

DESIGN AND IMPLEMENTATION OF DISEASE

MONITORING SYSTEM IN A HOSPITAL

(A CASE STUDY OF GENERAL HOSPITAL – MINNA)

BY

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APPROVAL PAGE

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DEDICATION

This system design is dedicated to the Almighty God, my beloved
mother, Mrs Marcelina Okegbe

and

Mr & Mrs Elias Icheku

ACKNOWLEDGMENT

I thank the Almighty God for life and good health given to me till the completion of my project work.

As my project work is being completed, I wish to Appreciate and thank my project-supervisor; Mallam Isha Awudu, my project co-ordinator; Mr L. N. Ezeako, my H.O.D Dr. S. A. Reju for their great and valuable assistance in producing my project design. My greetings to all the lecturers in the department for the knowledge impacted unto me during the course of the study. I am grateful to Bro. Ben. Oruh for his comments and suggestions. I must therefore thank staffs from General Hospital Minna which I used as my case study; Mrs Naomi and Co. Mr Abuakar Medical records department, Mr Zuberu, statistics unit for their attention and material for this project.

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Thanks to you all.

OKEGBE ESTHER

ABSTRACT

Medical records department tends to be piecemeal in nature and the nature of the medical terms with computer technology.

This project design addresses the upkeep of medical record patients and diagnosis, thereby providing a referable point for providing accurate and reliable information about disease. The project is divided into five (5) chapters followed by bibliography. Chapter 1 is all about the problems and its setting which contains; statement of the problem, importance of the study etc.

Chapter 11 provides the literature review of the design, which includes; the role of Disease monitoring system etc. In chapter 111 enumerates the database and program design and their analysis. It is hoped that this project will prove useful to those actively engaged in keeping and maintaining medical records as well as the medical doctors, medical students and practicing Doctors.

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CHAPTER ONE

THE PROBLEM AND ITS SETTING

INTRODUCTION:

This project research is on design and implementation of a system that will be monitoring diseases in hospital. From an insight view of the General Hospital Minna, which serve purposes such as providing facilities for training doctors and other health personnel, promoting medical research, caring for the sick in the community, and in this regard acting as a referral center for the more seriously disease. It has shown that the disease monitoring system is an element of interacting whole. It is an important element in maintaining vital statistics on recording and analyzing data concerning diseases and enables doctors and other medical personnel or professionals to get a view of disease or a particular disease (its symptoms, causes, mode and duration of treatment).

Other related information like the patient's name and residence, the type of the disease (whether communicable or not), number of reported cases on a period of time, the number of death caused by the disease, etc. help in controlling and preventing an epidemic outbreak within a region.

Medical Records and its importance:

This is a record created for a patient during hospitalization. It is also

a record of medical storage of data. It involves cares given by the doctor, nurses and other para medicals under health profession.

The importance of medical records to patient are the following:

- It saves the patient from unnecessary Investigation
- It allows continuity of the treatment of the patient that is, if the previous records are kept, it helps the doctor to know where he stops and where to start.
- If the previous Investigations are recorded e.g lab results, X- ray etc. It saves the patient from spending unnecessarily.
- To the doctors, the memory is short, with the help of records doctors do go through and improve on their knowledge.
- Medical records allows the doctors to know how patients are responding to the therapy given.

Record keeping: This is an important aspect in medical Record keeping. Doctors must have patients record to enable them know how they are reacting to the therapy given.

OBJECTIVE OF THE STUDY

1. To Design and implement a disease monitoring system in the hospital.
2. To ensure accuracy on disease occurrence in hospitals.
3. To ensure efficiency and easy checking on disease occurrence in hospitals.

THE HYPOTHESIS

A hypothesis is an "educated guess" about possible difference relationship, or cause effect relationship can be empirically tested.

A hypothesis, therefore, is forward looking as it states what we are looking for. It is a proposition which can be put to a test not to prove or disprove it but to confirm (support) or reject it through data collection and analysis, it could be classified as either research hypothesis or statistical hypothesis.

HOW TO STATE A STATISTICAL HYPOTHESIS:

Statistical hypothesis is a proposition about statistical populations which is to be verified on the basis of data (or information) collection from a sample of that population.

They express the relationship between two or more variables but in statistical and measurable terms. The statistical parameter on which the test is to be based is specified and the variables are reduced to numerical quantities. This is the form in which hypothesis are tested, not as research hypothesis. Statistical hypothesis could be formulated in two forms as null hypothesis or as alternative hypothesis.

NULL HYPOTHESIS.

A null hypothesis is a hypotheses which states that no difference or no relationship exist between two or more variables. It is a hypothesis of 'no effect' or no significant difference between the mean science concept acquisition scores of the student taught with improvised materials and those taught without improvised materials.

HO2 The mean achievement scores of the students who had prior knowledge of instructional objectives and those who did not have prior knowledge of instructional objectives will not differ significantly.

It is in the null form that hypothesis are usually tested. This null hypothesis is usually tested against what is called an alternative hypothesis.

Alternative Hypothesis

An alternative hypothesis is a hypothesis which specifies any of the possible condition not anticipated in the null hypothesis its specifies condition which will hold if the null hypothesis does not hold.

There is significant difference between the mean science concept acquisition scores of the student who had have prior knowledge of objectives and those who did not have prior knowledge of instructional objectives will differ significantly.

MANUAL METHOD OF RECORDING

Diseases records in hospitals are kept manually, mostly on paper files and cards. Access to those records take long time. This is because the files and cards, has to be searched sequentially one after the other. Most of these records are misplaced or lost completely at times due to human fallibility.

In this manual method of recording, two methods are involved. (1) out patient and (2) In patient cards/Register. The out patient card/register contains the following data.

DATE, HOSPITAL NAME, NAME, ADDRESS, TRIBE, OCCUPATION
AGE, SEX, DIAGNOSIS.

The IN-PATIENT Card/Register also contains the following.

DATE, NAME, OTHER NAME, ADDRESS, DATA OF ADMISSION,
NATIONALITY, SEX, AGE, OCCUPATION, RELIGION, DIAGNOSIS,
RESULT CONSULTANT, DATE OF DISCHARGE, AND FINAL DIAGNOSIS.

SCOPE/LIMITATIONS

For the purpose of this project design, I was limited to the design of a system that keeps vital records of patients such as Date, Name etc. And diseases such as the cause of the disease, diagnoses, therapy etc. This helps in monitoring disease cases reported in the hospital.

Equally, the program will take care of the statistics aspect which is simply the number of patients and cases that is reported in the hospital on daily, monthly and yearly bases. This also includes the number of deaths recorded

the application of computer should be on heading patients with heart disease symptoms.

THE IMPORTANCE OF THE STUDY

The purpose of this design is directed towards designing a system that will be monitoring disease in hospitals. Also it must be stated that the designing system will help in knowing the diseases that are diagnosed and treated.

The system accumulates information for internal use by the hospital and stores the information in computer, for further uses. It is also believed that such design will go a long way to help medical practitioners for faster retrieval of information mostly in the area of checking an occurrence of particular disease, it's symptoms and it's treatment.

The efficiency of this design will be apparent to doctors and others in the medical field. It is also hoped that this design will go a long way in meeting the needs and aspirations of those in the medical field through the monitoring system.

Finally, the system will greatly aid in disease control and prevention, thereby hindering epidemic out break in a community or region.

Definition of Terms

1. Ailment - This is another word for illness
2. Diagnose - Determine the nature of a disease from symptoms.
3. Epidemic- A disease rapidly spreading among many people in the same place for a time.
4. Field - A sub division of a record containing an item of information.
5. File - A collection of logically related records e.g. A transaction.
6. Hard ware- It is the physical units of computer system.
7. Symptom - Change in the body's condition that indicates illness.

THE ORGANIZATION OF THE STUDY

This study is divided into four (4) sections.

Namely:- The preliminaries, the chapters, the bibliography and the appendix.

