

COMPUTERISED MEDICAL RECORD SYSTEM

(A CASE STUDY OF NIGERIAN MILITARY CANTONMENT,
MEDICAL RECEPTION STATION (M.R.S.)
(MINNA)

BY

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PGD/MCS/7347.

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A Project Submitted to the department of mathematics/Computer Science, Federal University of Technology, Minna. In partial fulfilment of the requirement for the Award of the Postgraduate Diploma in Computer Science.

December 1999

DEDICATION

This piece of work is solely dedicated to my late father Alhaji Aminu Umaru (who died on the 18th January 1998) may his soul rest in peace. Also to the rest members of my immediate family especially my wife (Maryam) and my son Muhammad Awwal.

CERTIFICATION

This project work has been read and certified by the undersigned as meeting the requirement of the Department of Mathematics/Computer Science, Federal University of Technology, Minna.

.....

Dr. Y. Aiyesimi
Project Supervisor

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Date

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Dr. S.A. Reju
Head of Department

.....

Date

.....

External Examiner

.....

Date

ACKNOWLEDGEMENT

A work of this nature demands a lot of stress, yet at the end of it all one feels highly fulfilled. First, my praises to the almighty Allah who has been so kind from the beginning and continues up till now.

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I give my special regards to Maj. JOE Komolafe. A good friend whose encouragement throughout the course cannot be quantified. I will not forget to mention an old friend of the Federal Polytechnic Bida – Mr Sikiru Adetoro.

To my course mates “course 97” you have all been wonderful. Thanks to everybody.

ABSTRACT

The Nigerian Military Cantonment Medical Services like any other organisation in the recent times have been battling with problems of in efficiency in handling their medical records.

Medical records is the practice of medicine because without an organised and logical format to direct those who provide health care delivery, there will be no adequate diagnosis and treatment.

Having considered the importance of record management in an organisation the write-up therefore focuses its attention on having a new system that is very effective and could help in speeding-up, recording, storing and retrieving information with a minimal effort.

This effort will be achieved using an effective and efficient programming language the database management system IV (Dbase IV).

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INTRODUCTION

MEDICAL RECORDS (A PERSPECTIVE)

Medical records form an integral aspect of patient management itself. The general success of a medical personnel in handling a patient medical case depends on available data that aids such personnel in carrying out his duty

The word record has no acceptable universal definition but however, it could be defined as “an act of assembling facts in a book or a form of unit of necessary information relating to a particular subject”.

In view of this, a patient medical record is an orderly written report of the patient's complaints, the diagnostic findings, treatment and end-result that is total, from a clinical picture and, when completed contains sufficient information to justify the diagnosis and treatment and to record result. Indeed, the patient's bedside record is a form of document, a historical record, the content of which may not only aid diagnosis of a specific case, but may aid in the treatment of other cases.

Medical record serves as a basis for planning patient's care, provide a means of communication between the physician and the other groups contributing to the relief of the patient's illness and treatment and serves as a basis for review, study and evaluation of medical care.

A good medical record supplies the physician with the information which will not be possible for him to remember and help him with relevant materials which could add more to his knowledge.

Medical records have also been recognized as indispensable for medical research into causes and cures for human diseases. The records also supply a practical and reliable source of material for the advancement of medical service. Good medical records means increase efficiency of services to the public, and the capacity to answer inquiries about hospital work.. It provides valuable information for planning and extension. The accurate, complete and early accessible medical records is a basic factor in the scheme to promote National good health. It also provide Valuable data for study in the prevention of diseases. It is also important to note that adequate health

statistics can only be obtained from comprehensive and adequate medical records.

1.2 **OBJECTIVES OF THE STUDY**

The system objectives of the proposed system is as follows:-

- (1) To provide an easy processed information and Enquirer that are computer-based system to aid the medical personnel.
- (2) It is aimed at exploring and explaining the general nature and application of the computer in our hospital servicing.
- (3) To provide finely management information for effective control of the record.
- (4) To increase accuracy of keeping facts as manual system is prone to human stress.

