

**COMPUTERIZATION OF DRUG REVOLVING
FUND SCHEME
A CASE STUDY OF GARKI GENERAL
HOSPITAL, ABUJA.**

BY

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PGD-MCS-355-97**

**DEPARTMENT OF MATHEMATICS &
COMPUTER SCIENCE, F.U.T. MINNA**

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APPROVAL PAGE

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

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(PROJECT SUPERVISOR)

DATE

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(HEAD OF DEPARTMENT)

DATE

(EXTERNAL EXAMINER)

DATE

DEDICATION

This project is dedicated to my husband, Barrister D. T. Adem and my two wonderful sons, Masters Aondona and Aondover Adem.

ACKNOWLEDGEMENT

All praise and glory to the Almighty God for giving me the opportunity to undergo this course and for his direction in making it a success.

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The Federal Capital Development Authority holds a special place in my heart for giving me the opportunity to attend the course and for the sponsorship.

To all those not mentioned, I say thank you for been there always.

ABSTRACT

Drug Revolving Fund Scheme is a system of Cost-Recovery through sales of drugs to replenish new supplies so that drugs are available at all times in the health system. The scheme is to ensure that the community gets efficacious, cheap, affordable and regular supply of essential drugs.

Laudable as the scheme may be, unfortunately the important tasks of attending to all the patients, of costing, registering, dispensing and paying for such drugs is currently being handled manually. As a result the process of implementation is cumbersome, slow, time-consuming and onerous.

In view of the necessity to address these problems, the need for computerisation becomes imperative and the DBASEIV program concept is recommendable in order to eliminate most of the problems posed by the manual method.

OF GARKI GENERAL HOSPITAL.....	12
FEASIBILITY STUDY.....	14
PATTERNS OF THE SCHEME.....	14
BENEFICIARIES.....	24

CHAPTER THREE

SYSTEM ANALYSIS:

INTRODUCTION.....	25
PROBLEMS OF THE EXISTING SYSTEM.....	25
TESTING PROJECT FEASIBILITY.....	26
COST AND BENEFIT ANALYSIS.....	27

CHAPTER FOUR

SYSTEM DEVELOPMENT AND IMPLEMENTATION INTRODUCTION:

INTRODUCTION.....	31
CHOICE OF LANGUAGE.....	31
FEATURES OF LANGUAGE CHOSEN.....	33
INPUT SPECIFICATION.....	34
OUTPUT SPECIFICATION.....	35
PROGRAM DEVELOPMENT.....	36
HARDWARE REQUIREMENTS.....	41
SOFTWARE REQUIREMENT.....	42
SYSTEM CONVERSION.....	43
TRAINING.....	44

CHAPTER FIVE

SUMMARY.....45
CONCLUSION.....45
RECOMMANDATIONS.....46

delivery to the teeming population of the Federal Capital numbering 800,000 (1991 census). This comprises of civil servants, diplomats, commercial bank executives, a large number of temporarily settled construction workers and their families, petty traders, manual labourers, and the indigenous Gwari people.

There is a 300 bed Federal Government Specialist Hospital, fifteen health centres and clinics and 29 Health posts managed by the Area Councils. In addition, there are clinics owned and run by other Government establishments. There is a growing number of private hospital, maternity services, pharmaceutical and patent medicine stores to complement the Government services / efforts in the territory.

The Drug Revolving Fund Scheme was extended to all the Federal Capital Territory Hospitals (Government owned Federal Hospitals) and at the Area Councils level the Drug Revolving Fund Scheme is being operated and called the " BAMA KO INITIATIVE". The main focus of this project work is the activities of Drugs Revolving Fund Scheme of Federal Capital Development Authority. It involves detailed study of the processes of dispensation of drugs to patients, payment processes and also the replenishment processes.

AIMS AND OBJECTIVES

To study in details the entire processes, problems and prospects of Drug Revolving Fund Scheme of Garki General Hospital of Health services Department of Federal Capital Territory, Abuja.