The preliminaries, include: the Abstract, dedication, acknowledgment, the title page and the table of contents. The chapters are divided into five (5) chapters. Chapter 1 treats, the problem and its setting, this includes; statement of the problem, manual method of medical recording, the

hypothesis; The Delimitation/Scope, the importance of the study etc.

Chapter II, treated te review of the related literature and overview of diagnostic and treatment at General Hospital Minna.

Chapter III treated the Database design which includes; file design structure, processing techniques etc. .

Chapter IV treated the program design and development. In this chapter ,were the program flow chart program coding and the implementation.

Chapter V comprises the user documentation, the hard ware requirements and recommendations.

The bibliography contained the names, the authors of the books referenced during the course of the study design.

Finally, the appendixes which contained the program used.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION:

The word disease means "not at ease", it can also be defined as any deviation from the normal situation in mind or body which always accompanied with symptoms or cause, moreover, some diseases are curable while some are incurable.

Constantly occurrence of disease and the way in which they occur and spread, also the maintenance of medical records and indexes enabled me to design a system that will be monitoring diseases, in that, the system may have all of the available and usable information that will help medical practitioners to learn more about all diseases and their treatments. Though, in hospitals computer can be used as a monitoring device which also have diagnostic applications, but his design is limited to keeping vital information on diseases.

COMPUTER AS MONITORING EQUIPMENT IN HOSPITAL

Critically ill and surgical patients in the intensive care unit are carefully monitored by the aid of a computer. The patient will be connected to computer sensing device which can instantly detect any dangerous or abnormal physiological parameters of the body function, such as a sharp rise

and fall in pulse rate or temperature.

Computer, as a monitoring tool, is also applied in the boiling rooms at many hospitals. By means of computer connected sensing devices, the fetal heart can be continually monitored during labour and both signs of trouble can be easily detected and quick action taken to save the child's life and prevent damage to its brain.

DIAGNOSTIC APPLICATION OF COMPUTER IN HOSPITAL

Computer as a diagnostic tool has become increasingly significant. Some hospitals have instituted programmes in which patients are given a series of tests by trained personnel. The data then fed into analyzed by a computer which has been programmed to test for specific limits.

One areas of diagnosis where computers is applied is in reading electro cardiograms (ECGS). ECGS is ordered only for patients with heart disease symptoms. The computer can read ECG very quickly classify the result of the test as normal, abnormal and sometimes even specifying the type of abnormality and another application is CAT (Computerized Arid Tomography) scanning. It is used to determine whether he has had a stroke previously and the area of the brain the stroke has been affected.

This machine performs its function by taking thou as of X - rays of minute slice of the body structure and then combining them all into one picture displayed on the screen. By means of this picture, the doctor can see

the problem and possibly the correct treatments. The CAT scanner can also be used to diagnose ailment in other parts of the body where cell damage may have occurred, such as heart. In both cases, a computer serves as an information processing tool with a huge memory and a program capable of comparing input data with relevant information stored in the memory.

DISEASE MONITORING SYSTEM:

Disease monitoring system is a computerized approach to complete keeping of disease records. It keeps and maintains vital statistics on recording and analysing data concerning disease diagnosed and treat in hospital. This system has the capability of storing information on patient records. Patient case histories treatment and it's duration, the severeness of the disease.

The disease monitoring system s infact a stand alone reference system which provides efficient accurate information about diseases, more often the diagnosed and treated diseases.

THE APPLICATIONS OF DISEASE MONITORING SYSTEM

Disease records in hospitals are kept manually, mostly on paper files and cards. Access to those records take long time. This is because the files and cards has to be searched sequentially one after the other. Most of theses records are misplaced or lost completely at times due to human

fallibility. But with this computerized approach the reverse is the case. All the information one wants, can be accessed and made available immediately, thereby saving time. Hence, the disease monitoring system's power to have records on diseases has made it desirable in hospitals, and its inherent low cost compared to manual system, makes it practical.

Keeping statistical analysis of diseases represents one of the very application of disease monitoring system in hospitals. By keeping statistical analysis of diseases which is stored in the computer, information about diseases can be easily obtained. The statistics often serve many needs which includes:

- Determining the type and the number of reporting cases (diseases) within a period of time in a hospital. This is from the fact that every reported case was recorded and stored.
- Determining symptoms and their possible causes of various disease, and in linking specific disease with particulars related to personality, physical characteristics, environmental conditions, heredity, etc. because each is being recorded with its possible causes and symptoms.
- checking the proposed treatment of a disease. Information on treatment include; severeness of the disease, duration of treatment, means of treatment and the prescribed drugs, etc. For instance,

instead of a doctor treating a patient on probability bases, and later, the disease might re-occur. The doctor need just reference the monitoring system to check the exact treatment required for the disease to be cured completely.

- To determine the disease which easily kill. In addition, to check mortality rate at any time in a hospitals. If a patient died of any disease, the record has to be kept such disease kills the patient.

Another application is on epidermic out break and control. Epidermic control implies that the monitoring system is monitoring the disease records being stored in to the system by periodically checking one or more diseases that are higher in number. Once such is detected, the records of the patients with such disease (s) are compared, to know whether the patients come from the same area or region or if they have any relationship pertaining a particular area.

From the records the user of the system will know if there is a possibility of epidemic outbreak within an area or region, have control measures will then be taken to control or hinder the outbreak.

For example, in a hospital where there is more than (20) numbers of reported cholera cases within a short period of time.

Once the monitoring system specifies or gives out a message concerning that the systems user checks the patients records. Each record

contains such information as:

- Patients name, age and residence.
- causes and symptoms of the disease.
- time elapsed before reporting case to hospital
- places visited in the last one month etc.

From the records, the user can detect the possibility of epidemic outbreak and then report such to the necessary authority to take control measures.

Detective mechanism of diseases is an additional application. This means discovering the manner of diseases situation in the body.

The monitoring system holds data on diseases symptoms body parts a disease affects and other parts it may affects if the situation proceeds, the effect of the disease from it beginning to the end of the disease in the whole body. Also is the prevalence illness or sickness which may accompany the disease. These information give data for analysis to the system. Thus providing user with a vehicle to detect mechanisms of any disease which has been diagnosed.

Finally, disease monitoring system helps yelling medically and allied professionals, that is, young in the field in checking precise dosage of drugs. Again to know the necessary first aid to a particular disease.

THE ROLES OF DISEASE MONITORING SYSTEM

The roles of monitoring is rather evident. In the past, disease records are often recorded on paper files and cards. Any analysis of the records are done manually and usually by searching the files and cards sequentially. As a consequence disease monitoring system were designed to provide storage of disease records in a form that minimized the need for manual analysis thereby providing accurate and timely data or information.

The major undertaking of this monitoring system is the detecting, analyzing and recording of disease data. So it is technically quite possible to follow up the mortality and health information of very large cohorts that suffered the same disease.

In addition, disease monitoring system is used for reference purposes by medical and allied professionals in obtaining data and information pertaining to diagnosed disease in a hospital.

THE OVERVIEW OF DIAGNOSTIC AND TREATMENT AT GENERAL HOSPITAL MINNA

General hospital Minna operates on a unit system. Unit system in the sense of keeping one case note for a particular patient. That is one patient to one case note. The case note is used for keeping patients records in the hospital, and the patients card or referenced and is used for tracing the case

note. This card is been kept by the patient which he or she bring along to the hospital. The case note helps a doctor to get at a glance cases a patient have previously suffered for continuity of treatment, it is always coded for indexing.

Again an alphabetical master index card is the key to the unit system. It is used when a patient lost the patient's (reference) card or forgot to bring along to the hospital. In this care, the patient's name is used to trace patients records through the alphabetical index card. The index cards are arranged alphabetically thereby enhancing the quick retrieval of the patients case note.

Meanwhile, when a person reports to a hospital, he or she obtains a card and go in for doctor's examination. If the doctor observes familiarly symptoms, he (doctor) will diagnose the case, hence the treatment of the case. But if not familiar he refers the person (patient) to X - ray or tests like blood test, widal test etc. It is from the result of the X - rays or tests that a case will be diagnosed.