1.3 **SCOPE OF THE STUDY**

The scope of the new system covers the functional procedures of the medical record section. However, there are so many sections in the hospital which can not be covered in this write-up.

1.4 **DEFINITION OF TERMS**

- (1) Card Room:- This is where patients record are being recorded, issued and kept for future use.
- (2) Consulting Room:- This is where sick patients make their complaints known to the doctors or nurses in the consulting room before been diagnosed.
- (3) Ward:- A place where patients are kept and given beds after being admitted until they are discharged.
- (4) Record:- This is an act of assembling facts in a books or a form of unit of necessary information relating to a particular subject.
- (5) Theatre:- A place where operations are carried out and also where the dressing of injuries sustained by patients are treated.
- (6) Laboratory:- Where all forms of tests are carried out to help the physicians diagnose a sick patient quickly.
- (7) Medical Record:- A collection of medical information are assembled together in respect of a patient.

WHY COMPUTER IN MEDICAL RECORD-KEEPING

The medical record practice has in recent time received new ideas, methods and equipment which are constantly being developed.

Presently, Analog and Digital Computers are being used in hospitals to read electrocardiogram, to compile, list and print out laboratory data reports, patient monitoring and for multiphasic Screening test. Systems have been developed in the purchasing and pharmacy departments for inventory control as well as accounting procedures.

The objective of a high computerised approach to medical record keeping is to plan, develop and maintain a record system aimed at efficient patient care to assist the medical staff and the hospital administration in evaluating the quantity and quality of patient care, to collect, collate, analyse patient care data, to develop policies and procedures for legal uses of medical records and further to provide consultancy services to various types of health facilities and research projects.

- (1) Computer application in the medical record practice ensures speedy retrieval of patient information when needed.
- (2) It ensures accuracy and reliability of data.
- (3) It stores large volume of data for easy research work and facilitates record linkage process.

Since human brain cannot accommodate all the relevant information of individual patient. Therefore, the function of computer is to store and bring together information referring to the same individual patient derived from different sources.

In the developed countries, many hospitals have now introduced fully computer application into their medical records keeping system. Such computerised medical record department compiles, organize and store vast amount of patient data with the help of the computer.

Computer linked medical records would also enhance medical research and evaluation because adequate medical record linkage system permit quick availability

of all medical data needed at all times. It is through accurate and complete record that precise and reliable statistical data can be compiled and computer evolution in medical record keeping has helped in no small measure in the hospital management, evaluation and planning for the present and future patient's services. Furthermore, computer linked medical records play an important role not only in enabling different treatments to be done, but also in providing important information in the study of the environmental hazards in relation to diseases and therefore enhance epidemiological research in investigating the root causes of diseases in the society.

2.1 RELEVANCE OF MEDICAL RECORDS

The relevance of medical records include:

- (a) Source of documenting the course of the patient's illness and serve as medical treatment for in and out patients.
- (b) Serves as communication unit between the physical and other medical professionals.
- (c) Providing continuity of patient care on subsequent admission of the patient.
- (d) Providing basis for planning and control of surveys and researches in the medical field.
- (e) Provide data to assist in protecting the legal interest of the patient, hospital and others.

2.2 RECORD MANAGEMENT

Today, there are many ways and methods of regulating the volume of records which are usually destroyed because the information are either duplicated or changed due to changes in law and regulations, business practice and the need of the user.

The system of controlling these records is known as Record Management. The available system and techniques needed to support information retention and not retrieval and optimal level are being used to any large degree. This is supported by

current estimate that 55% of all records currently retained are valueless and costly to maintain. Due to these, a highly sophisticated system which could collect, evaluate, store, remove, reproduce and reference information through mechanization and automation was developed. However, it is entirely possible to achieve dramatic reduction in cost without employing and elaborate and expensive equipment and methods. The adoption of some of the most elementary concepts and techniques of record management will result in the number of idle records being processed and stored in order to provide easier and accurate records in the identification of essential records.

