# COMPUTER APPLICATION TO DRUG REVOLVING FUND SCHEME MANAGEMENT, (A CASE STUDY OF NIGER STATE DRUG REVOLVING FUND SCHEME)

BY

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A PROJECT SUBMITTED TO DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA IN PARTIAL FULFILMENT OF POST-GRADUATE DIPLOMA IN COMPUTER SCIENCE.

SEPTEMBER 2001.

#### APPROVAL SHEET

This Project has been duly supervised, example of the project has been duly supervised, example of the project has been duly supervised.	mined and is in fulfillment of the				
requirement for the Post-Graduate Diplor	ma in Computer Science of the				
Federal University of Technology, Minna.					
PROJECT SUPERVISOR	DATE				
MR. L. N. EZEAKO					
HEAD OF DEPARTMENT	DATE				
DR. S. A. REJU					

· EXTERNAL EXAMINER

DATE

#### DEDICATION

This project is dedicated to Almighty ALLAH who has given me the health, strength and ability to go through the programme.

#### **ABSTRACT**

The importance of simplifying and speeding up tasks in every aspect of life has made computer application very imperative in virtually all aspects of human endeavor. Pharmacy is no exception. The Drug Revolving Fund Scheme (DRFS) is a system where by drugs procured by a health facility/organization are dispensed at affordable price to patients in a manner that will guarantee the replacement of the same quality and quantity of drug, so that the process ensures constant availability of quality drugs in the facility at all times.

In this project, using Niger State Drug revolving Fund Scheme (NSDRFS) as a case study a computer application was designed using Visual Foxpro 6.0 to ensure timely and accurate report for quality decision by the management of the NGSDRFS which will result in better drug management and greatly increase the NGSDRFS capabilities, productivity and efficiency.

CHAPTER FOUR: PROGRAMMING DEVELOPMENT/IMPLEMENTAT	ľION
4.1. CHOICE OF PROGRAMMING LANGUAGE	18
4.2. FEATURES OF PROGRAMMING LANGUAGE CHOSEN	18
4.3. STARTING THE SYSTEM	19
4.4. MENU STRUCTURE	19
4.5. EXIT THE PROGRAM	19
4.6. REQUIREMENT SPECIFICATIONS FOR THE NEW SYSTEM	20
4.7. CHANGE OVER PROCEDURE	20
CHAPTER FIVE: CONCLUSION AND RECOMMENDATION	
5.1 CONCLUSION	21
5.2. RECOMMENDATION	21
REFERENCES APPENDIX	22
A. FLOWCHART	23
B. PROGRAM OUTPUT	29
C. PROGRAM LISTING	35

#### **CHAPTER ONE**

#### GENERAL INTRODUCTION

#### 1.1. THE COMPUTER

The computer is defined as an electronic machine, which accepts data and input, process and stores the data to give desired output as information.

The computer which is no longer a luxury but a necessity has taken over most offices works, schools and likewise homes.

The computer generally performs three functions;

- i. Accepts data
- ii. Process data and
- iii. Output data

Data, which can come in various forms as words, images, numbers and sounds can be entered into a computer through input devices like mouse, keyboard, joystick, scanner and even though voice commands. It is then processed through the Central Processing Unit (CPU) and the result communicated through the output unit like the monitor or printer.

#### 1.2. THE COMPUTER GENERATIONS

Since the computer and computerization has however been the order of the day, its therefore imperative to talk about its origin and development.

Computer generation is a term to describe the major technological advances in the development of computers.

#### 1.5 AIMS AND OBJECTIVE OF THE PROGRAM

- Examine the suitable application programs to meet the need of Niger State Drug Revolving Fund Scheme.
- ii. Surveying of suitable application program to meet the organization.
- iii. Analyzing the hardware requirement of the suitable software.
- iv. Selection of optimal computer system that meets the hardware requirement of the soft ware.

#### 1.6 SCOPE AND LIMITATION

The scope of this project is to cover the DRFS of Ministry of Health Minna.

While the Limitation of the study includes the followings:

1. The study is limited to the activities of the DRF at CMS and the Headquaters of the Ministry of Health Minna.

For information and Data utilize from the services areas is limited to such delivered by staff from the service areas.