First aids may be given or administered to the patients before the diagnosis. is confirmed the real treatment commences.

Furthermore, some patients come with provisional diagnosis, while some like the out-patients do not come with provisional diagnosis. The out - patient are patient with emergency case or accident case. When such case or any case involving blood is been reported in the hospital, the patient is

carried to "accident and emergency unit" of the hospital for first aid and diagnosis before referring the patient to the specialized unit for the case specialist to handle the case. In a situation where the hospital is unable to treat a case, a specialist doctors is invited from outside to handle it.

Lastly, all diagnosis and operations are represented with code number which are universally accepted. Re-codes are obtainable from a book used for disease classifications called "international classification of diseases (ICD).

CHAPTER THREE

THE DESIGN

INTRODUCTION

The patient records can be viewed as one dimensional arrays which consist of a series of related data items or elements. The elements are called the fields and they include: patient names, address, sex, date of birth, time admitted, hospital or unit number, etc patients records are form together into files - card files in manual operation. In a computerized environment, the files are organized in a similar way to the manual system which was being replaced. Thus, this new designing system that has the purpose of keeping patients and diseases records is been based on files of records similar to card files containing details of the patients and diseases.

Files of this design, are sequential files types. Records are in sequence of one kor more key fields. The primary key in this design files is the patient hospital or unit number, it is the only key access to any patient records.

FILE DESIGN STRUCTURE

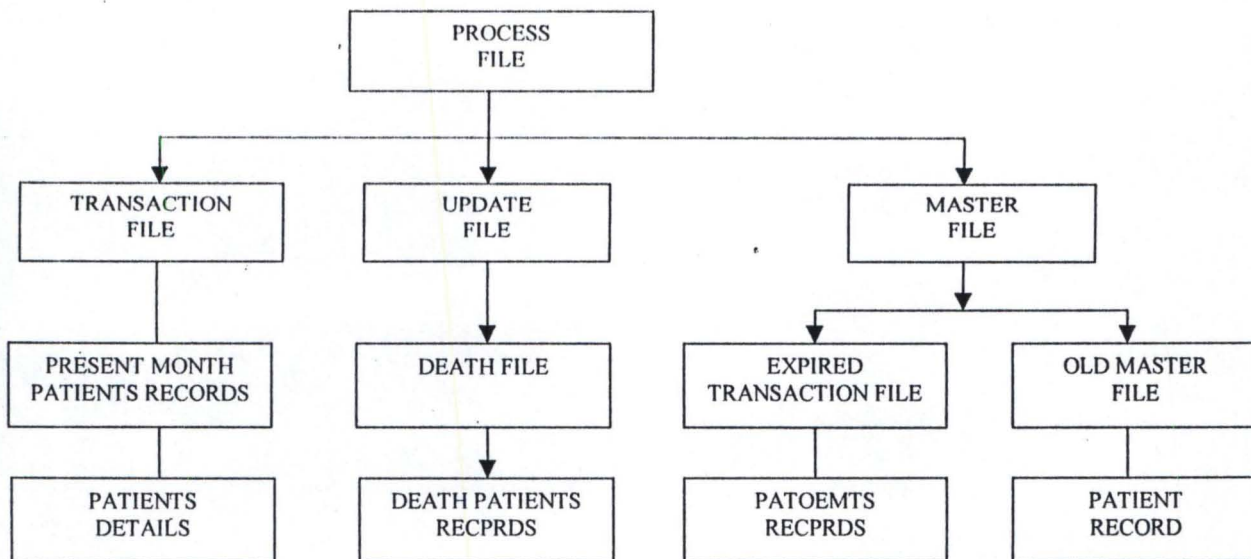


FIG. 3.1 FILE DESIGN STRUCTURE

The process file is the main file which contains the TRANSACTION, UPDATE and MASTER files.

The TRANSACTION file holds the present month patients records which contain the patient details. Each patient records in the TRANSACTION file is records that pertain to the present and at the end of each month, the file is used to update the MASTER file.

TRANSACTION file expires at the end of every month.

The UPDATE file holds the death file which contains the patient death.

Dead patients are referenced in the file by use of the month code for a particular date.

The MASTER file reflect both the old MASTER file and the expired TRANSACTION file. The master file holds records of all reported cases in the hospital before the beginning of the present month. At the end of each month, the MASTER file records and the original MASTER file (OLD MASTER FILE) records, creating a new MASTER file.

DESIGN OF THE FILE

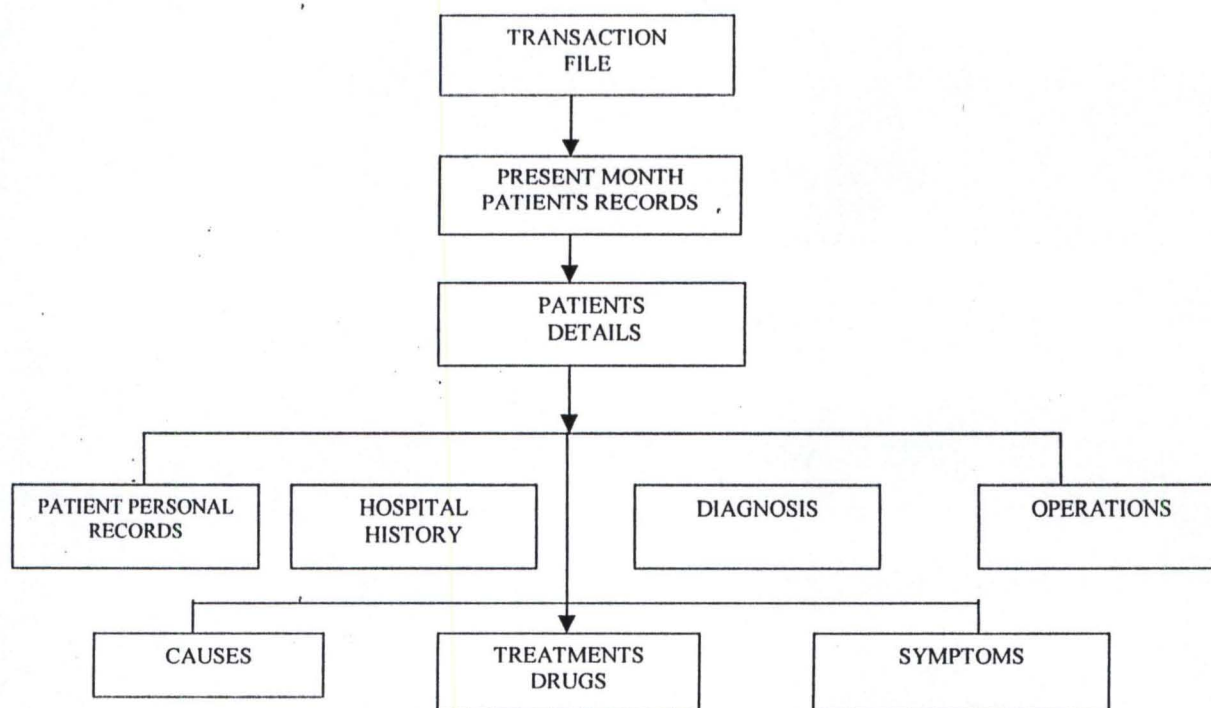


FIG. 3.2 TRANSACTION FILE DESIGN

TRANSACTION FILE: Contains the present month patients records which in turn contains the patient details. The details is the detail record of the patient and disease. The details include:

1. Patient personal records: hold data on the following fields; patient name, Address, unit number, date of birth, sex, place of origin, marital status, Name and address of the next of kin, place(s) visited in the last one month.
2. Hospital history: This record goes under the field: X - ray no, date attended hospital, date admitted, referred by, surgeon or physician, clinic, date discharged, discharged to, cured or worse died.

Diagnosis: It is a record on the diagnosed cases. The fields are: date of the diagnosis, the diagnosis, code number.