2.3 THE BASIC OBJECTIVES OF RECORD MANAGEMENT

The basic objectives of record management program embrace the following concepts of relevance, self improvement and custodianship.

- (1) The program must provide every level of organisational activities with the most accurate and visible information timely and in an understandable manner with expressed needs at a cost level.
- (2) Increase the productivity of the administration functions through the identification and addition of improved and responsive system, techniques and equipment which enlarge information potential, reduce records and files requirement, expand dissemination capability and effect cost-savings.
- (3) Protect the organisation's assets by preserving essential and valuable information vital to the continuance of profitable activity interposing meaningful control over the flow of records and safeguarding them against physical hazard, sabotage, business espionage.

Successful attainment of the stated objectives depend largely upon the competence and communication skills of the record management professionals. It is their ability to understand and be relevant to the needs of management at every significant level that will determine the extent to which they enjoy the confidence and support vital to their work.

2.4 COMPONENTS OF A RECORD MANAGEMENT PROGRAM

The components of a record management program consist of the following:-

- (a) Control
- (b) Evaluation
- (c) Simplification
- (d) Education
- (e) Implementation
- (f) Review

At the onset, control is established to isolate and enumerate all major elements of information flowing through the information network. Control is exercised to ensure compliance with the practice and procedure of the modified record management system.

Evaluation involves measuring the validity and effectiveness of information flow before and after modification examining the relevance of the information generated and stored and the flexibility of the record management system to provide for future needs.

The simplification process consist of restructuring the network design and content, eliminating waste and confusion and establishing clarity and efficiency through the application of valid techniques and principles. The information network which finally emerged must also be subject to the scrutiny of the simplification function.

Education is a continuing function requiring instruction, demonstration and practice of the new programs before implementation and afterwards as reinforcement technique coordinating the deployment of authorised personnel armed with specific procedure, with which to create, process, store, retrieve and destroy record under the supervision this constitute the implementation function. Hence, implementation requires active participation by record management professional. Review requires monitoring the program immediately after active professional participation is withdrawn and at predetermined gradually longer interval after which accuracy, reliability, validity an relevance are tested.

2.4 FILING SYSTEM

A filing system can be described as a set of documents arranged in a prescribed order for convenience of reference and preservation.

Careful thought is needed in determining a system of filing. In all cases, local condition and problems are examined to decide on the most appropriate system to be used. But in any case a record with similar characteristics will be filed together.

The main method of classifying files are Alphabetic, Numerical, Geometrical, Subject, Chronological or combination of all these. The filing method commonly used is vertical filing. In this method, documents are filed behind each other. This could be on edge or may be in pockets individually suspended.

The vertical filing method include:-

- (a) Open – shelf filing in which the folders are on shelves. This is quicker and more compact.
- (b) Roll-out filing in which drawer roll out side ways exposing all records in half the aisle space required by the vertical drawer files.
- (c) Horizontal filings is used for storing papers such as map or drawings in flat position on top of each other.
- (d) Lateral filing consists of suspended files with the end of each file in view which bear the index strip.

These filing methods mentioned above are commonly used in most organisations today. These methods are rather cumbersome compared to the recent technological method of keeping records via the computers. An effective filing system should contain the following characteristics:-

- (a) The operation involved should be simple to ensure that the method is understood by those who normally controls or and also by those who may require occasional access.
- (b) It should provide a method of classification.
- (c) It should be compact so as to take account of the value and cost for storage space and also need to reduce effort in working in the system.
- (d) There should be economy in the cost of operation and installation.
- (e) It should provide cross referencing facilities when required.
- (f) It should be accessible for speedy location and for positive means of identifying the items contained in the system.
- (g) It should provide a form of elasticity for expansion and contract according to future requirements.

CHAPTER THREE

3.0 SYSTEMS ANALYSIS AND DESIGN

3.1 INTRODUCTION

The system analysis and design stage involves analysing the existing system in order to aid the designing of the proposed system. The analysis is considered important because the design of the new system is dependent on whatever information is gathered during the analysis stage.