The DRF Scheme is a subset of the Ministry of Health Minna and its data collection is limited to available fund provided for running cost of the DRF.

# CHAPTER TWO BACKGROUND OF THE STUDY

#### 2.1 EVOLUTION OF DRFS

Drug has a strategic position in Health Care Delivery Services. They make health care credible because they can cure diseases, relieve symptoms, diagonise disease and alleviate suffering. The psychological satisfaction produced by drugs creates a favourable environment in which preventive and educational elements of health care can be built with consequent further improvement in health.

In 1929 when penicillin was discovered, drug was seen as a magic bullet and since then there has been an increasing expectation on the wonders drug can make. In the late sixties and early seventies there was an increase in the number of marketed drugs in the world market but, that increase was not matched by a proportional improvement in health, particularly in developing countries. Ιf anything indiscriminate use of multiple drugs (poly pharmacy) in treatment led to an increase in frequency of drug induced diseases. It was proceeded by a situation whereby drugs are procured with little regard to the needs and priorities of health care of the population, availability of drug in hospitals was largely a response to the sales promotional activities of manufacturers and bears little relation to the actual needs of the population.

In the mid seventies, despite flood of drugs in the world market, some developing countries lack basic essential drugs in their hospitals.

Around the same period new diseases began to emerge creating demands for additional and more specialized medicines and elements of drugs abuse emerge on scene. Drug procurement and distribution began to be hampered due to dwindling resources, lack of foreign currency, planlessness, decadent implementation of programme, political and social instability. Government capacity at all levels was over stretched. In Nigeria it became difficult for Government to allocate five percent of its total budget to Health Sector as recommended by WHO and couple with facts it became difficult for resources allocated to health establishment to allow for efficient management of the sector leading to hospitals, eventually becaming mare consulting clinics.

In view of the above development, simply summarized as inadequate funds for essential needed drugs, drug procurement with little or no regard to health needs of the population, increasingly large number of marketed drugs which did not match with improvement in health care, weakness in drug administration and drug quality and stock control, the 28th World Health Assembly of WHO in 1975, approved the concept of essential drugs and by 1977 WHO produced the first model of list of essential; drugs lists which was the basis of Drug Revolving Fund Scheme. By 1988 above 100countries had and were using their own lists of essential drugs.

In Nigeria, it is equally relevant to state that the introduction of Structural Adjustment Programme (SAP) in 1980's increased duty on both Pharmaceutical raw materials and finished products, which further aggravated the crises in the drug supply system and pushed

drug prices beyond the reach of most Nigerians leading to inequity in accessibility. The inability to enforce the pharmacy and poisons laws appropriately led to chaos in the drug management and supply.

The situation ultimately sets for the introduction of National Health Policy and National Drug Policy with the goal of redressing Nigeria myriad health problem.

With the WHO introducing the concept of essential drug programme, Nigeria made it as its national drug policy and decree 43 of 1989 was to give a legal backing to the essential drug list and consequently the drug revolving fund scheme.

The Government of Niger State introduced the cost recovery programme in all its health institutions in 1985, which was later upgraded into Drug Revolving Fund programme in 1989.

#### **MANAGEMENT**

The SDRFS is made of a committee, headed by the Permanent Secretary Ministry of Health. The composition of the committee is as follows:

-	Permanent Secretary Ministry of Health	Chairman
_	Director Pharmaceutical Services	${\bf Controller}$
-	Director Medical Services	Member
-	Director Nursing Services	"
-	Theater Nurse i/c G. H. Minna	··
-	Chief Laboratory Officer	"
-	Head of Hospital services G.H. Kontagora	"
-	DRF Accountant	"
_	Pharmacists i/c CMS -	Secretary

The DPS act as the controller. The committee meet on quarterly basis or when the need arises to deliberate on the activities of the scheme with a view to moving it forward.

#### 2.2 FUNCTION OF THE DRFS

The DRFS is to procure essential drugs and other hospital consumables for Health Institutions under the State Ministry of Health for dispensing at affordable price to clients/patients in a manner that will guarantee the replacement of the same quality and quantity of drugs so that the process ensures constant availability of drugs/hospital consumables in all the State Health Institutions at all times.