3. Operation: The operations performed on a patient. The fields are: date of operation, surgeon, operation, code number .
4. Treatment: this keeps records of the drugs taken for the treatment.
5. Symptoms of the diagnosed case.
6. Causes of the diagnosed case.

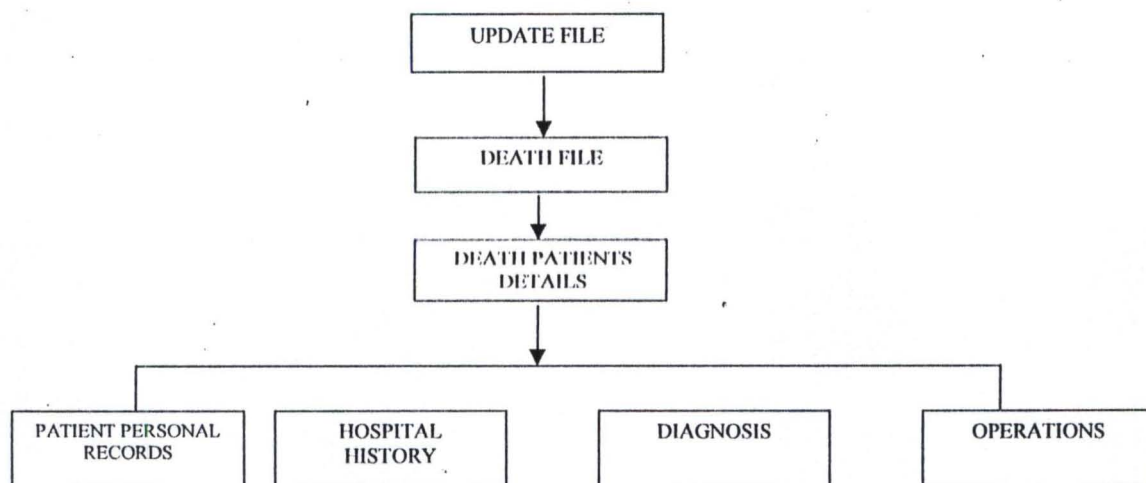


FIG. 3.3 UPDATE FILE DESIGN

UPDATE FILE: Reflects the death file which holds the death patients records. Patients records are updated if the patient is dead. Then the record is transferred to the death file. The death patient records contain records on the following heading;

1. Patient personal records patient name, address, sex, date of birth name and address of next of kin, etc.
2. Hospital history, date admitted, referred by, physician or surgeon, date died.
3. Diagnosis. The case that caused the patient death.
4. Symptoms and causes of the diagnosed case.

MASTER FILE

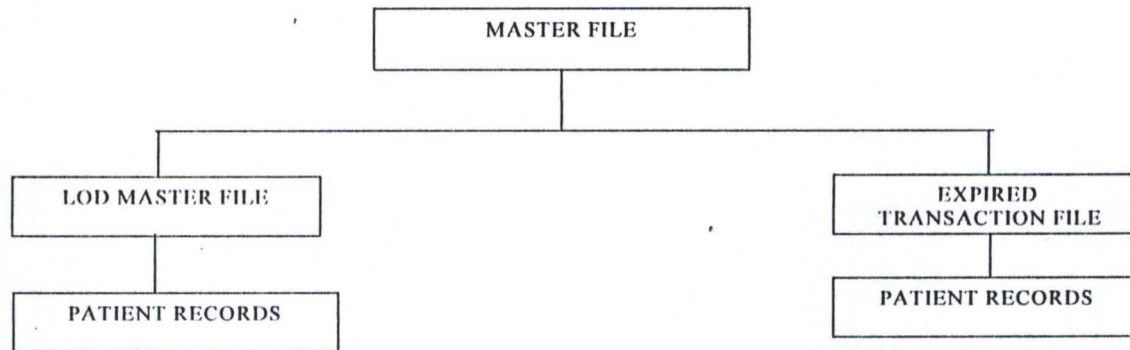


FIG. 3.4 MASTER FILE

MASTER FILE: This file holds records of all reported cases in the hospital. It is made up of the records in the old master file and the records in the fast month transaction file are used to up date the master file.

INPUT DESIGN:

Inputs are the patients detail. Each patient detail contains the following:

1. Patient personal records - patient name, address, unit number, etc
2. Hospital history - X - ray number date admitted, surgeon/physician,
3. Diagnosis - date of diagnosis, code number, causes, symptoms, treatments.
4. Operation - date of operation, operation, surgeon, code number.

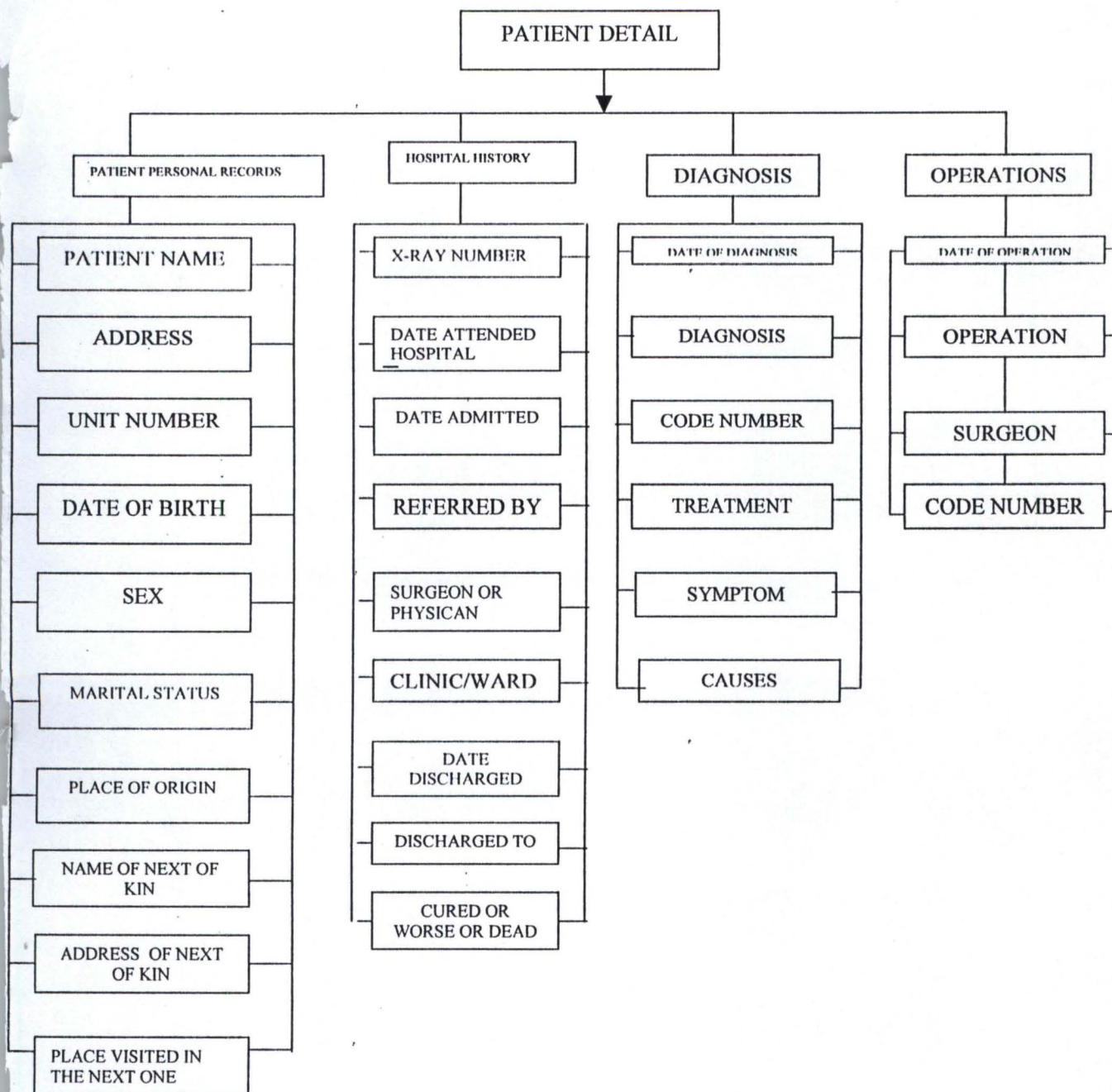


FIG. 3.5: INPUT DESIGN

OUTPUT DESIGN

The output format is the same as the input and also contains the following.