Which thus include the followings;

- (a) To study the procedure of acquiring drugs, storage and dispensation of drugs to patients and others.
 - (b) To study the Revolving processes and also the process of collecting and lodgement of fund into the bank.
- 2) To study the problems and prospects of drug revolving fund scheme and to offer some useful suggestions for possible improvement.
 - 3) Designing means and strategies to effect computerisation of drug revolving fund scheme.

SCOPE AND LIMITATION

The focus of this study will be restricted to the dispensation of drugs to patients, stocking and payment processes of the drug revolving fund scheme of Garki general hospital, Abuja. One is limited to the daily sales of drug books and receipt leaflets, which contains receipt number, amount paid, description of item and the name of the patient.

COMPUTER

Computer is defined as an electronic device, which accepts and processes data by following a set of instructions (program) to produce accurate and efficient result (information). Since the ultimate aim of a

computer is to produce information, the art of computing is often referred to as information processing

CHARACTERISTICS OF COMPUTER

Computer Display the following characteristics to a greater or lesser extend depending on their type and application;

- 1) The ability to perform calculations at very high speeds.
- 2) The ability to take in information and to store that information for future retrieval or use
- 3) The ability to take in and store a sequence of instructions for the computer to obey. Such a sequence of instructions is called a PROGRAM, which must be written in the language of the computer.
- 4) The computer has the ability to obey a sequence of program instructions, provided the instructions are stored within the computer.
- 5) The computer has the ability to use simple logical rules to make decisions for their own internal control or for the control of some external activity example to take over the role of calculator operator.
- 6) The computer has the ability to exploit a complex internal structure of microelectronic circuitry in a variety of ways
- 7) The computer has the ability to communicate with other systems example telephone. The computer has the ability to exploit a complex internal structure of microelectronic circuitry in a variety of ways.

- 7) Continuous Operation: - A computer will allow untrained, but educated users, to use an information system or access a database with little or no much skill. It will be available anytime of the day and will not get bored with repeating the same task over and over

FACTORS INFLUENCING THE INTRODUCTION OF COMPUTER

It is very important for the drug revolving fund scheme to have to have a computer-based system for the computing of the drug's daily sales processes due to the following reasons:

- 1) Computer has the ability to handle huge volume of data that need to be processed.
- 2) Computers can process complex calculations once programmed.
- 3) Speed an ability to access data directly from remote location.
- 4) Increased efficiency, accuracy and consistency.

There are other things that needed to be considered for the proposed system, which includes;

- a) Ensuring that the new system help the Drug Revolving Fund Scheme performance. This can be achieved by making the design to fit the way the drug revolving fund scheme conducts its sales of drugs and accounting processes.
- b) Meeting user requirements in a way of helping the users to perform appropriate procedure correctly.

METHODOLOGY

To understand the current system of the drug revolving fund operation the system analysed through interviewing, observing and document reviewing as earlier mentioned was able to determine the information requirement.

Below are the stages used;

- 1) INTERVIEW: Using this method the system Analyst was able to gather some information about the operation and difficulties encountered from the respondent.
- 2) OBSERVATION: Observing the drug revolving fund Staff in operation the system Analyst was able to understand and gather some information about their operation procedure and certain questions were asked in the process.
- 3) DOCUMENT REVIEW; Reviewing of the documents available such as daily sales books which contained the of purchase, Receipt number, Name of the patient who made the purchase, the description of item purchased and the amount paid for the item.

DEFINITION OF TERMS

DRUGS- is any substance administered for the purpose of preventing, diagnosing or treating a disease.

ESSENTIAL DRUGS- these are drugs that satisfy the health care needs of the majority of the population. The selection of these drugs is based on the most common local diseases as defined by World Health Organisation (WHO)

DRUG REVOLVING – it is a process whereby drugs are purchased with initial money called “seed money “ and these drugs are sold and the money is ploughed back for purchase of more drugs on continuous basis to sustain the system.

HOSPITAL-an institution for the medical or psychiatric care and treatment of patients

SCHEME-A systematic plan for a course

RETAIL SALES-the sale of goods individually or in small quantities to consumers.

