ="W"
   DO PERS02
  CASE REP ="D"
   DO PERS03
  CASE REP ="U"
   DO PERS04
  CASE REP ="E"
     EXIT
  case rep ='R'
   do persrept
ENDCASE
ENDDO
close databases
RETURN
******* End of Program Persinfo *********

* PROGRAM: INTER
SET TALK OFF
SET ECHO OFF
STORE ' ' TO ANS
STORE SPACE(10) TO MROUTE, Mregno,MTYPE
STORE SPACE(15) TO MDRIVER,MCONDUCT
STORE SPACE(6) TO MDEPART
MDATE = CTOD("  /  /  ")
STORE 0.00 TO MRATE, MAMOUNT,MNCOMM
store 'INTER-STATES ROUTES ENTRY FORM' TO HEADER13
HEADER13 = LTRIM(HEADER13)
CTRE = 40 - LEN(HEADER13)/2
CLEAR
do menu
@4,ctre say header13
USE INTER.DBF
APPEND BLANK
@8,14 SAY "                Route:" GET ROUTE
@9,14 Say"         Driver's Name:" GET DRIVER
@10,14 SAY "   Conductor's Name:" GET CONDUCT
@11,14 SAY "     Departure Time:" GET DEPART
@12,14 SAY "  Date of Departure:" GET date
@13,14 SAY "    Type of Vehicle:" GET TYPE
@14,14 SAY "  Number of Vehicle:" GET REGNO
@15,14 SAY "Number of Commuters:" GET NCOMM
@16,14 SAY "                Rate:" GET RATE
READ
STORE ROUTE TO MROUTE
```

```
STORE REGNO TO MREGNO
STORE CONDUCT TO MCONDUCT
STORE DRIVER TO MDRIVER
STORE DEPART TO MDEPART
STORE DATE TO MDATE
STORE TYPE TO MTYPE
STORE NCOMM TO MNCOMM
STORE RATE TO MRATE
  DO WHILE .NOT. ANS$"YNyn"
  ANS = " "
  @20,40 SAY "CONFIRM YOUR ENTRIES.OK?(Y/N)" GET ANS
  READ
  ENDDO
 IF UPPER(ANS) ="N"
    LOOP
 ENDIF
MAMOUNT = MNCOMM * MRATE
REPLACE AMT WITH MAMOUNT,ROUTE WITH MROUTE,DRIVER WITH MDRIVER
REPLACE CONDUCT WITH MCONDUCT,DEPART WITH MDEPART,DATE WITH MDATE
REPLACE TYPE WITH MTYPE,REGNO WITH MREGNO,NCOMM WITH MNCOMM
REPLACE RATE WITH MRATE
CLEAR
@10,5 TO 15,70
@13,15 SAY ' ANYMORE ENTRIES ?(Y/N)' GET REP
READ
  DO WHILE .NOT. REP$ 'ynYN'
  REP = ' '
  @13,15 SAY ' ANYMORE ENTRIES ?(Y/N)' GET REP
  READ
  ENDDO
      IF UPPER(REP) = 'N'
        EXIT
      ENDIF
ENDDO
CLOSE DATABASES
RETURN
****** Program of Program Inter **********

* PROGRAM: PERS02
 SET TALK OFF
 SET ECHO OFF
 CLEAR
STORE ' ' TO REP
STORE SPACE(15) TO FIRSTNAME,LASTNAME
STORE 'WELFARE INFORMATION FORM' TO HEADER5
HEADER5 = LTRIM(HEADER5)
CTRE = 40 - LEN(HEADER5)/2
DO MENU
@4,CTRE SAY HEADER5
DO WHILE .T.
 @10,15 say  " ENTER EMLOYEE'S FIRSTNAME:" get FIRSTNAME
 @12,15 say  " ENTER EMPLOYEE'S LASTNAME:" get LASTNAME
 read
 @5,2 CLEAR TO 19,78
 USE PERS.DBF
 LOCATE FOR UPPER(FIRSTNAM)= UPPER(FIRSTNAME).AND.;
   UPPER(SURNAM)= UPPER(LASTNAME)
 IF EOF()
```

```
 @22,2 say "That employee's record does not exist."
 @23,10 say ' Press any key to continue...'
 read
EXIT
ENDIF
@3,5 SAY 'FIRST NAME'
@5,5 SAY 'AGE'
@7,5 SAY 'STATUS'
@9,5 SAY 'DESIGNATION'
@11,5 SAY 'DATE OF EMPLOYMENT'
@13,5 SAY 'ADDRESS:'
@16,5 SAY 'PHONE:'
@3,17 SAY FIRSTNAM
@5,9 SAY AGE
@7,12 SAY STATUS
@9,17 SAY DESIGNAT
@11,24 SAY DATE
@13,13 SAY ADDRESS
@14,13 SAY ADDRESS
@16,11 SAY PHONE
*@3,17 GET FIRSTNAM
*@5,9 GET AGE
*@7,12 GET STATUS
*@9,17 GET DESIGNAT
*@11,24 GET DATE
*@13,13 GET ADDRESS
*@14,13 GET ADDRESS
*@16,11 GET PHONE
@20,40 SAY "DO YOU WANT ANOTHER EMPLOYEE'S RECORD ?(Y/N)" GET REP
READ
IF UPPER(REP) ='Y'
 LOOP
ENDIF
EXIT
ENDDO
RETURN
******* End of Program Pers02 *********

*program: veh032.prg
set talk off
set echo off
store " " to rep
store space(10) to regnum,mregnum,mtype,mreptim,mavlt
store space(20) to mproblem,mprolem1
store 'VEHICLE MAINTAINANCE EDIT/UPDATE FORM' TO HEADER10
HEADER10 = LTRIM(HEADER10)
CTRE = 40 - LEN(HEADER10)/2
clear
DO MENU
@4,CTRE SAY HEADER10
do while .t.
@12,5 say " Enter vehicle registration number " get regnum
read
clear
DO MENU
@4,CTRE SAY HEADER10
use MAINTAIN
locate for regno = regnum
```

```
if eof ( )
@22,5 say " That vehicle does not exist. Press any key to continue ..
exit
endif
@8,5 say "Type of vehicle:"
@9,5 say 'Registration number:'
@10,5 say 'Problem:'
@11,5 say " Time due for repair:"
@13,5 say " Time due for use again:"
@ 8,21 say  Type
@ 9,28 say Regno
@ 10,13 say problem
@ 11,13 say problem1
@ 12,27 say reptim
@ 13,30 say avlt
@8,21 get mtype pict 'xxxxxxxxxx'
@ 9,28 get mregno pict 'xxxxxxxxxx'
@ 10,13 get mproblem pict 'xxxxxxxxxxxxxxxxxxxx'
@ 11,13 get mproblem1 pict 'xxxxxxxxxxxxxxxxxxxx'
@ 12,27 get mreptim pict 'xxxxxxxxxx'
@ 13,30 get mavlt pict 'xxxxxxxxxx'
do while .not. rep$ 'ynYN'
rep = ' '
@20,40 say 'Comfirmed ? (Y/N)' get rep pict '!'
read
enddo
  if rep ='N'
    rep = ' '
    loop
  else
replace regno with mregno,type with mtype
replace problem with mproblem,
replace problem1 with mproblem1,reptim with mreptim
replace avlt with mavlt
  endif
@20,40 say 'Want to Update another vehicle ?(Y/N)' get rep
read
do while .not. rep$'NYny'
rep = ' '
@20,40 say ' Want to Update another vehicle ?(Y/N)' get rep
read
enddo
   if upper(rep) = 'Y'
    rep = ' '
    clear
    loop
    endif
return
enddo
close databases
return
****** End of Program Veh032 *********