To achieve the above, the committee:

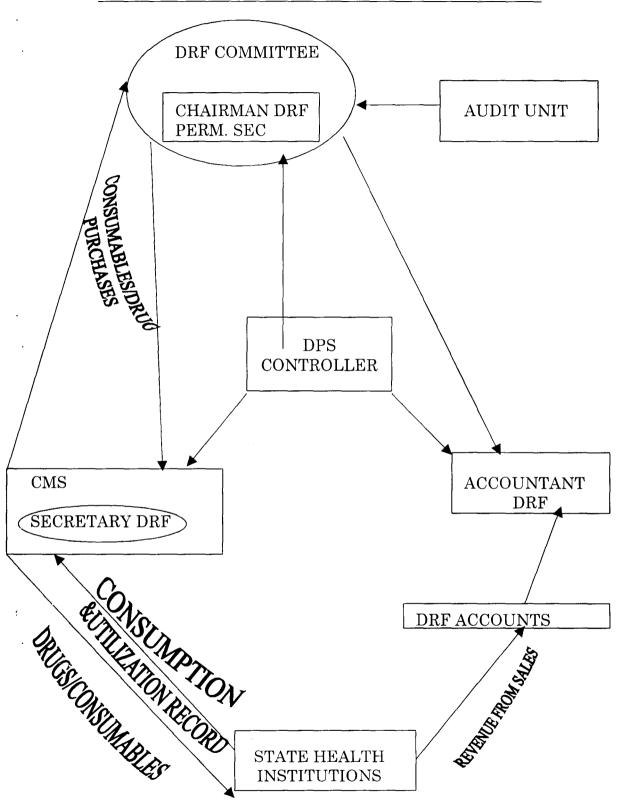
- Complies and review the State essential; drugs and other hospital consumables list
- It make purchases of required essential drugs and hospital consumables
- It put in place appropriate machinery to ensure collection, banking and utilization of funds generated from its services.
- It ensures the smooth running of the scheme
- It request from time to time funds or stocks from the State Government to augment the DRFS.
- It forward to the Ministry individual/institution found wanting in performing his/her responsibilities with regard to the DRFS.
- It suggest to the Ministry ways to improve health services in the State.

Drugs are purchased initially by the State Government and when ever there is need to augment the DRFs, such drugs are stored in the State Central

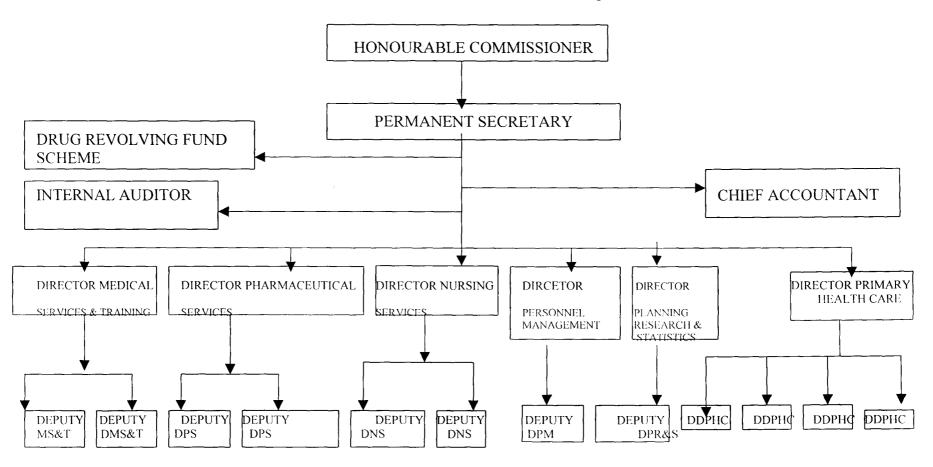
Medical Stores. Initial stock is provided to all the health institutions and on selling/dispensing to the clients/patients, the revenue generated on daily basis is banked in the nearest SDRF Bank account. At the end of the month such monies are remitted to the Central Account of the Scheme in Minna in form of Bank draft.

Whenever there is a fall or any of the essential item is out of stock the committee makes purchases to replenish such item with the funds so generated by the scheme. Through this system the scheme revolves.