This section starts with the description of the existing method as well as outlining the problems associated to it so that the new system to be designed will be able to meet the expected benefits.

3.2 PROBLEM IDENTIFICATION AND DEFINITION

Just like in any organisation, the Nigerian Military Cantonment Medical Reception Station has the responsibility of calling and keeping records of all its departments.

In carrying out this function, it was observe that there are certain factors humiliating against record management in the hospital.:-

- a. Untimeliness and bulky paper work at the point of registration.
- b. Lack of facilities to enhance documentation e.g. Cabinet, Folder etc.
- c. Error prove due to human stress.

3.3 FEASIBILITY STUDY

This is one of the important stages in developing a system. The feasibility study looks at the system is presently in operation, consider the existing problems and brings out the alternative ways to doing the job. This is done by gathering and interpreting facts in order to develop a proper understanding of a system so as to diagnose the problems associated with it. The outcome of this feasibility study is used to determine what must be done to solve the problems of the existing system. The existing system was manually carried out.

3.4 TESTING PROJECT FEASIBILITY

A project is said to be feasible when it passes through these tests:-

1. Operational Feasibility
2. Technical Feasibility
3. Economic Feasibility

1. **OPERATIONAL FEASIBILITY:** This indicates that the existing system is very slow to the extent that it takes a while to complete necessary search for patients cards/information. This is as a result of using manual system, which then lead to errors and mismatch of data. All these could be accomplished in a few minutes if computer is used with the right type of software.
2. **TECHNICAL FEASIBILITY:** This has to do with existing equipment in the hospital and to see weather they meet up with the operational requirement and the users.
3. **ECONOMIC FEASIBILITY** : This aspect deals with cost benefit analysis. This could be viewed from the Development cost, operational cost and maintenance cost.

3.5 CHARACTERISTICS OF MEDICAL RECORDS

For the medical record to be of any value, it must poses some certain characteristics thus a good medical record must:-

1. Be readable and able to be understood by any one likely to use to.
2. Be accurate, concise and reasonable in its organisation.
3. Identify clearly the patient about whom it is written i.e. his full name, hospital number assigned, address and other vital information.
4. Be consistent in the lay-out and size of the paper used.
5. Be promptly retrievable when required.

3.6 RULES GUIDING MOVEMENT OF RECORD

Records are the “soul” of every organisation. Improper control and adequate guide of records can render or even “kill” an organisation. In medical line, record keeping needs to follow certain guidelines for its efficient, effective and smooth running of the hospital.

The rules guiding movement of files in an area include:-

1. No record can be removed from file without being replaced with a requisition slip.
2. All records are supposed to be returned as the close of each day so that if there is an emergency, the hospital staff will have access to the needed information of the patient.
3. Records are also not allowed to be removed from the filing facility except under the supervision of superior officer.
4. Except for exceptional cases where hospital personnel have been instructed to use the file area during evening and night time hours. Only medical record department personnel are authorised to handle records.
5. Records with the form covers and loose paper are replaced promptly to prevent further damages or loss of valuable information.
6. Filing personnel are fully responsible for keeping the shelves neat and tidy. Disorderly files increase likelihood of misfiling.
7. Voluminous records are filed in volumes to reduce number of records per file.

3.7 PROBLEMS WITH THE EXISTING SYSTEM

The problems encountered in the existing system include the followings:-

1. Wrong record entry.
2. Misplacing of patients' record.
3. Where patients' record exists and the cards given to patients are lost, it is not easy to locate their files even if they had to, it will waste time.
4. Files are rearranged haphazardly and manually.
5. Misplacing of files into a wrong unit or department.