1. Patient personal records.
2. Hospital history,
3. Diagnosis
4. Operation.

THE PROCESSING TECHNIQUES

1. Accessing a file:- The method used to get data from a file is called the mode of access. The unit number is the key access to any record in the file.
2. Retrieving: In retrieving a data or record the key must be specified beginning at the first record in the file the key field on each records is checked. When a match is found, the record is retrieve.
3. Updating: To update, each record has to be read, changed, then written out to a new file. The key of the first record to be updated comes from the Transaction file, and the original file (old master file) is read. Changes are made and the changed records goges to the new master file. The key of the next record is found br reading the next record on The TRANSACTION file.

The process repeats until there is no more transaction file records.

The rest of the old MASTER file go into the new file.

4. Appending:- This allows records to be written to a file starting at a position after the last record of the file, for.
5. Amending: In amending, records or data can be added, deleted or altered in a file. The key of the record to be, amended must be specified. The key fields on each record is compared with the key specified, until match is found, thus, the record is amended.

THE PROGRAM DESIGN

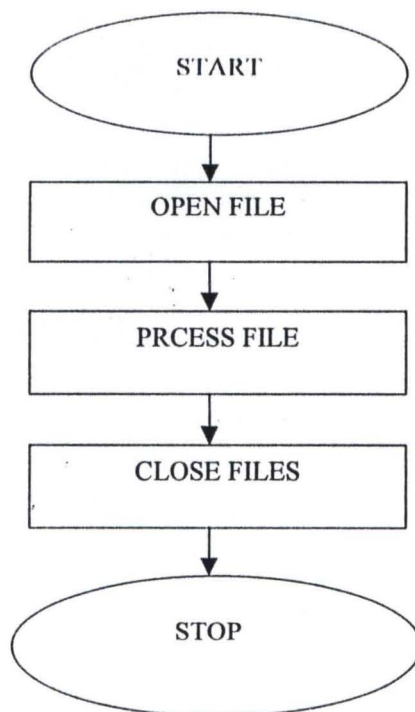


Fig. 3.6 BASIC PROGRAM STRUCTURE

The structure above is the basic program structure for all program

design. Before any processing takes place in the program, the files to be used must be opened and closed after the processing of the files. For instance, if new patient records are to be added to the files, the TRANSACTION FILE must be opened, and at the end of the processing, it must be closed.

The program of this design is to keep records of all the patients' reported cases in the hospital. In this program design, the options of the main menu are: Date entry, Retrieval/view records, statistics, up date, and End program. There exist sub menus for some of the options.

| | |
|-------------------|-----------------------|
| 1. | DATE ENTRY |
| 2. | RETRIEVAL/VIEW RECORD |
| 3. | STATISTICS |
| 4. | UPDATE |
| 5. | END PROGRAM |
| SELECT ANY OPTION | |

FIG 3.7 THE MAIN MENU

The options are like activities which can be performed in the program. To chose any of the options, the corresponding number should be pussed followed by the "ENTER" key. This lead you into the option selected. The work of the options are:

1. DATA ENTRY: Format: <"1"> <"ENTER">.

The option allows the user to enter new patient records since the file is sequential file type, the patient records when entered will follow the last record in the file.

2. RETRIEVAL /VIEW RECORD: Format: <"2"> <"ENTER">.

This allows the listing of details of any patient records, the whole database, daily entries or monthly records. Through the option, one can retrieve or view records.

3. STATISTICS: Format: <"3"> <"ENTER">.

The option gives the statistics on the numbers of patients and cases that is reported in the hospital on daily monthly and yearly bases. Also is, to check the mortality rate and forecast the most deadly ailment.

4. UPDATE: Format: <"2"> <"ENTER">.

The user uses this option to eliminate the records of the death patients and have them written into the death file. And also. Allows the update of a MASTER File through the TRANSACTION file (reading a new MASTER file. The UPDATE STRUCTURE is:

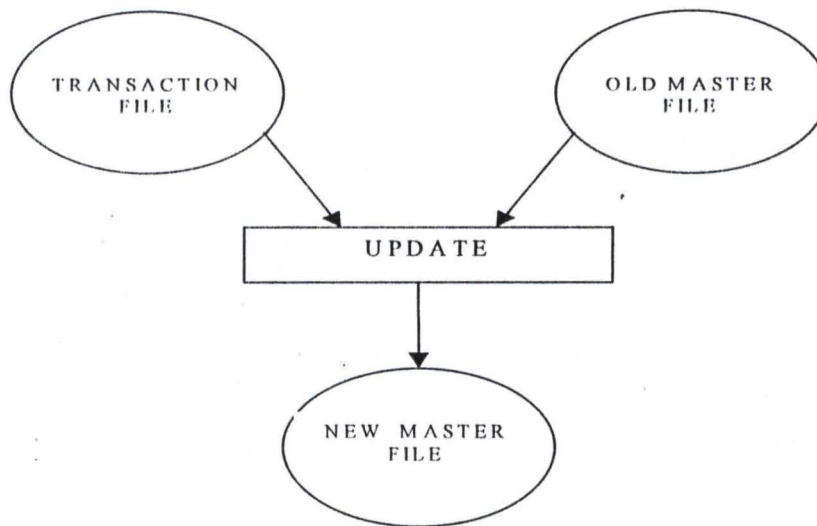


FIG3.8 SEQUENTIAL UPDATE.

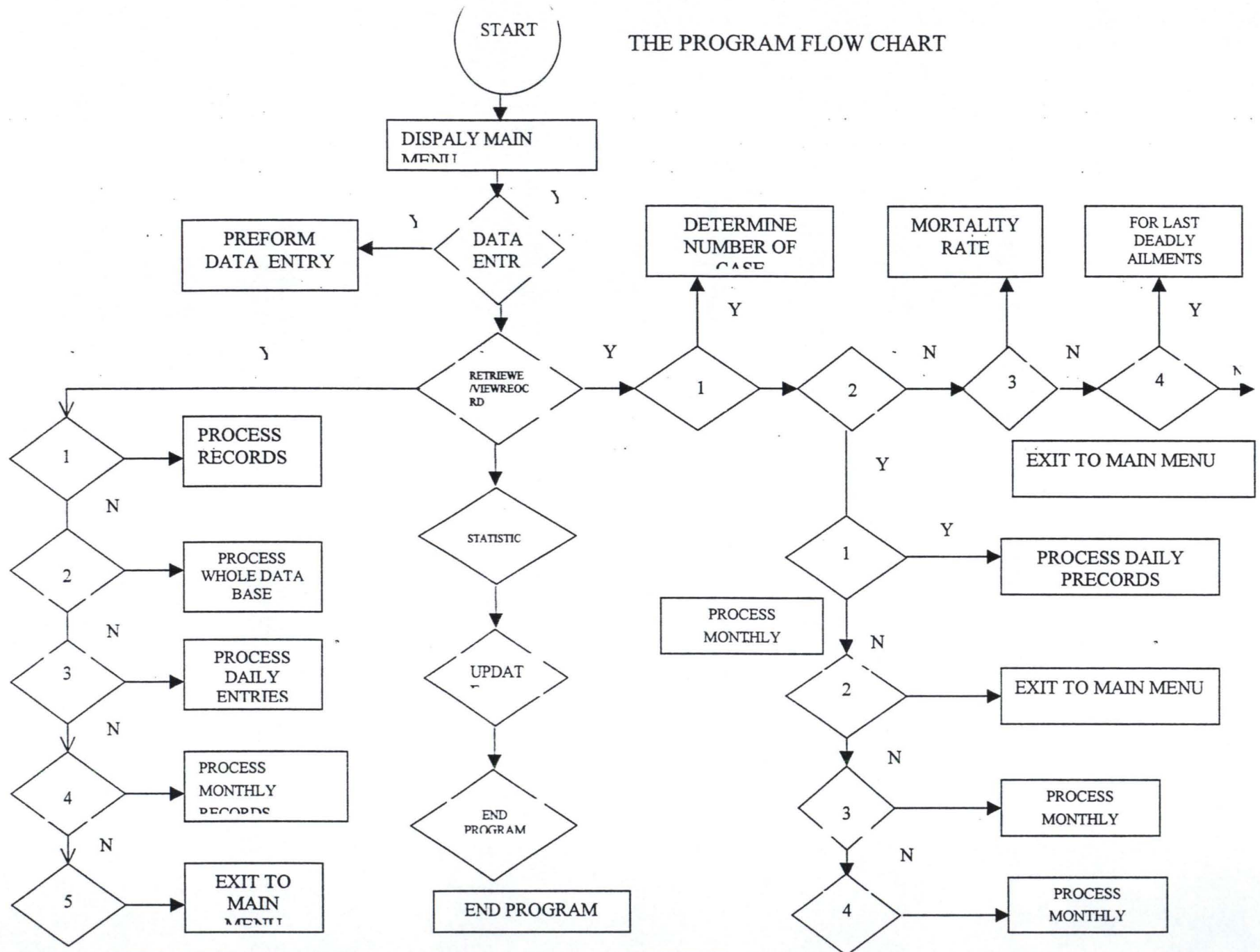
5. END PROGRAM: Format; <"5"> <"ENTER">.