* PROGRAM: INTRA
SET TALK OFF
SET ECHO OFF
STORE ' ' TO ANS
STORE SPACE(10) TO MROUTE, Mregno,MTYPE
```

```
STORE SPACE(15) TO MDRIVER,MCONDUCT
STORE SPACE(6) TO MDEPART
STORE 0.00 TO MRATE, MAMOUNT
MDATE = CTOD("  /  /  ")
store 'INTRA-STATES ROUTES ENTRY FORM' TO HEADER13
HEADER13 = LTRIM(HEADER13)
CTRE = 40 - LEN(HEADER13)/
CLEAR
do menu
@4,ctre say header13
do while .t.
USE INTRA.DBF
APPEND BLANK
@8,14 SAY "                Route:" GET ROUTE
@9,14 SAY "       Driver's Name:" GET DRIVER
@10,14 SAY "   Conductor's Name:" GET CONDUCT
@11,14 SAY "     Departure Time:" GET DEPART
@12,14 SAY "   Date of Depature:" GET date
@13,14 SAY "    Type of Vehicle:" GET TYPE
@14,14 SAY "     Vehicle Number:" GET REGNO
@15,14 SAY "Number of Commuters:" GET NCOMM
@16,14 SAY "               Rate:" GET RATE
READ
STORE ROUTE TO MROUTE
STORE DRIVER TO MDRIVER
STORE CONDUCT TO MCONDUCT
STORE DEPART TO MDEPART
STORE DATE TO MDATE
STORE TYPE TO MTYPE
STORE REGNO TO MREGNO
STORE NCOMM TO MNCOMM
STORE RATE TO MRATE
  DO WHILE .NOT. ANS$"YNyn"
  ANS = " "
  @20,40 SAY "CONFIRM YOUR ENTRIES.OK?(Y/N)" GET ANS
  READ
  ENDDO
 IF UPPER(ANS) ="N"
    LOOP
 ENDIF
MAMOUNT = MNCOMM * MRATE
REPLACE AMT WITH MAMOUNT,ROUTE WITH MROUTE
REPLACE DRIVER WITH MDRIVER,CONDUCT WITH MCONDUCT
REPLACE DEPART WITH MDEPART,DATE WITH MDATE
REPLACE TYPE WITH MTYPE,REGNO WITH MREGNO
REPLACE RATE WITH MRATE,NCOMM WITH MNCOMM
CLEAR
@10,5 TO 15,70
@13,15 SAY ' ANYMORE ENTRIES ?(Y/N)' GET REP
READ
  DO WHILE .NOT. REP$ 'ynYN'
  REP = ' '
  @13,15 SAY ' ANYMORE ENTRIES ?(Y/N)' GET REP
  READ
  ENDDO
      IF UPPER(REP) = 'N'
        EXIT
      ENDIF
```

```
ENDDO
CLOSE DATABASES
RETURN
******** End of Program Intra **********

* PROGRAM: AUDREPT
SET TALK OFF
SET ECHO OFF
CLEAR
use audit
 L =6
do while .t.
set device to print
@2,50 SAY "N.S.T.A DAILY OPERATION RECORD"
@4,1 SAY "CONDUCTOR'S NAME "
@4,20 SAY " CASHIER'S NAME "
@4,40 SAY "VEHICLE NO."
@4,53 SAY " ROUTE"
@3,67 SAY " TICKET"
@4,67 say 'DENOMINATION'
*@4,85 SAY "AMOUNT"
*@4,100 SAY "TICKET SOLD"
*@4,112 SAY "TICKET UNSOLD"
*@4,124 SAY "DATE RECEIVED"
DO WHILE .NOT. EOF ()
@L,1 SAY CONDNAM
@L,20 SAY CASHNAM
@L,40 SAY REGNO
@L,53 SAY ROUTE
@L,67 SAY TICKDENO
*@L,85 SAY AMT
*@L,100 SAY TICKSOL
*@L,112 SAY TICKUNSOL
*@L,124 SAY DATE
 L = L+1
  DO WHILE  L > 21 .AND. .NOT. EOF ()
  WAIT SPACE(20) + 'Press any key to list other records'
  @5,0 CLEAR
  L = 6
  SKIP
  ENDDO
    SKIP
ENDDO
RETURN
***** End of Program Audrept ********

*PROGRAM:PER01
set talk off
Set echo off
 Clear
 Store " " to Ans,MSEX
 STORE SPACE(15) TO MSURNAM,MFIRSTNAM
 STORE SPACE(10) TO MCODENO,MDESIGNAT
 STORE SPACE(7) TO MSTATUS
 STORE 0 TO MAGE,MSALARY,MLOAN
 STORE SPACE(12) TO MPHONE
 STORE SPACE(20) TO MADDRESS,MADDRESS1,MADDRESS2
 MDATE = CTOD("  /  /  ")
```

```
 STORE  "EMPLOYEE'S INFORMATION DATA ENTRY FORM" TO HEADER4
HEADER4 = LTRIM(HEADER4)
CTRE = 40 - LEN(HEADER4)/2
DO MENU
@4,CTRE SAY HEADER4
DO While .T.
Use PERSAppend Blank
@ 8,10 Say "      Employee Surname:" Get Surnam
@ 9,10 Say "    Employee Firstname:" get firstnam
@ 10,10 say '  Employee code number:' get codeno
@ 11,10 say '           Employee sex:' get sex
@ 12,10 say '           Employee age:' get age
@ 13,10 say '        Employee status:' get status
@ 14,10 say '  Employee Designation:' get designat
@ 15,10 say '    Date of Employment:' get date
read
 STORE SURNAM TO MSURNAM
 STORE FIRSTNAM TO MFIRSTNAM
 STORE CODENO TO MCODENO
 STORE SEX TO MSEX
 STORE AGE TO MAGE
 STORE STATUS TO MSTATUS
 STORE  DESIGNAT TO MDESIGNAT
 STORE DATE TO MDATE
  do while .not. ans$ 'YnNy'
  ans = ' '
   @20,40 say 'comfirmed (Y/N)' get ans
   read
  enddo
 if upper (ans) = 'N'
   ANS = ' '
   loop
 endif
 @ 5,4 clear to 18,78
@ 8,10 say "  Employee's address:" get address
@ 9,33 get address1
@ 10,33 get address2
@ 11,10 say '          Phone number:'get phone
@ 12,10 say ' Number of dependants:' get depend
@ 13,10 say "    Employee's salary:" get salary
@ 14,10 say '       uncleared loan:' get loan
read
 STORE ADDRESS TO MADDRESS
STORE ADDRESS1 TO MADDRESS1
STORE ADDRESS2 TO MADDRESS2
 STORE PHONE TO MPHONE
STORE SALARY TO MSALARY
STORE LOAN TO MLOAN
STORE DEPEND TO MDEPEND
 @ 20,40 say 'Comfirmed (Y/N)' get ans
 do while .not. ans$'NYny'
  ans = ' '
    @20,40 say 'Comfirmed (Y/N)' get ans
  read
 enddo
   if upper(ans) = 'Y'
 REPLACE ADDRESS WITH MADDRESS,ADDRESS1 WITH MADDRESS1
REPLACE ADDRESS2 WITH MADDRESS2,SALARY WITH MSALARY
```