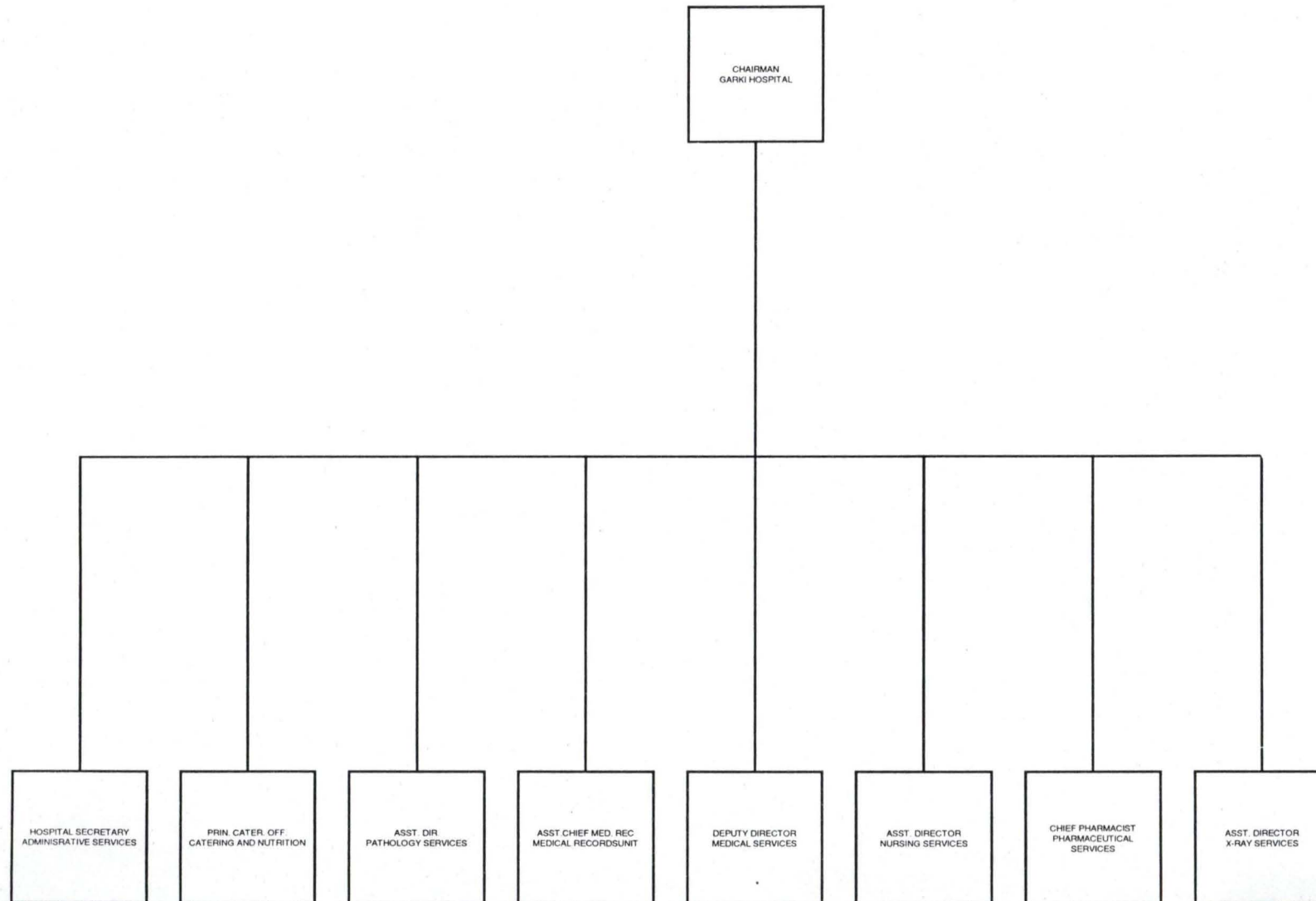
BENEFICIARY-the beneficiary of the scheme is the majority of the population or community

COMMUNITY -The people living in one locality or a group of people having cultural, religious or one characteristic in common.