The "End program" option allows the user to quit the program.

PROGRAM CODING.

Coding, I may say is the creation of programs which involves uniting of codes and it's subsequent checking and amendment, so that it performs its required function. In this design, BASIC language is used because it enhances readability, huge structure and power

THE PROGRAM FLOW CHART



APPENDIX

***PROGRAM NAME: MMENU (i.e MAIN MENU)**

CLEAR
SET STATUS OFF
SET TALK OFF
SET SCOREBOARD OFF

@2,18 FILL TO 6,64 COLOR W/GR+
@4,20 say " PATIENT RECORD KEEPING "
@5,20 say "----- M A I N M E N U ----- " color b/gr*

Define Popup Main from 8,28 to 16,54
Define bar 1 of main prompt " ADD RECORD " message "Add new records"
Define bar 2 of main prompt " MODIFY/UPDATE RECORD " message "Modify
existing records"
Define bar 3 of main prompt " VIEW RECORD " message "View records"
Define bar 4 of main prompt " STATISTICS " message "Display records"
Define bar 5 of main prompt " PRINT " message "Print records"
Define bar 6 of main prompt " EXIT " message "Exit to Dot Prompt"

On Selection popup main do major

do while bar() < 6
activate popup main
enddo

PROCEDURE MAJOR

Do case
case bar() = 1
do hospa
close all

case bar() = 2
do hospm

case bar() = 3
do hospv

case bar() = 4
do hospr

case bar() = 5
do hospp

case bar() = 6
clear
close all
deactivate popup

endcase
return

***PROGRAM NAME: HOSPA (i.e. TO ADD RECORD)**

set talk off
set scoreboard off
set status off

clear
do while .t.

mdate={}
store 0 to mpno
store space(15) to msurname
store space(15) to mfirst
store space(20) to maddress
bdate={}
store space(6) to msex
store space(10) to mstatus
store space(15) to sorigin
store space(15) to namekin
store space(20) to addkin
store space(15) to relate
store 0 to xno
daddmmit={}
store space(15) to refer
store space(15) to msurgeon
store space(15) to mclinic
ddisch={}
store space(10) to mdisch
store space(8) to mcure
ddiagno={}
store space(15) to mdiagno
store space(30) to mtreat
store space(30) to msyntom
store space(30) to mcause
doperate={}
store space(10) to moperate
store space(15) to msurg

clear
use hospital
set order to pno
@1,25 say " PATIENT DETAILS FORM "
@1,20 fill to 1,60 COLOR N/W

@2,28 say "PATIENT PERSONAL RECORD"
@2,25 fill to 2,51 color n/gr

@3,1 say "Patient Number"
@3,25 SAY "Date Registered "
*@3,21 say "Patient Number"
@4,1 say "Surname"
@4,35 say "First Name"

@6,1 say "Address"
@8,1 say "Date of Birth"
@8,30 say "Sex"
@10,1 say "Marital Status"
@10,30 say "State of Origin"
@12,1 say "Name of Next of Kin"
@14,1 say "Address"
@14,35 say "Relationship"
@16,25 say "HOSPITAL HISTORY"
@18,1 say "X-ray Number"
@18,22 say "Date Addmitted"
@18,45 say "Reffered by"
@20,1 say "Surgeon"
@20,27 say "Clinic/Ward"
@20,52 say "Date Discharged"
@22,1 say "Discharged to"
@22,38 say "Cured or Dead"

@3,16 get mpno pict "99999"
@3,42 get mdate
@4,10 get msurname pict "@!"
@4,46 get mfirst pict "@!"
@6,9 get maddress pict "@!"
@8,15 get bdate
@8,34 get msex pict "@!"
@10,16 get mstatus pict "@!"
@10,46 get sorigin pict "@!"
@12,21 get namekin pict "@!"
@14,9 get addkin pict "@!"
@14,48 get relate pict "@!"
@18,14 get xno pict "9999"
@18,37 get daddmmit
@18,57 get refer pict "@!"
@20,9 get msurgeon pict "@!"
@20,39 get mclinic pict "@!"
@20,68 get ddisch
@22,15 get mdisch pict "@!"
@22,52 get mcure pict "@!"
read

@23,17 say ".....Press any key to continue....."
@23,15 fill to 23,65 COLOR gr/n*
wait " "
@2,1 clear to 23,78

@2,25 say "DIAGNOSIS RECORD"
@4,1 say "Date of Diagnosis"
@6,1 say "Diagnosis"
@8,1 say "Treatment"
@10,1 say "Symtoms"
@12,1 say "Causes"
@14,25 say "OPERATIONS"

@16,1 say "Date of Operation"
@18,1 say "Operation"
@18,27 say "Surgeon Name"

@4,20 get ddiagno
@6,20 get mdiagno pict "@!"
@8,20 get mtreat pict "@!"
@10,20 get msymtom pict "@!"
@12,20 get mcause pict "@!"
@14,25 say "OPERATIONS"
@16,20 get doperate
@18,12 get moperate pict "@!"
@18,40 get msurg pict "@!"

read

if lastkey() = 27
clear memo
exit
endif

append blank

repl date with mdate
repl pno with mpno
repl surname with msurname
repl firstname with mfirst
repl address with maddress
repl birthdate with bdate
repl sex with msex
repl m_status with mstatus
repl s_origin with sorigin
repl name_kin with namekin
repl addresskin with addkin
repl relation with relate
repl x_ray_no with xno
repl d_admmitte with daddmmit
repl reffered with refer
repl surgeon with msurgeon
repl clinic with mclinic
repl d_discharg with ddisch
repl discharge with mdisch
repl cured with mcure
repl d_diagnos with ddiagno
repl diagnosis with mdiagno
repl treatment with mtreat
repl causes with mcause
repl d_operate with doperate
repl operation with moperate
repl surgeonnam with msurg
enddo
clear