#### DRUG REVOLVING FUND SCHEME ORGANOGRAM



## NIGER STATE MINISTRY OF HEALTH ORGANIZATIONAL STRUCTURE AT THE HEADQUARTER MINNA



#### <u>CHAPTER THREE</u> SYSTEM ANALYSIS AND DESIGN

#### 3.1. SYSTEM ANALYSIS

System analysis is the practice of evaluating an existing system to see how it works and how well it meets the users needs.

This practice involved examining an already existing system for the new system to be introduced. The method is used with the primary aim of obtaining complete and adequate information, which will help in the development and design of a new system. The analysis helps in determining how best to use computer with other resources to perform tasks, which meet the information needs of an organization.

Several methods are involved in getting the analysis and other processes are involved in the investigation of the system to ascertain effectively how it works.

Some fact finding techniques for gathering information include observation, record searching, sampling, questionnaire and interviewing.

#### 3.2. FEASIBILITY STUDY

Feasibility study is the study of a system to determine where a solution to the problem is feasible. There should be the need to identify reasons, which justifies the development of the new system or favours non-execution of the project. This is to prevent wasting of efforts and large amount of money, if the project is too large, too uncontrollable, or simply impossible to carry out. If

several alternatives seem to be realistic in their potential costs and benefits, the project proceed to the next phase.

The objectives that were achieved.

- 1. UNDERSTANDING THE PROJECT: Interview and researches were conducted to determine the attainment of the project. Under this certain vital questions are asked.
  - i. Why did the problem occur?
  - ii. Why were the present methods adopted?

This help to spells out the strength and weakness of the existing system.

- 2. KNOWING THE SCOPE: Its quite necessary to know the size of this project so that an estimate of time to be allotted to it could be known. This will help in knowing the work force to be designated to the work for development and implementation.
- 3. ASSESSING THE COST AND BENEFIT OF THE PROPOSED SYSTEM: Before embarking on any project, its important to know the cost implication of it and also know the benefits to be derived from it. The financial involvement includes the training of the staff, technical, financial and operation feasibility of alternative approaches.

Everything find were documented and sent to the Head of Department as recommended and proposal for acceptant of the proposed system.

#### 3.3. METHOD OF RESEARCH

Several method were used in the investigation and also the gathering of information. The following method were used in the research work.

- i. Observation: The existing manual system was studied and several faults were noted in it.
- ii. Record Keeping: The main purpose of this is to establish quantitative information. It was found out that the departmental objectives are not fully achieved and likewise the information needed for decision making is not readily available when it is required.
- iii. Interviewing: This was the most satisfactory of all the ways used to obtain the information. The staff were interviewed about the objectives of their departments, constraints, allocation of duties, and the problems encountered usually using the existing system.

#### 3.4. SYSTEM DESIGN, SPECIFICATION AND PROCEDURE

SYSTEM DESIGN: It's the process of planting a new systems based on the findings of a system analyst. It's the use of an engineers creative ability and sense in organizing a logical bit, literally feasible procedure for a computerized system. Here the system analyst by applying his judgment, skill, and knowledge can interpret the requirement specification to create one or more system specifications.

#### 3.4.1 GENERAL SYSTEM DESIGN.

The general system design includes the flowchart (procedure) a written explanation (pseudocode). For this study, loading (programming) is used to depict the representation of the project.

#### 3.4.2. DATABASE DESIGN

Database design is the base of any system. It contains the data or information necessary to produce output., it is also known as file design.

#### CHAPTER FOUR

#### PROGRAMMING DEVELOPMENT/IMPLEMENTATION

#### 4.1. CHOICE OF PROGRAMMING LANGUAGE

programming can be defined as writing a sequence of instruction for accomplishing specific tasks in a specific programming language.

The choice of programming language depends on the nature of tasks to be performed. For instance, this project has to do with records keeping. Therefore, the programming language used is Visual FoxPro 6.0.

Visual FoxPro is a powerful, interactive data management tool, and you can also access the full power of Visual FoxPro by creating applications.

#### 4.2. FEATURES OF PROGRAMMING LANGUAGE CHOSEN

Visual FoxPro 6.0 has the following features.