```
REPLACE LOAN WITH MLOAN,DEPEND WITH MDEPEND
REPLACE PHONE WITH MPHONE,SURNAM WITH MSURNAM
REPLACE FIRSTNAM WITH MFIRSTNAM,CODENO WITH MCODENO
REPLACE SEX WITH MSEX,AGE WITH MAGE,STATUS WITH MSTATUS
REPLACE DESIGNAT WITH MDESIGNAT,DATE WITH MDATE
 ANS = ' '
ENDIF
enddo
CLOSE DATABASES
RETURN
******* End of Program Per01 *********

*program: veh031.prg
set talk off
set echo off
store " " to rep
store space(10) to mregno,mchassno,mengno,mfuel,mtype
store 0 to mcapacity
store space(6) to mspeed
STORE 'VEHICLE EDIT/UPDATE FORM' TO HEADER12
HEADER12 = LTRIM(HEADER12)
CTRE = 40 - LEN(HEADER12)/2
store ' ' to rep,opt
DO MENU
@4,CTRE SAY HEADER12
@10,3 to 14,77
do while .not. opt$'vmVM'
opt = ' '
@12,10 say ' You want (V)ehicle file or (M)aintainance file;
Enter(V/M)?' get opt pict '!'
read
enddo
 if opt ="M"
    do veh032
endif
@5,3 clear to 19,78
@10,5 TO 15,75
do while .not. rep$ 'DdUu'
rep = ' '
@12,15 SAY 'Do you want to (D)elete or (U)pdate record ?'
@13,28 say ' Make your choice' get rep pict '!'
read
enddo
@5,3 clear to 19,78
@12,5 say " Enter vehicle registration number " get mregno
read
use vehicle
go top
locate for regno = mregno
if eof ( )
@22,5 say " That vehicle does not exist. Press any key to continue...
Read
exit
endif
 if rep = 'D'
  rep = ' '
  goto regno ()
  delete
```

```
  @22,15 say ' Record deleted, Press any key to continue...'
  read
  exit
  close databases
endif
@5,3 clear to 19,78
@8,5 say "    Type of vehicle:"
@9,5 say 'Capacity of vehicle:'
@10,5 say '    Chasses Number:'
@11,5 say "   Register number:"
@12,5 say "     Engine number:"
@13,5 say "       Speed limit:"
@14,5 say "         fuel used:"
@ 8,27 say  Type
@ 9,27 say capacity
@ 10,27 say chassno
@ 11,27 say regno
@ 12,27 say engno
@ 13,27 say speed
@ 14,27 say fuel
@ 8,27 get type
@ 9,27 get capacity
@ 10,27 get chassno
@ 11,27 get regno
@ 12,27 get engno
@ 13,27 get speed
@ 14,27 get fuel
store type to mtype
store capacity to mcapacity
store chassno to mchassno
store regno to mregno
store engno to mengno
store speed to mspeed
store fuel to mfuel
 do while .not. rep$ 'YNyn'
  rep = ' '
  @20,40 say 'confirm entries.ok?(Y/N)' get rep pict '!'
  read
 enddo
    if rep ='N'
      rep = ' '
     loop
  else
    goto regno()
    replace chassno with mchassno,capacity with mcapacity,
    replace  type with mtype, regno with  mregno,engno  with
    mengno,speed with mspeed,fuel with mfuel
  endif
@5,4 clear to 19,78
@10,5 to 15,75
do while .not. rep$'NYny'
rep = ' '
@20,30 say ' Want to Update another vehicle ?(Y/N)' get rep
read
enddo
   if upper(rep) = 'Y'
    exit
   endif
```

```
enddo
CLOSE DATABASES
return
******** End of Program Veh031 ********


* PROGRAM: AUDIT03
SET TALK OFF
SET ECHO OFF
CLEAR
 STORE " " TO REP
 store space(10) to Mregno
 store 0 to mgrosamt,mless,mfeedacc,mtollgate
store 0 to magcomm,mfuelub,mmisc,mnet
store 'EXPENSES ANALYSIS' TO HEADER17
HEADER17 = LTRIM(HEADER17)
CTRE = 40 - LEN(HEADER17)/2
DO MENU
@4,CTRE SAY HEADER17
do while .t.
 USE EXPENSE.DBF
 APPEND BLANK
@9,15 SAY "       VEHICLE NUMBER:" GET REGNO
@10,15 SAY "          GROSS AMOUNT:" GET grosAMT
@11,15 SAY "                  LESS:" GET LESS
@12,15 SAY "FEEDING/ACCOMMODATION:" GET FEEDACC
@13,15 SAY "            TOLL GATE:" GET TOLLGATE
@14,15 SAY "   AGENT'S COMMISSION:" GET AGCOMM
@15,15 SAY "      FUEL/LUBRICANTS:" GET FUELUB
@16,15 SAY " OTHER RECEIPTS(MISC):" GET MISC
@17,15 SAY "---------------------------------------"
@18,15 SAY "            TOTAL NET:" GET NET
@20,40 SAY " COMFIRM ENTRIES. OK?(Y/N) " GET REP PICTURE '!'
 READ
 STORE GROSAMT TO MGROSAMT,REGNO TO MREGNO,MISC TO MMISC
 STORE FUELUB TO  MFUELUB,FEEDACC TO MFEEDACC,LESS TO MLESS
 STORE AGCOMM TO MAGCOMM,NET TO MNET,TOLLGATE TO MTOLLGATE
  DO WHILE .NOT. REP$ 'YN'
  REP=' '
  @20,40 SAY " CONFIRM ENTRIES. OK?(Y/N) " GET REP PICTURE '!'
  READ
 ENDDO
 IF REP='Y'
  REP= ' '
  replace grosamt with mgrosamt,regno with mregno
  replace less with mless,feedacc with mfeedacc
  replace tollgate with mtollgate,agcomm with magcomm
  replace fuelub with mfuelub,misc with mmisc,net with mnet
  ENDIF
 REP=' '
@5,4 CLEAR TO 19,78
@10,5 TO 14,75
@12,30 SAY " ANY MORE ENTRIES ?(Y/N) " GET REP PICTURE '!'
READ
IF REP='N'
  EXIT
ENDIF
 ENDDO
```