6. Inadequate information to be received as at when due, since everything is done manual.

3.8 COST AND BENEFITS ANALYSIS OF THE PROPOSED SYSTEM

<u>(A) DEVELOPMENT COST.</u>	N	K
- System Analysis & Design for 3 Weeks (150 man hrs)	25,000.00	
- Software implementation	15,000.00	
- Equipment purchase i.e. 2 personal computers	150,000.00	
- Printer (6L mode)	45,000.00	
- Stabliser/UPS	35,000.00	
- Personal Training (3wks)	15,000.00	
- Installation	10,000.00	
- Miscellaneous	<u>15,000.00</u>	
Total	N	<u>310,000.00</u>
 <u>(B) OPERATING COST</u>		
- Suppliers for 1 Yr	50,000.00	
- Equipment Maintenance	10,000.00	
- Program maintenance	10,000.00	
- Labour cost (2 Operation)	15,000.00	
- Utilities	20,000.00	
- 2 A/C (21/2Hp)	70,000.00	
- Miscellaneous expenses	<u>20,000.00</u>	
Total	N	<u>195,000.00</u>
Grand Total (A and B)	N	<u>505,000.00</u>

BENEFITS OF THE PROPOSED SYSTEMS

1. Better Planning of Information
2. Prevent Misfilling of documents
3. Security of Records
4. Reduce cost on stationaries
5. Allow quick availability of records.

CHAPTER FOUR

4.0 SOFTWARE PROGRAM DEVELOPMENT

4.1 INTRODUCTION:- Software are basically programme. Without the software, the hardware cannot be put into effective use. To develop an enduring systems, certain stages of development are planned, structured and implemented.

4.2 CHOICE OF PROGRAMMING LANGUAGE The language used in programming is Database Management System IV (Dbase IV).

A Database Management system (DBMS) is software that constructs, expands and maintain the data contained in database. It provides the interface between the user and the data in such a way that it enable the user to record, organize, select, report or and otherwise manage data contained in the database.

A database can be defined as a mechanized shared and centrally controlling collection of data used in an organisation. It is any collection of useful information organized in a systematic and consistent manner. A database can also be regarded as an organised database where the data are stored.

4.3 FEATURES OF LANGUAGE CHOSEN

Dbase IV was designed by Ashton Tate. It is an advance version of Dbase, that provides a full relational Database to users. It has a control centre from where one can design database, manipulate, edit records an files and generate report. The feature include:-

1. Security:- Data will be protected from unauthorised users.
2. Data Integration:- This enable two or more applications to be sharing compatible data thereby allowing the users to gain valuable information by linking data across the organisation.
3. Data Redundancy: This is reduced or even totally eliminated. Redundancy occurs in a file processing system when data cannot be arranged to suit all the applications programs accessing these data.

4. Data Independence: This seeks to allow for changes in the content and organisation of physical data without reprogramming of application, and to allow modification to application programs without reorganising the physical data.

4.4 HARDWARE/SOFTWARE REQUIREMENTS

4.5 HARDWARE REQUIREMENTS

2 Microcomputers of not less than a Pentium microprocessor with a minimum Ram of 16 MB and a speed of about 166 (Megahertz). One of the computers should possess a hardware disk capacity of about 1.7Gb and a floppy disk drive unit providing for 3.5 inches diskette. The other one can pose a less configuration in terms of speed and RAM capacity.

A printer of neat letter quality feature and speed of about 1200 lines per minute with a maximum width of 132 characters per line is recommended. Specifically an Epson Printer, LQ2170 is recommended. In addition, a Laser Jet Printer of 5L or 6L is also recommended. Also a UPS/Stabilizer is recommended.

4.6 SOFTWARE REQUIREMENT

- Dbase IV
- Word Perfect 6.0 or above.
- Pagemaker

4.7 CHANGE-OVER PROCEDURE

This entails the switching from the old system to the new system, it is also known as system conversion. There are (3) methods of change-over procedures namely:-

1. **Parallel method-** In this method, the old system and the new system are run concurrently. Their outputs are being compared and reasons for difference resolved, until the new system has proved satisfactory.
2. **Direct method-** This is the total replacement of the old system with the new one. The old one is kept aside in the event of failure of the new system. The organisation can easily revert to the old system.

3. **Pilot Change-over-** This is variation of either of the two methods.