PROCUREMENT- To obtain with care or effort or money.

delivery system and it increased sense of drugs management by all hospital staff due to accountability measures introduced with drug revolving fund system.

ORGANOGRAM OF GARKI HOSPITAL



FUNCTIONS OF THE ORGANISATIONAL STRUCTURE OF GARKI GENERAL HOSPITAL

The Chairman oversees to the general running of the Hospital.

THE ADMINISTRATIVE UNIT: the Hospital Secretary who is answerable to the chairman heads -This unit the unit oversees the Administrative matters of the hospital

PATHOLOGY SERVICES UNIT: -This unit is headed by an Assistant director and who is answerable to the chairman this section is in charge of Diagnostic, Investigation, Laboratory, Blood Bank of the hospital. And is responsible to the chairman.

MEDICAL RECORD SERVICES UNIT; - This section is Headed by an Assistant Chief Medical Record officer who is responsible to the Chairman. It is in charge of all issues concerning cards and forms relating to patients example issuing of cards and forms to patients, collection and compilation of medical records in the outpatient and inpatient.

MEDICAL SERVICES: - This section is Headed by the Deputy Director Medical Services who is responsible to the Chairman, and also responsible for the running of In and outpatient services, and surgical cases in the hospital.

NURSING SERVICES: - This unit is Headed by the Assistant Director nursing who is answerable to the Chairman who oversee to all nursing care in the hospital.

X-RAY SERVICES: - This section is headed by an Assistant director who is responsible to the Chairman and in charge of medical imaging of the hospital.

CATERING AND NUTRITION UNIT: - This unit is Headed by the principal catering officer who is answerable to the Chairman of the hospital this section is concerned with planning for the appropriate diet and provision of meals for the patients and staff.

PHARMACEUTICAL SERVICES: - This section is headed by Chief Pharmacist who is Answerable to the Chairman this section is responsible for the dispensing of drug to inpatients, outpatients, counselling of patients, supply of drugs to other units and request of drugs from pharmacy distribution centre.

FEASIBILITY STUDY:

This stage is referred to, as the preliminary investigation that determine whether or not the proposed system is desirable. It is not a design study, nor does it include the collection of details to completely describe the hospital system. Rather it is the collection of information that permits the analysis of the system study team to evaluate the merits of the project request and make an informed judgement about the feasibility of the proposed project. The study was conducted with the co-operation of the Deputy Director Pharmacy and all the other staff of pharmacy unit of Garki General hospital. The existing system is an important source of the information for the development of the proposed system. The existing system is found to be repetitive in nature and there are large volumes of records to be processed.

PATTERNS OF THE SCHEME:

The federal Ministry of Health and social services is committed to the success of the project. The broad policies considered necessary to achieve the success are summarised herein, as written in Federal Essential Drugs project (policy framework) on "All persons involved with the project at the Federal Ministry of Health and Social services and all Federal Health institutions are supposed to adhere to these policies at all times."

COST RECOVERY

Full cost recovery entails recovering the full replacement costs of the drugs. Such costs would be determined after considering

Landed cost (cost of bringing the drugs to the warehouse or hospital pharmacy store as the case may be) Re-packaging cost Deterioration, pilferage etc

Currency depreciation (Applicable to Federal Ministry of Health Only)

Inflation and other direct drug revolving fund operational costs.

Note that fixed operating costs such as salaries and wages, cost of producing manuals/Formulary, fixed assets depreciation etc are to be excluded.

PRICING

Prices are to be uniform at the central medical stores and zonal warehouses.

Each Federal Health Institution (FHI) is to fix its selling prices having regard to the particular circumstance of the location of each institution.

The following are to be observed in fixing the prices at which drugs are to be sold.

Landed cost-

Freight

Transit insurance

Local charges

Clearing and transportation to ware house

Port surcharges

Import Tariffs (including import duty if any)

Stock in warehouse insurance

Re-packaging costs

Currency fluctuation effect

Stores handling costs

Effect of inflation

Normal losses

Plus a mark up not exceeding 10% of the total arrived at above.