```
 CLOSE DATABASES
RETURN
****** End of Program Audi03 ********


*PROGRAM:PERS03
 SET TALK OFF
 SET ECHO OFF
 CLEAR
 STORE " " TO ANS
 store 'PERSONEL INFORMATION UPDATE/EDIT FORM' TO HEADER6
 HEADER6 = LTRIM(HEADER6)
 CTRE = 40 - LEN(HEADER6)/2
 TODAY= CTOD("  /  /  ")
 DO WHILE .T.
 DO MENU
 USE PERS.DBF
 APPEND BLANK
 @8,5 SAY " EMPLOYEE' SURNAME "
 @9,5 SAY " EMPLOYEE'S FIRSTNAME "
 @10,5 SAY " EMPLOYEE'S CODENUMBER "
 @11,5 SAY " EMPLOYEE'S SEX "
 @12,5 SAY " EMPLOYEE'S AGE "
 @13,5 SAY " EMPLOYEE'S  STATUS "
 @14,5 SAY "EMPLOYEE'S DESIGNATION "
 @15,5 SAY " EMPLOYEE'S EMPLOYMENT DATE "
 @8,25 SAY SURNAM
 @9,27 SAY FIRSTNAM
 @10,27 SAY CODENO
 @11,21 SAY SEX
 @12,21 SAY AGE
 @13,24 SAY STATUS
 @14,31 SAY DESIGNAT
 @15,33 SAY TODAY
 @8,25 GET SURNAM
 @9,27 GET FIRSTNAM
 @10,27 GET CODENO
 @11,21 GET SEX
 @12,21 GET AGE
 @13,24 GET STATUS
 @14,31 GET DESIGNAT
 @15,33 GET TODAY
  REPLACE DATE WITH TODAY
DO WHILE .NOT. ANS$'NYny'
ANS = ' '
 @20,40 SAY " CONFIRMED(Y/N) " GET ANWSER
READ
ENDDO
 IF UPPER(ANS)='N'
 LOOP
  ENDIF
  ENDDO
    RETURN
 CLEAR
 DO WHILE .T.
DO MENU
@4,CTRE SAY HEADER6
@8,5 SAY "EMPLOYEE'S ADDRESS" GET ADDRESS
```

```
@9,22 GET ADDRESS1
@10,22 GET ADDRESS2
@11,5 SAY " PHONE NUMBER " GET PHONE
@12,5 SAY " NUMBER OF DEPENDANTS " GET DEPEND
@13,5 SAY "EMPLOYEE'S SALARY " GET SALARY
@14,5 SAY " UNCLEARED LOAN " GET LOAN
DO WHILE .NOT. ANS$'YNny'
ANS = ' '
@20,40 SAY " CONFIRMED(Y/N) " GET ANS
READ
ENDDO
 IF UPPER(ANS)='N'
   LOOP
  ENDIF
  EXIT
  ENDDO
RETURN
****** End of Program Pers03 *********

* PROGRAM: AUDIT01
 SET TALK OFF
 SET ECHO OFF
 SET DATE BRITISH
 CLEAR
 Mdate = CTOD("  /  /  ")
 STORE " " TO REP
 STORE SPACE(15) TO MCONDNAM,MCASHNAM
 STORE SPACE(10) TO MREGNO,MROUTE
 STORE 0 TO MTICKDENO,MAMT,MTICKSOL,MTICKUNSOL
 store 'ACCOUNTS DEPT. DAILY OPERATION ENTERY FORM';
       TO HEADER14
 HEADER14 = LTRIM(HEADER14)
 CTRE = 40 - LEN(HEADER14)/2
 DO MENU
 @4,CTRE SAY HEADER14
 DO WHILE .T.
 USE AUDIT.DBF
 APPEND BLANK
 @8,5 SAY "      CONDUCTOR'S NAME: " GET CONDNAM
 @9,5 SAY "        CASHIER'S NAME: " GET CASHNAM
 @10,5 SAY "       VEHICLE NUMBER: " GET REGNO
 @11,5 SAY "                ROUTE: " GET ROUTE
 @12,5 SAY " TICKET DENOMINATIONS: " GET TICKDENO
 @13,5 SAY "              AMOUNT: " GET AMT
 @14,5 SAY "         TICKET SOLD: " GET TICKSOL
 @15,5 SAY "       TICKET UNSOLD: " GET TICKUNSOL
 @16,5 SAY "       DATE RECEIVED: " GET TODAY
 READ
 STORE REGNO TO MREGNO,ROUTE TO MROUTE,TICKDENO TO MTICKDENO
 STORE AMT TO MAMT,TICKSOL TO MTICKSOL,
 STORE TICKUNSOL TO MTICKUNSOL,TODAY TO DATE
 DO WHILE .NOT. REP$ "YNyn"
  REP =" "
  @20,40 SAY " COMFIRM ENTRIES. OK?(Y/N) " GET REP
  READ
 ENDDO
 IF UPPER(REP)='N'
  rep = ' '
```

```
  LOOP
 ELSE
  REP=" "
  REPLACE CONDNAM WITH MCONDNAM,CASHNAM WITH MCASHNAM
  REPLACE REGNO WITH MREGNO,ROUTE WITH MROUTE
  REPLACE TICKDENO WITH MTICKDENO,AMT WITH MAMT
  REPLACE TICKSOL WITH MTICKSOL,TICKUNSOL WITH MTICKUNSOL
  REPLACE TODAY WITH MDATE
 ENDIF
@5,4 CLEAR TO 19,78
@10,5 TO 14,75
do while .not. rep$'nyNY'
rep = ' '
@12,30 SAY " ANY MORE ENTRIES ?(Y/N) " GET rep PICTURE '!'
read
enddo
 IF REP='N'
  EXIT
ENDIF
@5,4 CLEAR TO 19,78
ENDDO
CLOSE DATABASES
RETURN
******* End of Program Audit01 ********

*PROGRAM:VEH03.PRG
set talk off
set echo off
clear
store ' ' to rep,opt
STORE 'VEHICLE INFORMATION UPDATE/EDIT' TO HEADER7
HEADER7 = LTRIM(HEADER7)
CTRE = 40 - LEN(HEADER7)/2
DO MENU
@4,CTRE SAY HEADER7
@10,3 to 14,77
do while .not. opt$'vmVM'
opt = ' '
@12,10 say ' You want (V)ehicle file or (M)aintainance file;
Enter(V/M)?' get opt pict '!'
read
enddo
do case
   case opt ="V"
    use vehicle
    do veh031
   case opt ="M"
    close databases
    do veh032
endcase
close data base
return
****** End of Program Veh03 *******

* program: Veh01.prg
set talk off
set echo off
clear
```

```
store ' ' to rep
store space(10) to mtype,mchassno,mregno,mengno,mfuel
store space (6) to mspeed
store 0 to mcapacity
store 'NEW VEHICLE DATA ENTRY FORM' TO HEADER8
HEADER8 = LTRIM(HEADER8)
CTRE = 40 - LEN(HEADER8)/2
DO MENU
@4,ctre say header8
do while .t.
use vehicle
append blank
@ 8,15 say '    Type of vehicle: ' get type
@9,15 say 'capacity of vehicle: ' get  capacity
@ 10,15 say '     chasses number: ' get chassno
@ 11,15 say 'Registration number: ' get Regno
@ 12,15 say '      Engine number: ' get engno
@ 13,15 say '        Speed limit: ' get speed
@ 14,15 say '          Fuel used: ' get fuel
read
STORE TYPE TO MTYPE
STORE CAPACITY TO MCAPACITY
STORE CHASSNO TO MCHASSNO
STORE REGNO TO MREGNO
STORE ENGNO TO MENGNO
STORE SPEED TO MSPEED
STORE FUEL TO MFUEL
@ 20,40 say 'comfirm entries. Ok ? (Y/N)' get rep
  do while .not. rep$ 'YNyn'
  rep = ' '
  @ 20,40 say 'comfirm entries. Ok ? (Y/N)' get rep
  read
  enddo
    if upper(rep) = 'N'
       rep = ' '
       loop
    enlse
      rep = ' '
      replace type with mtype,regno with mregno
      replace chassno with mchassno,engno with mengno
      replace speed with mspeed,fuel with mfuel
      replace capacity mcapacity
   endif
@5,4 clear to 19,78
@10,10 to 14,70
@12,25 say " Anymore data ? (Y/N)"  get rep
read
if upper(rep) = 'N'
 exit
endif
@5,4 clear to 19,78
enddo
close databases
return
****** End of Program Veh01 ********
```