For the proposed system, the Parallel method is recommended for the hospital. This allows the results of the old system to be compared with the new system.

4.8 POST-IMPLEMENTATION REVIEW

This is the effort of the users in getting the new system into operation after the system has been installed.

The most fundamental concern during post implementation review is determined whether the system has met its objectives. The system has to be re-examined to make sure that it is working well.

4.9 MAINTENANCE

Like any other electronics, the computer and its program need to be checked to assess the quality of its work for the purpose of this project, the developer will maintain the software.

4.10 TRAINING

The staff need to be trained on how to use the system. This is essential for Records department. The training required for the personnel is in terms of using application packages. Specially, the personnel are expected to be trained on the following:-

- Dbase IV
- Word Perfect.

The training in Dbase is to enable the personnel carry out little maintenance on the software developed. The Word Perfect is expected to be used for preparation of official document. In addition, the personnel in the department and where chances permit from other departments in the hospital should be properly trained on how to use the proposed system. This is important so as to avoid unexpected problems while using the system.

4.11 INPUT SPECIFICATION

Input data are provided from the registration form. The form contains the following data elements:-

- a. Date
- b. Registration
- c. Number
- d. Surname
- e. Other names
- f. Sex
- g. Age
- h. Marital status
- i. Date of Birth
- j. Rank
- k. Military number
- l. Post
- m. Relationship
- n. Section

Here the filing of this form and some data elements depend on the class of the officer/personnel or patient. The form is divided into two sections:-

1. Military officer/soldier/family
2. Civilian personnel family.

4.12 OUTPUT SPECIFICATION

The output is what is expected to be produced by the new system. The followings are the type of output that can be operated from the systems:-

1. Individual Medical Report (Appendix A)
2. List of all registered Military family in the center (Appendix B)
3. List of all registered civilian family (Appendix C)

4.13

STARTING THE SYSTEM

THE MENU STRUCTURE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

From the study, it was discovered that the manual method of operating the hospital's medical record department is slow and cumbersome. Hence a change is necessary. The adequate use of computer has been considered to eliminate these problems. Indeed, it would be impossible to actually predict the future of medical records but what is clear is the need for all those engaged in the health care delivery system to be ready and willing to work together as a team towards the development of improved medical record keeping. With the great advancement in modern technology, it would be possible to predict that the development of medical record computer linkage would be an advancement in medical record keeping in a developing country like Nigeria.

Finally, the benefits derived from maximum utilization of available resources, especially in these hard times cannot be over emphasised. Hence, the funding of health services can only can be made with reasonable information derwed from, properly kept medical records of patients and this can best be achieved by adequate medical record linkage system through the computer.

Indeed, the opportunity available are many and varied, and the future, promises to open more avenues in information science to those in the field of medical record with vision.

5.1 RECOMMENDATIONS

It is recommended as that the new system be implemented as this will bring lots of succor to the hospital these succors include:-

1. Speed in processing
2. Large storage facility
3. Process large volume of transaction
4. Accuracy of result
5. Information can be retrieved easily and quickly.
6. More terminals to be purchased & training of more personnels in the use of computers should be encouraged.
7. The whole hospital should be linked with computers for easy access of information as at the time of emergency.

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APPENDIX A**OUTPUT FORM REPORT**
INDIVIDUAL MEDICAL REPORT

NAME OF PATIENT	HOSPITAL NO.	DATE OF CALL	DIAGNOSIS	TREATMENT
MAJOR LOUIS OFOR	ART.060	6/7/99	FEVER	DRUGS & DISCHARGE
MAJOR LOUIS OFOR	ART.060	12/9/99	PAINS IN THE BODY	DISCHARGE
MAJOR LOUIS OFOR	ART060	18/10/99	SWELLINGS	DRUGS GWEN