Drug prices must be valued for at least six months in view of the improved procurement procedure.

Retail pricing at Federal Health Institution (FHI)

Drug prices when fixed at a Federal Health Institution must be valid for at least three months. Prices should be based on drug replacement cost.

Retail pricing at the Federal Health Institution should take into consideration the followings:

Drug replacement cost

- cost of drug
- freight to the Federal Health Institution(FHI)
- Pharmacy (Landed cost)
- Insurance
- Acceptable losses (Maximum of 5% of landed cost to cover: pilferage; breakage; expired drugs. Etc)
- Inflation
- Plus a maximum mark up of 10% of the total arrived at consideration being had to:

- Open market prices and affordability. When the situation permits (having due regard to replacement cost, open market prices and affordability) direct DRF operation costs such as transport and travelling, office utilities, printing and stationary etc, should also be included in the prices to be fixed.

PILFERAGE / THEFT

Acceptable lose in terms of pilferage should not exceed 2%. Another 3% loss for breakage's and stock expiring is also acceptable and can be built into the cost recovery. A large loss as in the in outright theft would jeopardise the whole system. Each Federal Health Institution is expected to take necessary steps to ensure that abnormal losses are avoided.

EXEMPTIONS

Criteria for determining who would be exempted from payment for drugs are to be determined by each Federal Health Institution.

Exempt cases are to be approved by the Chief Executive Officer (Chief Medical Director or Medical as the case maybe)

Of each hospital. Government would pay in advance for the cost of drugs consumed by all exempt cases. The amount of advance payable should be sufficient to cover the estimated cost of treating exempt patients for twelve months. On a quarterly basis the actual cost for the quarter should be considered and the estimate for the next twelve months adjusted in view of the actual.

Additional payment must then be made to the Drug revolving fund account to cover the estimated consumption by exempt patients in the next twelve months.

Cost of treating exempt cases is to be included in the Federal Health Institution's annual budget such that adequate funds can be made available by the Government. The following are the likely groups to be considered for exemption:

By population target-

Paupers and destitute

Prisoners

National youth service corps (serving corps in the NYSC program)

Emergencies- (until stabilised and thereafter only if confirmed as destitute)

By Diagnosis (or Diseases) target-

1) Tuberculosis

2) Leprosy

3) Mental disorders

4) Cancer

5) Aids (management

DRUG CONSUMPTION BY STAFF

Members of staff are to pay for drugs and be reimbursed by the Ministry or Hospital management.

1) PROCUREMENT BY FEDERAL MINISTRY OF HEALTH

This is an act of obtaining or acquiring with care or effort or money.

It is an important means whereby the project would help increase the availability of drugs at economical price through more efficient procurement.

All drug specifications would use official international non-proprietary (generic) names.

Drugs to be procured must be from the essential drug list

Procurement procedures at CDPU must follow the appropriate World Bank guidelines I e adopting International Competitive Bidding (ICB); Local Competitive Bidding (LCB); etc

Drugs procurement at CDPU would be on an annual basis with deliveries of the items scheduled for twice or thrice during the year. Phased or staggered deliveries are expected to reduce the pressure on storage facilities and result in fresher stock.

2) PROCUREMENT BY FEDERAL HEALTH INSTITUTION

Every Federal Health Institution must procure from the Central Medical Store (CMS) of the Federal Ministry of Health and social services.

As a result of unanticipated crisis such as sudden epidemic or natural disasters or in respect of drugs not available at central medical store, emergency procurement of drugs might be necessary.

Under these circumstances, with the approval of the Chief Executive the drug procurement unit could use other approved procurement methods to meet the exigencies

DRUG PRESCRIPTION

INTRODUCTION:

This is a process where by drugs are prescribed by a Medical doctor, drugs prescribed to patients should be from the items contained in the National Essential Drugs List using the International non-proprietary (Generic) names for the drugs. It is important for the prescribed drugs to come from the essential drug list because the list satisfies the health care needs of the majority of the population.