- a. Provides procedural and object oriented programming techniques i.e. Visual FoxPro language elements and event model, and building applications.
- b. Provide facilities for setting up tables, indexes, and database for effective application development.
- c. Provide facilities for creating forms, menus and toolbars that make up interface.
- d. Provides facilities for compiling, debugging and optimizing as well as incorporating queries and reports into your applications.
- e. Enhance applications by enabling them use by multiple users, taking advantages of OLE and Active X etc.

#### 4.3. STARTING THE SYSTEM

The system is made up of three installation floppy disks.

Insert the disk 1 into the floppy drive and access the floppy drive, double click on setup EXE, follow the instructions to install the system.

However, to be able to access the system, click start, move to settings, click on taskbar, click add, click browse, click on Drug folder, click DRUD, EXE, click O.K, click Next twice, and click finish, click O.K. then click start and click on Drug EXE, then type the password which is DRUG and type in other LOGIN INFORMATION the click O.K.

#### 4.4. MENU STRUCTURE

The menu structure is made up of the following

File	Report	$\operatorname{Quit}$
$\int$ Procurement	$\int$ Drug Procurement	
Disbursement	Drug Disbursement	

The main menus are File, Report and Quit while the submenus are Procurement, Disbursement, Drug procurement and Drug disbursement.

#### 4.5. EXIT THE PROGRAM

To exit the program, the following steps are required.

- Click Quite from the main menu
- Click Yes from the dialogue box to confirm

Then the program will be closed.

#### 4.6. REQUIREMENT SPECIFICATIONS FOR THE NEW SYSTEM

The specification below will be adequate for the proposed system.

Pentium II – 450 MMX 64 MB of RAM 14/15 BVGA Monitor 10GB Hard disk 31/2 Floppy Disk Drive UPS Stabilizer Printer (HP 1100)

#### 4.7. CHANGE OVER PROCEDURE

The changeover from the old to the new system takes place when the system has been proved to the satisfaction of the system analysis and the other implementation activities have been completed.

The type of changeover advised is direct changeover. Since there has not been an existing system used before but just the manual one. This method is the complete replacement of the old system by the new one in a move. This is undertaken only when everyone concerned has confidence in the new system.

In this changeover, there should be comprehensive system tests and also training, and the changeover itself planned in detail.

# CHAPTER FIVE CONCLUSION AND RECOMMENDATION

#### 5.1 CONCLUSION

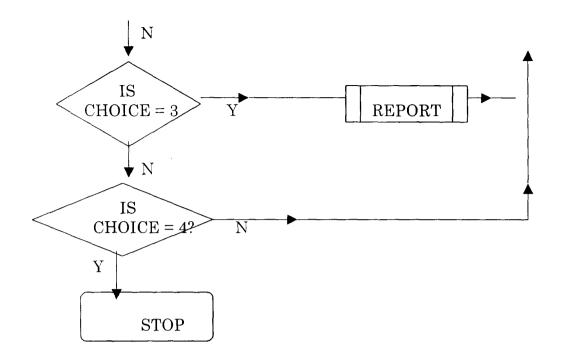
The technological advancement in the field of computing is crossing across everywhere. The decision of computerizing the DRFS is a wise one, as a lot of redundancy will be reduced. The appreciation of a paperless office which is the autumn of every society now should be introduced into every sector, which include the health.