***PROGRAM NAME: HOSPM (i.e. TO MODIFY RECORD)**

set talk off
set scoreboard off
set status off

clear
use hospital
set order to pno

do while .t.
clear
mdate={}
store 0 to mpno
store space(15) to msurname
store space(15) to mfirst
store space(20) to maddress
bdate={}
store space(6) to msex
store space(10) to mstatus
store space(15) to sorigin
store space(15) to namekin
store space(20) to addkin
store space(15) to relate
store 0 to xno
daddmmit={}
store space(15) to refer
store space(15) to msurgeon
store space(15) to mclinic
ddisch={}
store space(10) to mdisch
store space(8) to mcure
ddiagno={}
store space(15) to mdiagno
store space(30) to mtreat
store space(30) to msyntom
store space(30) to mcause
doperate={}
store space(10) to moperate
store space(15) to msurg

clear
@1,25 say " PATIENT DETAILS FORM "
@1,20 fill to 1,60 COLOR N/W

@2,28 say "MODIFY PATIENT RECORD"
@2,25 fill to 2,51 color n/gr
@3,1 say "Patient Number"
@3,16 get mpno pict "99999"
read

@4,10 get msurname pict "@!"
 @4,46 get mfirst pict "@!"
 @6,9 get maddress pict "@!"
 @8,15 get bdate
 @8,34 get msex pict "@!"
 @10,16 get mstatus pict "@!"
 @10,46 get sorigin pict "@!"
 @12,21 get namekin pict "@!"
 @14,9 get addkin pict "@!"
 @14,48 get relate pict "@!"
 @18,14 get xno pict "9999"
 @18,37 get daddmmit
 @18,58 get refer pict "@!"
 @20,9 get msurgeon pict "@!"
 @20,37 get mclinic pict "@!"
 @20,69 get ddisch
 @22,15 get mdisch pict "@!"
 @22,52 get mcure pict "@!"

read

@23,17 say ".....Press any key to continue....."
 @23,15 fill to 23,60 color gr/n*
 wait " "
 @2,1 clear to 23,78

@2,25 say "DIAGNOSIS RECORD"
 @4,1 say "Date of Diagnosis"
 @6,1 say "Diagnosis"
 @8,1 say "Treatment"
 @10,1 say "Symtoms"
 @12,1 say "Causes"
 @14,25 say "OPERATIONS"
 @16,1 say "Date of Operation"
 @18,1 say "Operation"
 @18,27 say "Surgeon Name"

store d_diagnos to ddiagno
 store diagnosis to mdiagno
 store treatment to mtreat
 store causes to mcause
 store d_operate to doperate
 store operation to moperate
 store surgeonnam to msurg

@4,20 get ddiagno
 @6,20 get mdiagno pict "@!"
 @8,20 get mtreat pict "@!"
 @10,20 get msymtom pict "@!"
 @12,20 get mcause pict "@!"
 @14,25 say "OPERATIONS"
 @16,20 get doperate

@18,12 get moperate pict "@!"
@18,40 get msurg pict "@!"
read

repl date with mdate
repl pno with mpno
repl surname with msurname
repl firstname with mfirst
repl address with maddress
repl birthdate with bdate
repl sex with msex
repl m_status with mstatus
repl s_origin with sorigin
repl name_kin with namekin
repl addresskin with addkin
repl relation with relate
repl x_ray_no with xno
repl d_admmitte with daddmmit
repl reffered with refer
repl surgeon with msurgeon
repl clinic with mclinic
repl d_discharg with ddisch
repl discharge with mdisch
repl cured with mcure
repl d_diagnos with ddiagno
repl diagnosis with mdiagno
repl treatment with mtreat
repl causes with mcause
repl d_operate with doperate
repl operation with moperate
repl surgeonnam with msurg

clear
mdate={}
store 0 to mpno
store space(15) to msurname
store space(15) to mfirst
store space(20) to maddress
bdate={}
store space(6) to msex
store space(10) to mstatus
store space(15) to sorigin
store space(15) to namekin
store space(20) to addkin
store space(15) to relate
store 0 to xno
daddmmit={}
store space(15) to refer
store space(15) to msurgeon
store space(15) to mclinic
ddisch={}
store space(10) to mdisch

```
store space(8) to mcure
ddiagno={}
store space(15) to mdiagno
store space(30) to mtreat
store space(30) to msyntom
store space(30) to mcause
doperate={}
store space(10) to moperate
store space(15) to msurg
```

```
else
clear
do err_msg
endif
enddo
clear
```

***PROGRAM NAME: HOSPV (i.e. TO VIEW RECORD)**

```
set talk off
set scoreboard off
set status off
```

```
clear
use hospital
set order to pno
```

```
do while .t.
clear
mdate={}
store 0 to mpno
store space(15) to msurname
store space(15) to mfirst
store space(20) to maddress
bdate={}
store space(6) to msex
store space(10) to mstatus
store space(15) to sorigin
store space(15) to namekin
store space(20) to addkin
store space(15) to relate
store 0 to xno
daddmmit={}
store space(15) to refer
store space(15) to msurgeon
store space(15) to mclinic
ddisch={}
store space(10) to mdisch
store space(8) to mcure
ddiagno={}
store space(15) to mdiagno
```

store space(30) to mtreat
store space(30) to msymtom
store space(30) to mcause
doperate={}
store space(10) to moperate
store space(15) to msurg

clear

@1,25 say " PATIENT DETAILS FORM "

@1,20 fill to 1,60 COLOR N/W

@2,28 say "VIEW PATIENT RECORD"

@2,25 fill to 2,51 color n/gr

@3,1 say "Patient Number"

@3,16 get mpno pict "99999"

read

@3,25 SAY "Date Registered "

@4,1 say "Surname"

@4,35 say "First Name"

@6,1 say "Address"

@8,1 say "Date of Birth"

@8,30 say "Sex"

@10,1 say "Marital Status"

@10,30 say "State of Origin"

@12,1 say "Name of Next of Kin"

@14,1 say "Address"

@14,35 say "Relationship"

@16,25 say "HOSPITAL HISTORY"

@18,1 say "X-ray Number"

@18,22 say "Date Addmitted"

@18,46 say "Reffered by"

@20,1 say "Surgeon"

@20,25 say "Clinic/Ward"

@20,54 say "Date Discharged"

@22,1 say "Discharged to"

@22,38 say "Cured or Dead"

if lastkey() = 27

clear memo

exit

endif

seek mpno

if found()

store date to mdate

store pno to mpno

store surname to msurname

store firstname to mfirst

store address to maddress

store birthdate to bdate

store sex to msex
store m_status to mstatus
store s_origin to sorigin
store name_kin to namekin
store addresskin to addkin
store relation to relate
store x_ray_no to xno
store d_admmitte to daddmmit
store reffered to refer
store surgeon to msurgeon
store clinic to mclinic
store d_discharg to ddisch
store discharge to mdisch
store cured to mcure

@3,42 get mdate
@4,10 get msurname pict "@!"
@4,46 get mfirst pict "@!"
@6,9 get maddress pict "@!"
@8,15 get bdate
@8,34 get msex pict "@!"
@10,16 get mstatus pict "@!"
@10,46 get sorigin pict "@!"
@12,21 get namekin pict "@!"
@14,9 get addkin pict "@!"
@14,48 get relate pict "@!"
@18,14 get xno pict "9999"
@18,37 get daddmmit
@18,58 get refer pict "@!"
@20,9 get msurgeon pict "@!"
@20,37 get mclinic pict "@!"
@20,69 get ddisch
@22,15 get mdisch pict "@!"
@22,52 get mcure pict "@!"
read

@23,17 say ".....Press any key to continue....."
@23,15 fill to 23,60 color gr/n*
wait " "
@2,1 clear to 23,78

@2,25 say "DIAGNOSIS RECORD"
@4,1 say "Date of Diagnosis"
@6,1 say "Diagnosis"
@8,1 say "Treatment"
@10,1 say "Syntoms"
@12,1 say "Causes"
@14,25 say "OPERATIONS"
@16,1 say "Date of Operation"
@18,1 say "Operation"
@18,27 say "Surgeon Name"

```

store d_diagnos to ddiagno
store diagnosis to mdiagno
store treatment to mtreat
store causes to mcause
store d_operate to doperate
store operation to moperate
store surgeonnam to msurg

```

```

@4,20 get ddiagno
@6,20 get mdiagno pict "@"!
@8,20 get mtreat pict "@"!
@10,20 get msymtom pict "@"!
@12,20 get mcause pict "@"!
@14,25 say "OPERATIONS"
@16,20 get doperate
@18,12 get moperate pict "@"!
@18,40 get msurg pict "@"!