CASH AND CARRY PROCESS

Apart from the Drugs/Seek stock which will be supplied to all Federal Health Institutions free of charge, all purchases from the central medical stores will be on cash and carry basis.

Federal Health Institutions are in turn expected to dispense the drugs to patients on cash and carry basis

ORGANISATION AND MANAGEMENT

A committee to be known as "Drug Revolving Fund Committee" shall be constituted

In each of the Federal Health Institution and at the Ministry's level. A project manager also is appointed at each Federal Health Institution to oversee and pursue the successful implementation and operation of the Drug revolving Fund.

ACCOUNTING RECORDS AND DRF MANUAL

Adequate accounting records must be maintained regarding all drug revolving fund transactions. Such accounting records must be properly and promptly updated in a manner that will guarantee the completeness and reliability of the records.

A detailed manual incorporating Financial Management and accounting system for the Drug revolving fund will be provided for each Federal Health Institution and the central medical store. The manual will contain more detailed information and instructions on the operation of the Drug Revolving Fund including the accounting records to be maintained etc The use of this manual is compulsory for all Federal Health Institutions and Central medical store involved with the Drug Revolving Fund.

DRUG REVOLVING FUND BANK ACCOUNTS:

A separate bank account with the title to include "Drug Revolving Fund" is to be opened in a reputable commercial bank by every Federal Health

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DRUG REVOLVING FUND BANK ACCOUNTS:

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Institution and Federal Ministry of Health and social services such account is to be used purely for drugs transactions. Proceeds of drug sales, advance deposits for exemptions etc are to be lodged therein on daily basis. Payments for drug purchases are related DRF expenses are also to be made therefrom.

PROHIBITION OF USE OF DRUG REVOLVING FUND FOR OTHER PURPOSES:

Under no circumstance should the DRF be used to finance other hospital or Ministry's expenses even if only temporarily. The integrity of DRF must be protected at all times the fund must not be diverted to any other project or uses.

INCENTIVE TO DRUG REVOLVING FUND STAFF:

As the operation of DRF will increase the workload of the relevant staff and as a form of motivation for the operators to ensure the success of the scheme, incentive payment shall be payable. The incentive payment shall be at the rate of 15% of each DRF staff basic salary and shall be payable monthly with effect from the date this policy framework is signed by the Honourable Minister.

EXTERNAL AUDIT:

The DRF account at the Federal Ministry of Health and Social Services and that of each of the Federal Health Institutions must be audited annually by firms of chartered accountants.

CUT OFF PROCEDURE:

1) DRUGS STOCK

Prior to receipt of World Bank Financial drugs seed stock, each FHI should conduct a physical verification of all stocks on hand (the "old stock") as of a date at least one week before the date of receipt of the drug seed stock.

Since the "old stock" and the seed are to be stored together, the old stock's unit costs are to be revised to the costs at which the seed stocks have been received from central medical store.

The selling prices of both the old stock and the seed stock will be uniform. The book balance of the old stocks should be revised to agree with the new balance at which its costs are to be stated.

2) OTHER ASSETS

All DRF assets as at the cut-off date must be listed physically verified as appropriate with the cost and accumulated depreciation to date also indicated for each item

INSURANCE COVER:

Adequate insurance policies must be taken up to cover possible losses to stock in transit, in the warehouse and in the pharmacy stores. Fidelity insurance cover must also be provided for all persons having custodian of cash and drugs stocks.

BENEFICIARIES OF THE SCHEME:

Essential drugs have been defined by the World Health Organisation (WHO) as those drugs that satisfy the health care needs of the majority of the population (this includes children, pregnant women, adults both men and women etc).

Drugs were procured with little regard to the needs and priorities of health care in the Country. Availability of drugs in the health care system was largely a response to the sales promotional activities of manufacturers and distributors. Such pressures lead to a proliferation of available drugs, which bear little relation to the actual needs of the entire population. The result is the situation in which the basic drug needs of a large percentage of the population cannot be satisfactorily met by the available drugs.