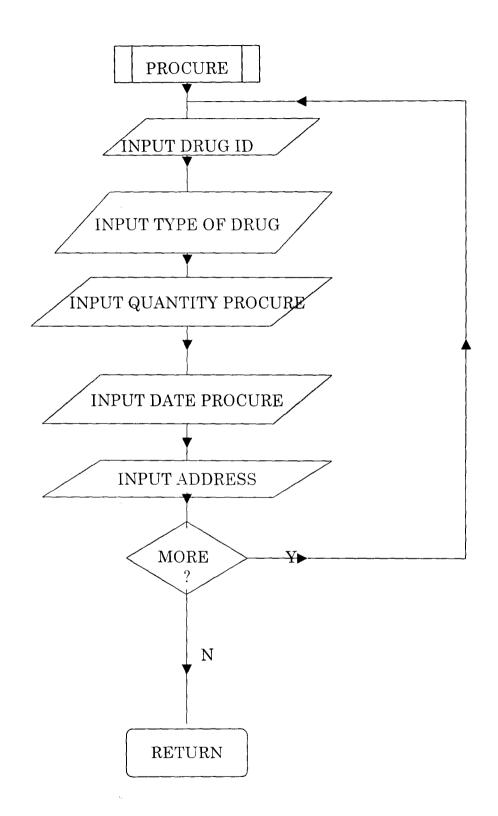
#### 5.2. RECOMMENDATION

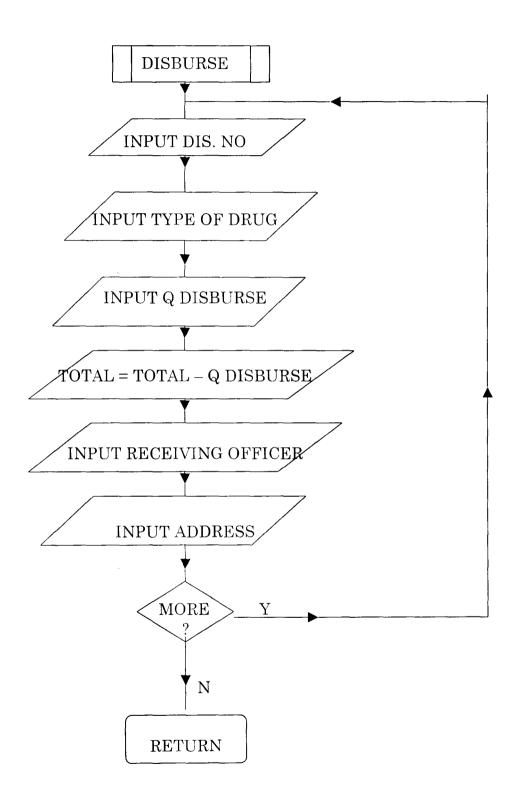
This software DRFS should be recommended to the Government especially that of Niger State for implementation.

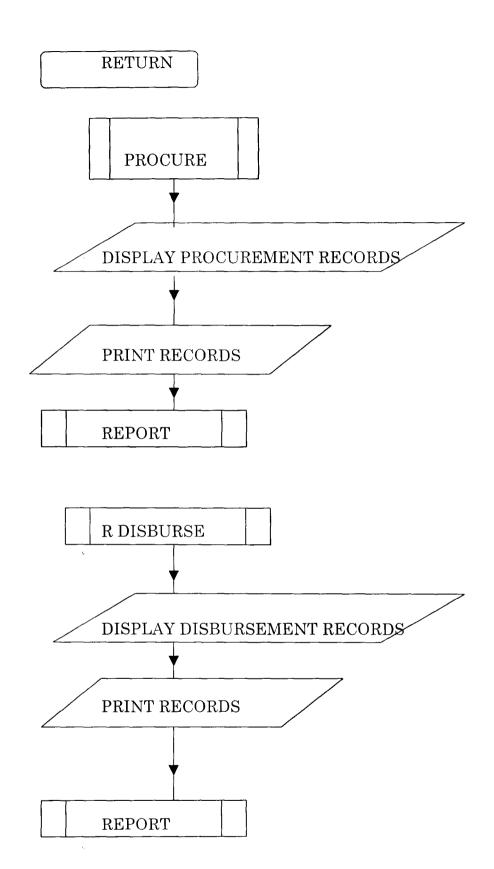
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	company
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	Shanesol C. I. Ltd.
	Publishing Company