```
* PROGRAM: VEHINFO
SET TALK OFF
SET ECHO OFF
CLEAR
STORE " " TO REP,choice
STORE 'VEHICLE INFORMATION MENU' TO HEADER7
HEADER7 = LTRIM(HEADER7)
CTRE = 40 - LEN(HEADER7)
DO WHILE .T.
do menu
@4,CTRE SAY HEADER7
@8,20 SAY " (A) Add New Vehicles "
@9,20 SAY " (M) Maintainance Record"
@10,20 SAY " (U) Edit/Update Record "
@11,20 say ' (R) Report Generation'
@12,20 SAY " (E) Exit"
@20,40 say 'enter choice' get rep
read
 DO WHILE .NOT. REP$"AMUrREamue "
  REP = " "
  @20,40 SAY "Enter Your Choice " GET rep
  read
ENDDO
DO CASE
   CASE UPPER(REP) ="A"
        DO VEH01
   CASE UPPER(REP) ="M"
        DO VEH02
   CASE UPPER(REP) ="U"
        DO VEH031
    CASE UPPER(REP) ="E"
        EXIT
    CASE UPPER(REP) = 'R'
        DO VEHREPT
ENDCASE
ENDDO
CLOSE DATABASES
RETURN
****** End of Program Vehinfo *******


* PROGRAM: VEHREPT
 SET TALK OFF
 SET ECHO OFF
 CLEAR
 L =6
@2,20 SAY " NIGER STATE TRANSPORT AUTHORITY "
@4,1 SAY " VEHICLE TYPE "
@4,14 SAY " REGISTRATION NO."
@4,31 SAY " CHASSES NO."
@4,43 SAY " ENGINE NO."
@4,54 SAY " SPEED LIMIT "
@4,65 SAY " CAPACITY "
USE VEHICLE.DBF
DO WHILE .NOT. EOF ( )
@L,2 SAY TYPE
@L,15 SAY REGNO
```

```
@L,32 SAY CHASSNO
@L,44 SAY ENGNO
@L,55 SAY SPEED
@L,67 SAY CAPACITY
 L = L+1
 DO WHILE L > 21 .AND. .NOT. EOF ()
 WAIT SPACE(20) + 'Press any key to continue'
 @5,0 CLEAR
 L =6
 SKIP
 ENDDO
 SKIP
 ENDDO
CLOSE DATABASES
RETURN
****** End of Program Vehrept *******


* PROGRAM:ROUTREPT
SET TALK OFF
SET ECHO OFF
CLEAR
L =6
store ' ' to rep
STORE  'ROUTES REPORT GENERATION ' TO HEADER18
HEADER18 = LTRIM(HEADER18)
CTRE = 40 - LEN(HEADER18)/2
DO MENU
@4,CTRE SAY HEADER18
@10,3  TO 14,77
do while .not. rep$'12'
rep = ' '
@12,5 say  'You want Report for (1)Inter-state;
 or (2)intra-state. Enter (1 or 2)' get rep pict 'x'
read
enddo
if rep = '1'
 use inter
else
 use intra
endif
rep = ' '
@5,3 clear to 15,78
@10,5 to 14,75
do while rep$ 'PSps'
rep = ' '
@12,6 SAY 'Do you want your report on (S)creen;
 or sent to (P)rinter?. Enter (P/S)' get rep pict '!'
read
enddo
  if rep = 'P'
   set screen off
   set device to print
  endif
clear
@1,30 SAY " LIST OF N.S.T.A ROUTES "
@4,1  SAY " ROUTE "
@3,10  SAY " DRIVER'S"
```

```
@4,10 SAY ' NAME'
@3,26 SAY "CONDUCTOR'S"
@4,26 SAY 'NAME'
@3,40 SAY " TIME OF"
@4,40 SAY ' DEPARTURE'
@4,52 SAY " DATE "
@3,61 SAY " TYPE OF "
@4,61 SAY ' VEHICLE'
@3,71 SAY "NO.OF"
@4,71 SAY 'COMMUTERS'
*@4,88 SAY " RATE
DO WHILE .NOT. eof ()
@L,2 SAY ROUTE
@L,11 SAY DRIVER
@L,27 SAY CONDUCT
@L,42 SAY DEPART
@L,52 SAY DATE
@L,62 SAY TYPE
@L,71 SAY NCOMM
*@L,88 SAY RATE
L = L+1
 DO WHILE L > 21 .AND. .NOT. EOF ()
    WAIT SPACE(20) 'press any key to continue...'
    l = 6
    @5,0 clear
    SKIP
 ENDDO
  SKIP
  ENDDO
 @row(),0
 @row() + 1,0
  wait space(20) + ' Press any key to Quit'
  close databases
RETURN
***** End of Program Routrept *******

* PROGRAM: AUDINFO
 SET TALK OFF
SET ECHO OFF
STORE "    " TO REP
STORE 'AUDIT INFORMATION MENU' TO AUD
AUD = LTRIM(AUD)
CTRE = 40 - LEN(AUD)/2
DO WHILE .T.
DO MENU
@4,CTRE SAY AUD
@ 10,20 SAY " (D) Daily Operation Entery "
@ 11,20 SAY " (F) Finacial Update  Information"
@ 12,20 say ' (E) Expenses Analysis'
@ 13,20 SAY " (Q) Quit to Main Menu "
   DO WHILE .NOT. REP$ "DFEQqefd "
   REP =" "
   @ 20,40 SAY " Enter your choice " GET REP
   read
   Enddo
 DO CASE
     CASE UPPER(REP) ="D"
        DO AUDit01
```

```
      CASE UPPER(REP) ="F"
        DO AUDit02
      CASE UPPER(REP) ="E"
        DO AUDIT03
      CASE UPPER(REP) ="Q"
        EXIT
   ENDCASE
RETURN
ENDDO
****** End of Program Audinfo ******

* PROGRAM: MENU
SET TALK OFF
SET ECHO OFF
SET STATUS OFF
SET DATE BRITISH
CLEAR
STORE "COMPUTERIZED TRANSPORTATION INFORMATION SYSTEM ";
        TO HEADER1
@1,1 TO 3,79
HEADER1 = LTRIM(HEADER1)
CTR = 40-LEN(HEADER1)/2
SET COLOR TO *R/N
@2,CTR SAY HEADER1
SET COLOR TO
@4,1 TO 20,79 DOUBLE
@21,1 TO 24,79
@21,10 SAY "MESSAGE "
CLOSE ALL DATABASES
RETURN
***** End of Program Menu *******