There was need, for a change to a system in which as far as the public sector of the health care system is concerned, priority is given to drugs proven to be therapeutically effective, to be reasonably safe and to satisfy the health needs of the population.

OBJECTIVES OF THE SCHEME:

The objectives of the scheme are to:

- 1) Improve the availability of the essential drugs at all times, for use by the patients at reduced costs in the medical health care.
- 2) Improve health worker-patient relationships.
- 3) Improve better relationship among the members of the medical team by eradicating frictions resulting from lack of drugs and materials.
- 4) Restore confidence by patients in the Government health institutions.

CHAPTER THREE

SYSTEM ANALYSIS:

INTRODUCTION

System analysis is the procedural study of its operation with an attempt to discover what its basic problems are. All the facts gathered must be examined in order to make a proper assessment of the existing system. This stage is to ensure that all feasible alternatives are produced.

PROBLEMS OF THE EXISTING SYSTEM:

In the course of taking a critical study of the existing manual drug revolving fund scheme of Garki General Hospital, it was observed that the following problems and difficulties exist:

- 1) Complexity in computation of the drug revolving fund scheme.
- 2) Precious time and energy are spent in the costing, payment, recording, dispensing and counselling of the patients.
- 3) Because of the huge volume of data, it is a times subjected to human error
- 4) Documents are misplaced mutilated and some times removed making it difficult for past records to be traced.
- 5) Some documents are destroyed because of improper storage.
- 6) It was observed that fund realised from the sales of drugs are a times not completely handed over to the Chief accountant making it impossible for money realised to be completely lodged into the account of the drug revolving fund.

- 7) There is always discrepancy between the Accounts section and the Pharmacy section when it comes to reconciliation of account, because of the work load reconciliation is not done at the right time this a times lead to lost of Revenue.
- 8) It was observed that purchase of drugs are contracted out to contractors, making the retail price to be either high or making it impossible for the drug to revolve as it should be.

TESTING PROJECT FEASIBILITY

For testing of project feasibility the following has to be undertaken:

- a) OPERATIONAL FEASIBILITY
- b) TECHNICAL FEASIBILITY
- c) ECONOMICAL FEASIBILITY

- a) OPERATIONAL FEASIBILITY: - This relates or is concerned with the workability of the proposed information system when developed and installed. In relating to the system being studied, there is a commendable effort by the pharmacy division since it had formally requested for a Computer set.
- b) TECHNICAL FEASIBILITY: - This test seeks to clarify if the proposed project can be done with current equipment, existing software technology and available personnel. With careful study of the existing system it has been recommended that personnel computer (PC) can adequately be used in the operation and the necessary data used in the system. It can also provide adequate response to all enquires. It can also be adapted to future modification if need arises and the

personnel on ground if trained can adequately take charge of the implementation of the system.

c) **ECONOMICAL FEASIBILITY:** - The test for financial feasibility is undertaken to assess cost of implementing a proposed project is-visa the benefit derived in implementing the project, the cost of purchasing the necessary hardware, software and training of personnel may initially be high but the system will recover it in a short period. The benefit derived in implementing the project will be increased patronage, customer's satisfaction, workers satisfaction, workers satisfaction and financial benefit to the Organisation from proper accounting due to ease in reconciliation.

COST AND BENEFIT ANALYSIS

In order to determine the cost of operating the proposed system, it is necessary to recognise the various ways in which costs may be incurred are usually in the following categories.