#### DRUG REVOLVING FUND SCHEME (DRFS)

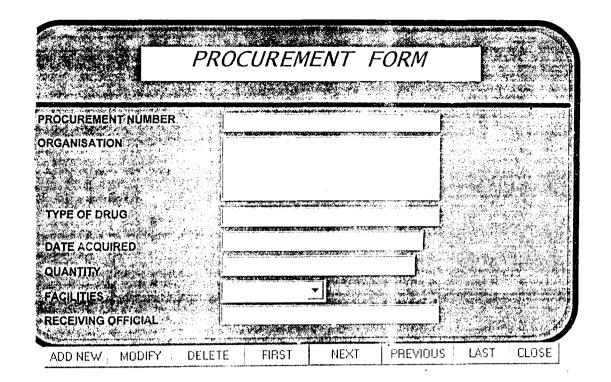
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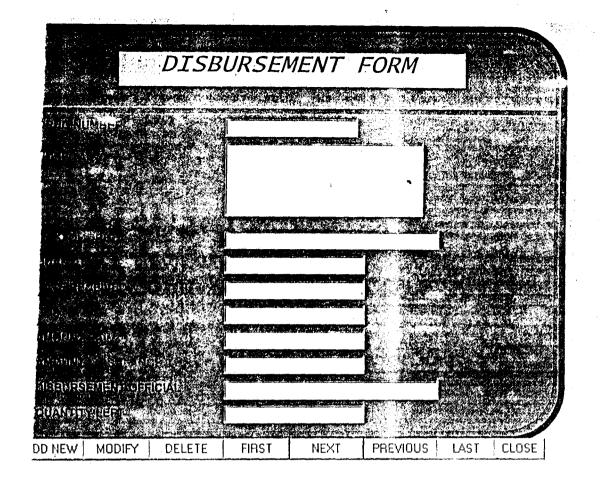
POST GRADUATE DIPLOMA IN COMPUTER SCIENCE DEPT. OF MATHS/COMPUTER SCIENCE. FEDERAL UNVERSITY OF TECHNOLOGY, MINNA

DESIGNED BY ALIYU

MENTAL

MEN





NIGER STATE DRUG REVOLVING FUND SCHEME

LOGIN INFORMATION FORM

Nan

Vord

OK CANCEL

#### SOURCE LISTING PROGRAM

#### ADD NEW RECORD

```
IF THIS.CAPTION = "\<Add New"
      THISFORM.SETALL("Readonly", F., "Textbox")
      THISFORM.SETALL("Readonly",.F.,"ComboBox")
      THISFORM.SETALL("Readonly",.F.,"EDITbox")
      IF USED("TDRUG")
            SELE TDRUG
      ELSE
            SELE 0
            USE TDRUG
      ENDIF
      SCATTER MEMVAR MEMO BLANK
      THISFORM.txtdnum.SETFOCUS
      THISFORM.SETALL("enabled",.F.,"commandbutton")
     THIS.ENABLED = T.
      THISFORM.cmdclose.ENABLED = .T.
      THISFORM.REFRESH
      THIS.CAPTION = "\<Save"
ELSE
      THISFORM.SETALL("Readonly",.T.,"Textbox")
      THISFORM.SETALL("Readonly",.T.,"combobox")
      THISFORM.SETALL("Readonly",.T.,"editbox")
      THISFORM.SETALL("enabled",.T., "commandbutton")
      IF USED("TDRUG")
            SELE TDRUG
      ELSE
            SELE 0
            USE TDRUG
      ENDIF
      GO TOP
      IF EMPTY(M.DNUM)
                  MESSAGEBOX("NULL Record is NOT allowed, O.K!", "Warning.")
                  THISFORM.REFRESH
      ELSE
      LOCATE FOR dnum = m.dnum
      IF FOUND()
            MESSAGEBOX("This Record Already Exists!", "Warning.")
            THISFORM.REFRESH
```

**ELSE** 

```
*THISFORM.TXTQL.VALUE=QTY.VALUE-THISFORM.TXTQTY.VALUE
*thisform.txtql.value=thisform.txtdep.value
INSERT INTO TDRUG FROM MEMVAR
THISFORM.REFRESH
```

ENDIF

ENDIF

THIS.CAPTION = "\<Add New"

**ENDIF** 

#### TO MODIFY RECORD(S)

THISFORM.SETALL("Readonly",.F., "Textbox")
THISFORM.SETALL("Readonly",.F., "combobox",)
THISFORM.SETALL("Readonly",.F., "EDITbox")

IF USED("TDRUG")

SELE TORUG

**ELSE** 

SELE 0

**ÚSE TDRUG** 

**ENDIF** 

IF THIS.CAPTION = "\<Modify"

THIS.CAPTION = "\<Save"

THISFORM.SETALL("Readonly",.F.,"Textbox")

THISFORM.SETALL("enabled", F., "commandbutton")

THIS.ENABLED = .T.

THISFORM.emdclose.ENABLED = .T.