```

```

read
clear
mdate={}
store 0 to mpno
store space(15) to msurname
store space(15) to mfirst
store space(20) to maddress
bdate={}
store space(6) to msex
store space(10) to mstatus
store space(15) to sorigin
store space(15) to namekin
store space(20) to addkin
store space(15) to relate
store 0 to xno
daddmmit={}
store space(15) to refer
store space(15) to msurgeon
store space(15) to mclinic
ddisch={}
store space(10) to mdisch
store space(8) to mcure
ddiagno={}
store space(15) to mdiagno
store space(30) to mtreat
store space(30) to msymtom
store space(30) to mcause
doperate={}
store space(10) to moperate
store space(15) to msurg
else
clear
do err_msg
endif
enddo

```

***PROGRAM NAME: HOSPV (i.e. DISPLAY RECORD ON THE SCREEN)**

set talk off
set scoreboard off
set status off

clear
use hospital
set order to pno

@row(),10 say "STATISTICS ON THE NUMBER OF PATIENT AND CASES
REPORTED"

@row()+1,10 say

"=====

@row()+1,0 say "Date"

@row(),12 say "Patient No."

@row(),25 say "Surname"

@row(),35 say "Name"

@row(),45 say "Diagnosis"

@row(),60 say "Treatment"

@row()+1,1 say "-----"

do while .not. eof()

@row()+1,0 say d_diagnos

@row(),14 say pno

@row(),25 say surname

@row(),35 say firstname

@row(),45 say diagnosis

@row(),60 say treatment

skip 1

enddo

@23,19 say "Press any key to go to Main Menu"

@23,17 fill to 23,53 color w+/gr

wait " "

clear

***PROGRAM NAME: HOSPP (i.e TO PRINT RECORD)**

set talk off
set scoreboard off
set status off
set printer on
eject
clear
use hospital
set order to pno

@row(),10 say "STATISTICS ON THE NUMBER OF PATIENT AND CASES
REPORTED"

```

@row()+1,10 say
"=====
@row()+1,0 say "Date"
@row(),12 say "Patient No."
@row(),25 say "Surname"
@row(),35 say "Name"
@row(),45 say "Diagnosis"
@row(),60 say "Treatment"
@row()+1,1 say "-----"

```

```
do while .not. eof()
```

```

@row()+1,0 say d_diagnos
@row(),14 say pno
@row(),25 say surname
@row(),35 say firstname
@row(),45 say diagnosis
@row(),60 say treatment

```

```

skip 1
enddo
@23,19 say "Press any key to go to Main Menu"
@23,17 fill to 23,53 color w+/gr
wait " "
clear
eject
set printer off

```

STRUCTURE TABLE.

| FIELD NAME | FIELD TYPE |
|-------------------|-------------------|
| Date | Date |
| Pno | Number |
| Surname | Character |
| Firstname | " |
| Address | " |
| Birthdate | Date |
| Sex | Character |
| M_Status | " |
| S_Origin | " |
| Name_kin | " |
| Addresskin | " |
| Relation | " |
| X_Ray_No | Number |
| D_Admmitte | Date |
| Reffered | Character |
| Surgeon | " |
| Clinic | " |
| D_Discharge | Date |
| Discharge | Character |
| Cured | " |
| D_Diahnos | Date |
| Diagnosis | Character |
| Treatment | " |
| Symtom | " |
| Causes | " |
| D_Operation | Date |
| Operation | Character |
| Surgeonnam | " |

PATIENT DETAILS FORM

Patient Number [REDACTED] Date Registered 11/11/11
Surname JAMES First Name COMFORT

Address BOSSO

Date of Birth 11/11/11 Sex FEMALE

Marital Status SINGLE State of Origin KOGI

Name of Next of Kin JAMES

Address MINNA Relationship BROTHER

HOSPITAL HISTORY

X-ray Number 1 Date Admitted 11/11/11 Referred by NIL

Surgeon DR BELLO Clinic/Ward GENERAL Date
Discharged 11/11/11

Discharged to Cured or Dead CURED

.....Press any key to continue.....

CHAPTER FOUR

PROGRAMME DESIGN

INTRODUCTION

Although his designed system will reduce the work load of users in the long run, during the implementation period, it is usual to continue with the work of the existing system (manual system), in parallel, with this new designed system, to make room for unforeseen error and its subsequent connection.

Additionally, the implementation involves the following activities

1. Conversion of existing manual files needed to be encoded onto the chosen storage media.
2. Education and training of the users of the system, for correct operation of he system and to obtain the full benefits of it.
3. Change over plan-involve using real data and using the system in the day-to-day operation in the hospital. Prior to this, the designed system should have been tested and the result reliable.

USER DOCUMENTATION

The new system is a disease monitoring system in hospitals.

The system is designed to keep track of vital records on the report3ed cases in the hospitals using General Hospital Minnna. This system program is purposed to keep records in the TRANSACTION FILE which is used to

update the MASTER file Monthly. The TRANSACTION FILE is assumed to be thoroughly validated and in the same sequential order as the records in the MASTER file.

In addition, since the program displays it's main menu first, before any process, an option must be chosen from the main menu.

In this procedure, the number which correspond to the option should be pressed followed by the "ENTER" key.

HARD WARE REQUIREMENTS

For effective functioning of this system designed, the hardware which are required includes:

1. Computer keyboard-input device for data inputs.
2. Magnetic disk or diskette - storage device for data storage back ups.
3. Hard disk - storage device for storage of data
4. Display monitor - display/viewing device for displaying of data on a screen.
5. Printer - printing device for paper prints.

The program listing

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

SUMMARY

As a result of this design, a computerized created which will aid in maintaining accurate and reliable records keep.

Again, the system will enhance efficiency as well as ease in storage and retrieval of information which has been in one way or the other hampered by the previous system (i.e manual).

It is also believed that this system, possibly keeps the statistical analysis of diseases, helps in detecting mechanism of diseases and contributes in an epidermic control.

CONCLUSION

This project has been fully designed to control and detects disease changes in hospitals records. It has been implemented through the use of sleeper programming constructs using BASIC programming language, and the system will effectively achieve it's purpose.

RECOMMENDATION

This system is not designed for just a single user - General Hospital Minna users, rather it is also recommendable to other hospitals who all need to perform more work/the same task.

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records department and Mr. Zuberu, Head of Statistic unit.
General Hospital – Minna

```

@3,25 SAY "Date Registered "
@4,1 say "Surname"
@4,35 say "First Name"
@6,1 say "Address"
@8,1 say "Date of Birth"
@8,30 say "Sex"
@10,1 say "Marital Status"
@10,30 say "State of Origin"
@12,1 say "Name of Next of Kin"
@14,1 say "Address"
@14,35 say "Relationship"
@16,25 say "HOSPITAL HISTORY"
@18,1 say "X-ray Number"
@18,22 say "Date Addmitted"
@18,46 say "Reffered by"
@20,1 say "Surgeon"
@20,25 say "Clinic/Ward"
@20,54 say "Date Discharged"
@22,1 say "Discharged to"
@22,38 say "Cured or Dead"

```

```

if lastkey() = 27
clear memo
exit
endif
seek mpno
if found()

```

```

store date to mdate
store pno to mpno
store surname to msurname
store firstname to mfirst
store address to maddress
store birthdate to bdate
store sex to msex
store m_status to mstatus
store s_origin to sorigin
store name_kin to namekin
store addresskin to addkin
store relation to relate
store x_ray_no to xno
store d_admmitte to daddmmit
store reffered to refer
store surgeon to msurgeon
store clinic to mclinic
store d_discharg to ddisch
store discharge to mdisch
store cured to mcure

```

```

@3,42 get mdate
@3,16 get mpno pict "99999"

```