APPENDIX B**OUTPUT MEDICAL REPORT****LIST OF ALL REGISTERED MILITARY FAMILY IN THE CANTONMENT**

NAME	REG. NO.	HOSP NO.	RANK	UNIT	R/SHIP
Mrs. Mary Zulu	H420	Art 415	Lt. Col.	4	Wife
Joseph Zulu	H421	Art 416	Lt. Col.	4	Son
Ngozi Zulu	H422	Art 417	Lt. Col.	4	Daughter
Paul Zulu	H423	Art 418	Lt. Col.	4	Brother
Pius Okafor	H424	Art 419	Major	6	Self
Peter Okafor	H426	Art 420	Major	6	Brother
Ndidi Okafor	H426	Art 421	Major	6	Daughter
Patience Okafor	H427	Art 4244	Major	6	Daughter
Dominic Okafor	H428	Art 425	Major	6	Son

APPENDIX C

OUTPUT MEDICAL REPORT

LIST OF ALL REGISTERED MILITARY PERSONNEL

NAME	REG. NO.	HOSP. NO.	RANK	UNIT	R/SHIP
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

MAINSTE.PRG

```
set status off
set talk off
n = 0
set color to
set colo to b/g,w/n
do while n <= 50
@8,5 to 20,70 double
@10,8 say "THIS SOFTWARE WOULD ALLOW YOU TO ENTER DATA FOR
PATIENTS"
@12,10 SAY "THAT ARE ADMITTED INTO THE VARIOUS WARDS AT "
@14,17 SAY "THE MILITARY HOSPITAL"
@16,20 SAY "You are welcome for your working session pls"
@18,30 say "Wait....."
n = n+1
enddo
clea
do while .t.
store space(5) to pass
@8,6 to 12,70 double
@10,10 say "please, type in your password and press enter key"
@23,10 say " "
set colo to n
accept " " to pass
clea
set colo to B/G,W/N
if upper(pass) = "AMINU"
do stma
else
store space(5) to pass
@8,6 to 12,70 double
@10,10 say "wrong password,try again and press enter key "
@23,10 say ""
set colo to n
accept " " to pass
clea
set colo to B/G,W/N
if upper(pass) = "AMINU"
DO STMA
ELSE
SET COLO TO B/G,W/N
@8,6 TO 16,70 DOUBLE
@10,12 SAY "You don't have the right permmision to use this"
@12,28 say "software please."
@14,10 say "Press any key and dont illegally use this software
again."
read
clea
endif
exit
endif
exit
enddo
return
```

STMA.PRG

```
Set talk off
set status off
set color to
Do while .T.
set colo to b/g,gw/n
Store 0 to ans
@2,2 to 24,79 double
@4,4 say "pls, choose a no corresponding to one of the
operations stated bellow" get ans pict "9"
@8,4 say " 1 Female Medical ward operations"
@10,4 say " 2 C Medical Ward opration"
@12,4 say " 3 A surgical ward operation"
@14,4 say " 4 B surgical ward operation"
@16,4 say " 5 Female surgical ward operation"
@18,4 say " 6 Peadiatric ward operation"
@20,4 say " 7 Gyneacology ward operation"
@22,4 say " 8 Return to dot prompt"
Read
clea
Do case
Case Ans = 1
Use FMW
set colo to b/gw,w/g
@1,7 to 7,75 double
@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR
PATIENTS"
@5,29 SAY "AT FEMALE MEDICAL WARD"
@23,38 say "Press any key to continue please....."
read
@23,38 say space(38)
Do Ste
Case ans = 2
Use CMW
set colo to b/gw,w/g
@1,7 to 7,75 double
@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR
PATIENTS"
@5,29 SAY "AT C MEDICAL WARD"
@23,38 say "Press any key to continue please....."
read
@23,38 say space(38)
Do Ste
Case ans = 3
Use Asw
set colo to b/gw,w/g
@1,7 to 7,75 double
@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR
PATIENTS"
@5,29 Say "AT A SURGICAL WARD"
@23,38 say "Press any key to continue please....."
read
@23,38 say space(38)
Do ste
Case ans = 4
Use BSW
set colo to b/gw,w/g
@1,7 to 7,75 double
@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR
```