ELSE

GATHER MEMVAR MEMO

THIS.CAPTION = "\<Mod!ify"

THISFORM.SETALL("Readonly", T., "combobox")

THISFORM.SETALL("Readonly",.T.,"EDITbox")

THISFORM.SETALL("Readonly",.T.,"Textbox")

THISFORM.SETALL("enabled", T., "commandbutton")

THISFORM.REFRESH

**ENDIF** 

#### TO DELETE RECORD(S)

IF USED("TDRUG")

**SELE TDRUG** 

**ELSE** 

SELE 1

**USE TDRUG EXCLUSIVE** 

**ENDIF** 

ans = MESSAGEBOX("This record will be deleted, Proceed?", 4 + 32, "Warning")

IF ans = 6

DELETE

PACK

IF !EOF()

SKIP

ELSE

SKIP-1

**ENDIF** 

**ENDIF** 

THISFORM.REFRESH

#### TO MOVE TO THE FIRST RECORD

IF USED("TDRUG")

SELE TORUG

ELSE

SELE 0

**USE TDRUG** 

**ENDIF** 

IF !BOF()

GO TOP

· SCATTER MEMVAR MEMO

THIS.ENABLED = .F.

**ELSE** 

MESSAGEBOX("This is the First Record", "Warning")

**ENDIF** 

THISFORM.REFRESH

THISFORM.cmdlast.ENABLED = .T.

#### TO MOVE TO THE NEXT RECORD

IF USED("TDRUG")

SELE TDRUG

**ELSE** 

SELE 0

**USE TDRUG** 

**ENDIF** 

IF NOT EOF()

SKIP 1

THISFORM.cmdfirst.ENABLED = .T.

SCATTER MEMVAR MEMO

THISFORM, REFRESH

**ELSE** 

THISFORM.cmdlast.ENABLED = .F.

MESSAGEBOX("This is the Last Record", 0 ± 64, "Warning")

THIS.ENABLED = .F.

**ENDIF** 

THISFORM.cmdprevious.ENABLED = .T.

#### TO MOVE TO THE PREVIOUS RECORD

IF USED("TDRUG") SELE TDRUG ELSE SELE 0 **USE TDRUG ENDIF** IF NOT BOF() SKIP -1 SCATTER MEMVAR MEMO THISFORM.REFRESH ThisForm.cmdfast.ENABLED = .T. ELSE ThisForm.cmdfirst.ENABLED ≈ .F. MESSAGEBOX("This is the First Record", 0 ± 64, "Warning") THIS.ENABLED = .F.**ENDIF** THISFORM.emdnext.ENABLED = .T.

#### TO MOVE TO THE LAST RECORD

IF USED("TDRUG") SELE TDRUG ELSE SELE 0 **USE TDRUG ENDIF** Œ !EOF() GO BOTTOM SCATTER MEMVAR MEMO THISFORM.REFRESH **ELSE** MESSAGEBOX("This is the Last Record", 0 ± 64, "Warning") **ENDIF** THIS.ENABLED = .F. THISFORM.cmdfirst.ENABLED = .T.

#### TO CLOSE THE DATABASE

THISFORM.RELEASE

#### SOURCE LISTING FOR LOGIN PROGRAM FORM

IF !(m.user\_name = " " OR m.MYACCESS = " ")
IF UPPER(M.MYACCESS)="DRUG" AND !EMPTY(M.USER\_NAME)
thisform.RELEASE

MESSAGEBOX("Please, Keep this Secret to yourself, O.K!","ACCESS

GRANTED!")

DO mainmenu.mpr

ELSE

MESSAGEBOX("Unauthorised user is not permitted, O.K!", "ACCESS DENIED!")

**ENDIF** 

ELSE

MESSAGEBOX("Invalid User Codes. Please Try Again", 0 ± 48, "Warning")

this form.txtMYACCESS.SETFOCUS

**ENDIF** 

#### CLOSE LOGIN PROGRAM FORM .

THISFORM.RELEASE.

SET SYSMENU TO DEFA

\_SCREEN.CAPTION = "Microsoft Visual Foxpro" \_SCREEN.PICTURE = " " ...

CANC

&&quit

&&thisform.release

#### **WELCOME SCREEN**

DO FORM frmlogin