* PROGRAM: PERS04
 SET TALK OFF
 SET ECHO OFF
 CLEAR
 STORE " " TO ANS
store space(6) to code
 store 'PERSONEL INFORMATION UPDATE/EDIT FORM' TO HEADER6
 HEADER6 = LTRIM(HEADER6)
 CTRE = 40 - LEN(HEADER6)/2
 TODAY= CTOD("  /  /  ")
 DO MENU
 @4,ctre say header6
 @13,5 say " Please enter Employee's code-number" get code;
           picture 'xxxxxx'
 read
 do while .t.
 USE PERS.DBF
 go top
 locate for code = codeno
 if eof ()
  @22,2 say ' That Employee does not exist or wrong code'
  @23,10 say 'Press any key to continue'
  read
  exit
 endif
```

```
 @8,5 SAY " EMPLOYEE' SURNAME "
 @9,5 SAY " EMPLOYEE'S FIRSTNAME "
 @10,5 SAY " EMPLOYEE'S CODENUMBER "
 @11,5 SAY " EMPLOYEE'S SEX "
 @12,5 SAY " EMPLOYEE'S AGE "
 @13,5 SAY " EMPLOYEE'S  STATUS "
 @14,5 SAY "EMPLOYEE'S DESIGNATION "
 @15,5 SAY " EMPLOYEE'S EMPLOYMENT DATE "
 @8,25 SAY SURNAM
 @9,27 SAY FIRSTNAM
 @10,27 SAY CODENO
 @11,21 SAY SEX
 @12,21 SAY AGE
 @13,24 SAY STATUS
 @14,31 SAY DESIGNAT
 @15,33 SAY TODAY
 @8,25 GET SURNAM
 @9,27 GET FIRSTNAM
 @10,27 GET CODENO
 @11,21 GET SEX
 @12,21 GET AGE
 @13,24 GET STATUS
 @14,31 GET DESIGNAT
 @15,33 GET TODAY
  REPLACE DATE WITH TODAY
DO WHILE .NOT. ANS$'NYny'
ANS = ' '
 @20,40 SAY " CONFIRMED(Y/N) " GET ANS
READ
ENDDO
 IF UPPER(ANS)='N'
 LOOP
  ENDIF
@5,2 clear to 19,78
@8,5 SAY "EMPLOYEE'S ADDRESS" GET ADDRESS
@9,22 GET ADDRESS1
@10,22 GET ADDRESS2
@11,5 SAY " PHONE NUMBER " GET PHONE
@12,5 SAY " NUMBER OF DEPENDANTS " GET DEPEND
@13,5 SAY "EMPLOYEE'S SALARY " GET SALARY
@14,5 SAY " UNCLEARED LOAN " GET LOAN
DO WHILE .NOT. ANS$'YNny'
ANS = ' '
@20,40 SAY " CONFIRMED(Y/N) " GET ANS
READ
ENDDO
 IF UPPER(ANS)='N'
   LOOP
  ENDIF
  EXIT
  ENDDO
RETURN
***** End of Program Pers04 *******
```

```
*program : veh02.prg
set talk off
set echo off
clear
store ' ' to rep
store space(20) to mproblem,mproblem1
store space(10) to mtype,mregno,mreptim,mavlt
store 'VEHICLE MAINTAINANCE RECORD FORM' TO HEADER9
HEADER9 = LTRIM(HEADER9)
CTRE = 40 - LEN(HEADER9)/2
do menu
@4,ctre say header9
do while .t.
 use maintain
 append blank
@8,5 say '            vehicle type:' get type
@9,5 say '    Registration number:' get regno
@10,5 say '          State problem:' get problem
@11,30 get problem1
@12,5 say '    Time due for repair:' get reptim
@13,5 say ' Time due for use again:' get avlt
read
store type to mtype
store regno to mregno
store problem to mproblem
store problem1 to mproblem1
store reptim to mreptim
store avlt to mavlt
@20,40 say 'Comfirm your entries. Ok ? (Y/N)' get rep
  do while .not. rep$'YNny'
  rep = ' '
  @20,40 say 'Comfirm your entries. Ok ?(Y/N)' get rep
  read
  enddo
   if upper(rep) = 'N'
      REP = ' '
      loop
   endif
     REP = ' '
     replace type with mtype,regno with mregno
     replace problem with mproblem,problem1 with mproblem1
     replace reptim with mreptim, avlt with mavlt
  @5,4 clear to 19,78
  @10,10 to 14,70
  do while .not. rep$ 'ynYN'
  rep = ' '
  @12,25 say ' ANY MORE DATA ?' GET  REP PICT '!'
  READ
  enddo
  IF REP = 'N'
    EXIT
  ENDIF
@5,4 clear to 19,78
enddo
RETURN
******** End of Program Veh02 ******

* PROGRAM: PERSREPT
```

```
 SET TALK OFF
 SET ECHO OFF
 CLEAR
 L =6
@2,15 SAY " NIGER STATE TRANSPORT AUTHORITY EMPLOYEE LIST "
@4,1 SAY " NAME "
@4,25 SAY " CODENO "
@4,38 SAY " SEX "
@4,43 SAY " STATUS "
@4,51 SAY " AGE "
@4,57 SAY " DESIGNATION "
@3,70 SAY " DATE "
@4,70 say 'EMPLOYED'
USE PERS.DBF
do while .not. eof ()
@L,1 SAY LTRIM(SURNAM) +' '+ LTRIM(FIRSTNAM)
@L,28 SAY CODENO
@L,40 SAY SEX
@L,46 SAY STATUS
@L,52 SAY AGE
@L,59 SAY DESIGNAT
@L,71 SAY DATE
 L = L+1
   do while L > 20 .and. .not. eof ()
    WAIT space(20)+ 'Press any key to view more'
    CLEAR
    L = 6
    LOOP
    SKIP
   ENDdo
  SKIP
  ENDDO
  @ROW(),0
  @ROW()+1, 0
  WAIT SPACE(25) + 'Press any key to quit'
close databases
RETURN
****** End of Program Persrept ********

* PROGRAM : ROUTINFO
  SET TALK OFF
  SET ECHO OFF
  CLEAR
  STORE " " TO REP
  store 'ROUTE INFORMATION MENU' TO HEADER3
  HEADER3 = LTRIM(HEADER3)
  CTRE = 40 - LEN(HEADER3)/2
  DO WHILE .T.
  DO MENU
  @4,CTRE SAY HEADER3
  @ 10,25 SAY " (A) Inter-State "
  @ 11,25 SAY " (B) Intra-State"
  @ 12,25 say ' (R) Report Generation'
  @ 14,25 SAY ' (E) Exit'
     DO WHILE .NOT. REP$ "RrABabEe"
        REP = " "
        @20,40 Say " Enter your choice" Get REP
        read
```

```
     ENDDO
  do case
     case upper(REP)="A"
         DO INTER
     case upper(REP) ="B"
         DO  INTRA
     case upper(rep) = 'R'
         do routrept
     case upper(rep) = 'E'
         EXIT
  endcase
    ENDDO
    RETURN
***** End of Program Routinfo ******