PATIENTS"

@5,29 Say "AT B SURGICAL WARD"

@23,38 say "Press any key to continue please....."

read

@23,38 say space(38)

Do ste

Case ans = 5

Use FSW

set colo to b/gw,w/g

@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5,29 Say "AT FEMALE SURGICAL WARD"

@23,38 say "Press any key to continue please....."

read

@23,38 say space(38)

Do ste

Case Ans = 6

Use Pw

set colo to b/gw,w/g

@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5,29 SAY "AT PIADIATRIC WARD"

@23,38 say "Pess any key to continue please.....:"

read

@23,38 say space(38)

Do ste

Case ans = 7

Use GW

set colo to b/gw,w/g

@3,14 say "THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5,29 SAY "AT GYNEACOLOGY WARD"

@23,38 SAY "Press any key to continue please....."

read

@23,38 say space(38)

Do ste

case ans = 8

Exit

Otherwise

Loop

Endcase

enddo

clea

close database

Return

STE.PRG

Do While .t.

Store Space(1) to ans

Store space(12) to MSname

Store space(20) to MOname

Store space(40) to Maddr

Store space(15) to MNation

Store ctod(" / / ") to MDOA, MDOD

Store 0 to MAGE,mno

Store space(6) to Msex

```

Store space(58) to Mdiag
Store space(20) to Moccupa
mno = mno + 1
Do While .T.
set colo to b/g,w/n
store space(1) to ans
@9,2 to 24,79 Double
@11,60 say "Serial no " get mno pict "9999"
@13,4 say "Enter Surname" Get MSname
@13,40 say "Enter Other names" Get MOname
@15,4 say "enter Address" Get Maddr
@17,4 say "enter date of Addmission" get MDOA
@17,43 say "Enter nationality" Get MNation
@19,4 say "Enter Sex" Get Msex
@19,43 Say "Enter Age" Get Mage pict "999"
@21,4 say "Enter occupation" get Moccupa
@21,43 say "Enter Date of Discharge" Get MDOD
@23,4 say "Enter diagonisis" get Mdiag
Read
@9,2 clea to 24,79
@16,4 to 22,70
@18,6 say "Press (R) to review your entries or (A) to abort
saving"
@20,12 say "or any other key to save the record" get ans
Read
Do case
Case upper(ans) = "R"
@9,2 clea to 24,79
set colo to b/g,w/n
Loop
Case upper(ans) = "A"
@9,2 clea to 24,79
Exit
Otherwise
Append blank
Repl no with Mno, Sname with MSname, Oname with MOname, Addr
with Maddr, DOA with MDOA
Repl Nation with MNation, Sex with Msex, Age with Mage, Occupa
with Moccupa
Repl Diag with Mdiag, Dod with MDod
exit
endcase
enddo
@9,2 clea to 24,79
store space(1) to ans
@18,2 to 22,70
@20,6 say "do you want to enter data for more patients (y) or
(n)" get ans
Read
If upper(ans) = "Y"
@9,2 clea to 24,79
set colo to b/g,w/n
loop
endif
clea
exit
enddo
close database

```

return

NumCaps

please, type in your password and press enter key

, choose a no corresponding to one of the operations stated bellow 0

- 1 Female Medical ward operations
 - 2 C Medical Ward opration
 - 3 A surgical ward operation
 - 4 B surgical ward operation
 - 5 Female surgical ward operation
 - 6 Peadiatric ward operation
 - 7 Gyneacology ward operation
 - 8 Return to dot prompt
-
-

THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS
AT FEMALE MEDICAL WARD

Serial no 1

er Surname AMINU

Enter Other names JUMMAI

er Address MILITARY CANTONMENT, KONTAGORA

er date of Admmission 12/06/99

Enter nationality NIGERIAN

er Sex FEMALE

Enter Age 38

er occupation CIVIL SERVANT

Enter Date of Discharge 01/07/99

er diagonisis MALARIA FEVER