* PROGRAM: AUDIT02
 SET TALK OFF
 SET ECHO OFF
 CLEAR
 STORE SPACE(2) TO MDATE
  L=5
  STORE SPACE(2) TO REP
STORE 'AUDIT DEPARTMENT RECORD OF DAILY OPERATION';
          TO HEADER16
HEADER16 = LTRIM(HEADER16)
CTRE = 40 - LEN(HEADER16)/2
DO MENU
@4,CTRE SAY HEADER16
 DO WHILE .T.
USE AUDIT
@12,20 SAY " FOR WHAT MONTH DO YOU WANT THE VIEW " GET REP
Mdate = STR(MONTH(today),2)
@13,15 SAY " ENTER YOUR CHOICE FROM VALUE 1,2,...,12;
              FOR MONTHS "
READ
 GO TOP
 LOCATE FOR REP = Mdate
 IF EOF ( )
 @5,4  CLEAR TO 19,78
   @22,3 SAY " Sorry, there is no record for" +rep+"th;
           month in the database"
   WAIT SPACE(20) + 'Press any key to continue...'
   EXIT
 ENDIF
@5,4  CLEAR to 19,78
@3,1 SAY " COND.NAME "
@3,15 SAY " VEH.NO "
@3,25 SAY " TICKET DENO."
@3,35 SAY 'TICKET SOLD'
@3,45 SAY 'TICKET UNSOLD'
@3,55 SAY 'AMOUNT'
@L,1 CONDNAM
@L,18 SAY REGNO
@L,37 SAY TICKDENO
@L,48 SAY TICKSOL
@L,59 SAY TICKUNSOL
@L,68 SAY AMT
 L= L+1
```

```
   IF L > 21
   CLEAR
   L=5
   SKIP
  ENDIF
CONTINUE
ENDDO
CLOSE DATABASES
   RETURN
**** End of Program Audit02 *******
```

CHAPTER FIVE

5.0 SYSTEM DEVELOPMENT

5.1 DATABASE:

Database is a collection of useful information organized in a specific manner, such that it is independent of any particular program or application. This arrangement allows for elimination of data redundancy to a great extent.

DataBase Management System (DBMS) consists of a collection of programs which provides an environment both convinient and efficient for use in retrieving information from and storing information into a database.

5.2 REASON FOR DATABASE SYSTEM IN USE

DBASE III PLUS was used because, useful database application based on a relational model can easily be developed. So many applications involving the use of DBASE III PLUS are in use daily. This DataBase Management System is powerful and flexible in that it has the ability to sort and select data with ease.

Other advantages of DBASE III PLUS are:

-Speed of access over the whole file structure.

-By centralizing the data, it could be controlled and maintained as a whole.

-Reducing the amount of software needed to handle data.

5.3 ORGANIZATION OF THE DATABASE

Generally, there are three major ways a database can be organized, namely:-Hierarchical,Network structures and Relational model. For this work Relatioal method of

organization is used because it is more efficient. Relational database is of two - dimentional row and column for data independence.

5.4 INPUT SPECIFICATION

1. Structure for database: Vehicle.DBF

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Type of vehicle	Type	Character	10
2	Capacity of vehicle	Capacity	Numeric	3
3	Chasses number	Chassno	Character	8
4	Registration number	Regno	Character	10
5	Engine number	Engno	Character	10
6	Speed limit	Speed	Character	6
7	Fuel used	Fuel	Character	8

2. Structure for database: Maintain.DBF

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Vehicle type	Type	Character	10
2	Registration number	Regno	Character	10
3	State problem	problem	Character	20
4	Problem 1	Problem1	Character	20
5	Time due for repair	Reptim	Character	8
6	Time due for use again	Avlt	Character	8

3. Structure for database:Expenses.DBF

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Vehicle number	Regno	Character	10
2	Gross amount	GrosAmt	Numeric	10
3	Less	Less	Character	10
4	Feeding/accomodation	feedAcc	Numeric	10
5	Toll Gate	TollGate	Numeric	10
6	Agent's commission	Agcomm	Numeric	10
7	Fuel/Lubrications	Fuelub	Numeric	5
8	Other reciepts	Misc	Numeric	5
9	Total net	Net	Numeric	12

4. **Structure for database: Audit.DBF**

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Conductor's name	Condnam	Character	15
2	Cashier's name	Cashnam	Character	15
3	Vehicle number	Regno	Character	10
4	Route	Route	Character	10
5	Ticket deneminations	Tickdeno	Numeric	5.2
6	Amount	Amt	Numeric	10.2
7	Ticket sold	Ticksol	Numeric	10.2
8	Ticket unsold	Tickunsol	Numeric	10.2
9	Date received	Today	Date	8

5 **Structure for database: Pers.DBF**

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Employee surname	Surnam	Character	15
2	Employee firstname	Firstnam	Character	15
3	Employee code number	Codeno	Character	6
4	Employee sex	Sex	Logical	1
5	Employee age	Age	Numeric	3
6	Employee status	Status	Character	7
7	Employee designation	Designat	Character	10
8	Date of employment	Date	Date	8
9	Employee address	Address	Character	20
10	Employee address 1	Address	Character	20
11	Employee address 2	Address	Character	20
12	Phone number	Phone	Character	12
13	Number of dependants	Depend	Numeric	2
14	Employee salary	Salary	Numeric	10
15	Uncleared loan	Loan	Numeric	10

6. **Structure for database: Inter.DBF**

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Route	Route	Character	15
2	Driver	Driver	Character	20
3	Conductor	Conduct	Character	20
4	Departure time	Depart	Character	6
5	Date arrived	Date	Numeric	8
6	Type of vehicle	Type	Character	10
7	Number of commuters	Ncomm	Numeric	3
8	Rate	Rate	Numeric	5.2

7. Structure for database: Intra.DBF

FIELD NO	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Route	Route	Character	15
2	Driver	Driver	Character	20
3	Conductor	Conduct	Character	20
4	Departure time	Depart	Character	6
5	Date arrived	Date	Numeric	8
6	Type of vehicle	Vehicle	Character	10
7	Registration number	Regno	Character	10
8	Number of commuters	Ncomm	Numeric	3
9	Rate	Rate	Numeric	5.2

5.5 ACCESSING THE DATABASE

Accessing the developed database is so flexible that addition of records, delection, modification, viewing can be performed on the stored data. Furthermore, the database was so developed to achieve the following objectives:

-Data Independence:- Changing the data structure does not involve reprogramming.

-Data Integrity:- Consistency checks within the stored data was made available in the program developed.

-Data sharing among users.

-Enforcement of standards.

5.6 DOCUMENTATION

Just as it is important to document the programmes written in any Language adequately, the following has been done for the developed program of the Niger State Transport Authority system: use of comments and blank lines to enhance program readability, command file was stated by comment lines.

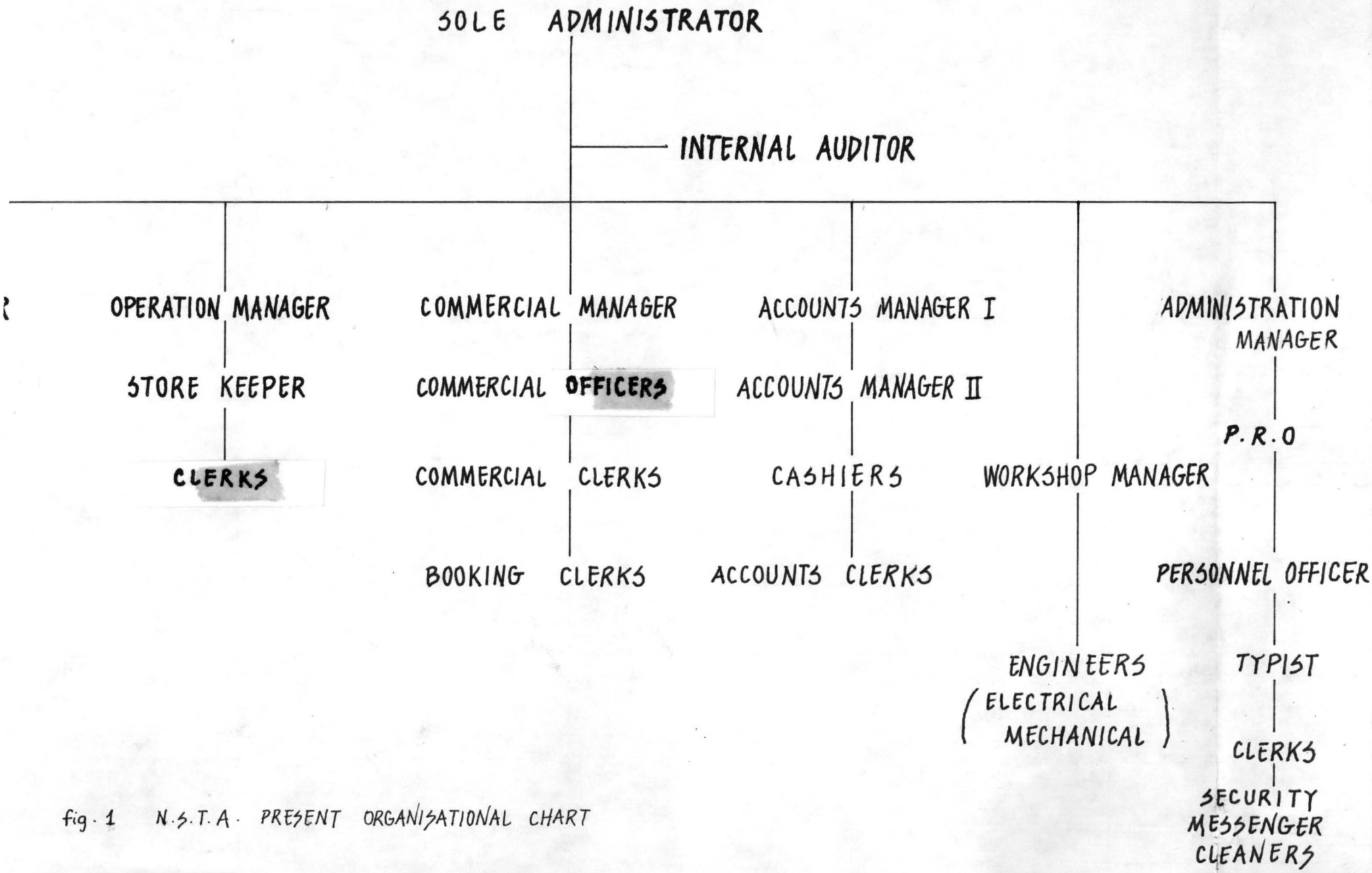

fig. 1 N.S.T.A. PRESENT ORGANISATIONAL CHART

5.7 **DEBUGGING**

DBASE III PLUS which as well serves as a programming language includes some useful features for tracing program bugs. These facilities were utilized for debugging.

5.8 **WORKING WITH MORE THAN ONE DATABASE FILE**

DBASE III PLUS let one work with upto ten files opened at the same time, with this facility this project was able to use an end files for its processing.

5.9 **GENERATION OF REPORT**

Generally, information comes from a database in the form of reports. Report is a summary of desired information. By the design of N.S.T.A system,some reports are display on the screen, while others are printed on stack of paper. This reports are prepared on monthly basis.

CHAPTER SIX

6.1 CONCLUSION

From this project work, if the system is utilized properly, it will give an optimum result.

6.2 RECOMENDATION

The outcome of this project is recomended to be considered for use by N.S.T.A since it is sure to enhance the efficiency of the operation.

6.3 PROGRAM DOCUMENTATION

Let say DBASE III PLUS files are not available on the Computer system to use, then you must have floppy diskettes with dbase execution and the working dbase labelled 1 and 11 for the files respectively. However, if your computer already has DBASE III PLUS, then after booting the system you get C prompt on the screen written as:-

C>

Steps

A. Then type

C>Dbase

B. Press Escape Key on the keyboard and the system will take you to the Dot prompt.

C. Put the floppy diskette containing the system in drive A and type

.Set Defa to A

.Do MMENU

A main menu will emerge and on it is written:-

COMPUTERIZED TRANSPORTATION INFORMATION SYSTEM as the heading and also the list of the modules.

(P) PERSONEL INFO

(V) VEHICLE INFO

(A) AUDIT INFO

(R) ROUTE INFO

(E) EXIT

Option P will lead you into Personel information menu, to enable you to choose.

Options:

V - Lead you to vehicle information menu

A - Lead you to Audit information menu

R - Lead you to Route information menu

E - Provides a condition for getting out of the system.

D. Now enter any option takes you to another submenu:

If option (P) is entered, it display

(D) DATA CAPTURE

(W) WELFARE INFORMATION

(DR) DRIVER RECORD

(U) UPDATE RECORD

(R) REPORT GENERATION

(E) EXIT

You will be required to confirm other capturing data on this screen. If confirm is YES then you will see on screen ANY MORE DATA if answer is YES it will loop to enable you enter more data and if is No it will go back to the submenu as shown above. If confirm answer is No it will loop to enable necessary corrections.

However, if the user has Dbase III plus on floppies then following procedure should be followed.

After booting the system and getting the system's prompt (A, B, C,)

C>

put the system's disk 1 and change disk by typing

C>A: then you will have this, type dbase infront

A> Dbase then change directory where necessary

A>cd\Dbase.

After loading the files from this diskette (disk 1), the computer will ask you to press ENTER KEY to INSERT system disk II. When this procedure is carried out and ENTER KEY is press again you have succeded in loading Dbase III plus files.

Now you will press ESCAPE KEY to take you to the DOT prompt or COMMAND LINE so here you type DO MMENU then steps A to D above will follow.

6.4

APPENDIX 1

TOTAL PUBLIC SECTOR CAPITAL INVESTMENT DURING THE FIRST NDP (1962 - 68).

SECTOR	TOTAL AMOUNT IN (MILLION)	PERCENTAGE (%)
1. Primary production	20.5	5.0
2. Trades & Industry	44.0	10.7
3. Electricity	98.1	23.8
4. Transport	104.0	25.7
5. communications	30.0	7.3
6. Water supply	1.8	0.4
7. Education	29.2	7.1
8. Health	10.3	2.5
9. Town & Country Planning	23.2	5.6
10. Social Welfare	2.7	0.7
11. Information	2.3	0.6
12. General Administration	44.2	10.7
13. Finacial Obligations	2.2	0.5
Totals	412.5	100.0

Source:The Federal Ministry of Economic Development Lagos Book 1962 P.51.

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