DEVELOPMENT COST:

COMPUTER HARDWARE

2 IBM COMPUTERS with the following configuration:

PENTIUM 133 MHz

16 MB RAM

2.1 GB HARDDISK

1.44 MB (3.5") FLOPPY DISK

1.2 MB (5.25") FLOPPY DISK

CD ROM (X23)

ENHANCED KEY BOARD (101 KEYS)

14" SVGA MONITOR-----@ #200,000.00 each = #400,000.00
 - UNINTERRUPTIBLE POWER SUPPLY (UPS)
 2 UPS (500 VOLTS)-----@ #65,000.00 each = #130,000.00
 2 VGA ADAPTOR (500 VOLTS)-----@ #7,500.00 each = # 15,000.00
 - COMPUTER PRINTER
 2 LASER JET PRINTER (Laser 4plus)
 -----@ #60,000.00 each = #120,000.00

INSTALLATION COST

Installation cost-----@ #20,000.00 each = #20,000.00

PERSONNEL TRAINING

6 operators per two months-----@ #8,000.00 each = #48,000.00

MS DOS 4.1

Dbase IV management system package----@ #10,000.00 each =
 #10,000.00

CONSUMABLE ITEMS

3.5" HD diskettes (Maxell)-----@ #800.00 each = #800.00

5.25 HD diskettes (Maxell)-----@ 800.00 each = #800.00

ACCOMODATION AND FURNITURE

A rugged room with Air conditioner, Computer table, Chair and Cabinet:

----- #200,000.00

TOTAL DEVELOPMENT COST----- = #944,600.00

BENEFITS ANALYSIS

There are numerous benefits that could be derived from the proposed system. See below:

- 1) **RAPID AND ACCURATE:** - The most obvious benefit of using a computer is speed. The addition of daily sales of drugs, that could take almost the whole day if done manually, can be done in a matter of seconds. For example, some computers can perform millions of arithmetic operations in seconds.
- 2) **ACCURACY:** - The computerised daily sales information system with accurate data will do the intended work with a very high degree of accuracy. The computer does exactly what the program tells it to do. In addition the computer does not get bored or fatigued, Thus avoiding human errors.
- 3) **RELIABILITY:** - The computer can work for twenty-four hours without complaints of being tired or overworked, however, constant and regular maintenance procedures must always be provided.
- 4) **STORAGE:** - With the use of computer, you can store and search massive files and also accesses them easily. It can be used as often as necessary and the content of the files does not fade nor get lost unlike the case of file cabinets.
- 5) **MEMORY CAPABILITY:** - With the use of computer system data can be totally and instantly recalled without delay, nor forgetfulness. There is virtually unlimited capacity to store data.
- 6) **MODIFICATION/ANALYSIS OF STORED DATA:** - It is possible to change daily sales data stored on a computer if there is error or there is need for modification example you can add, edit or delete a document before or after it has been printed, without needing to retype the whole

document. Summaries and breakdown of information is entered into a computer.

- 7) CONTINUOUS OPERATION: untrained pharmacist can use -Computer system. To use an information a database can be accessed with little or no much skill.
- 8) SECURITY: -The security of the system is taken into cognisance such that facilities are provided only for Authorised users to have access to them.

CHAPTER FOUR

SYSTEM DEVELOPMENT AND IMPLEMENTATION:

INTRODUCTION:

Following the system analysis, is the system design, which is concerned with the development of specifications for a proposed system that meets the criteria established in system analysis. It is an elaboration of the systems requirements report. System design is the arranging or putting together the various elements of an existing or a new system into an operational whole. It focuses on what should be the state of the system. The design of the proposed system involves the automation of the manual operations of the existing system. This includes the development of the structure of the data base files required in other wards the input specifications and the design of the output screen which is also the output specifications and the logical operation program for the new system that provides security and backup for the system.

CHOICE OF LANGUAGE:

There is quite a number of programming languages, which are acceptable to the computer; definitely not all of them can be used in the same operation. These languages have a number of different attributes used for classification purposes. Out of the numerous programming languages, a

choice has to be made of the one that will best serve the purpose for which we want it.

Some of the important characteristics to be considered include:

- 1) The technical skill required of the computer programmer.
- 2) The difficulty of the problem.
- 3) The type of processing mode to be used
- 4) The efficiency of the computer or language translator
- 5) The effectiveness of after sales service of the computer vendor in maintenance of the program.
- 6) The ease with which the program can be changed at a later date.
- 7) The availability of sub-routine that could be needed in the program.

Data is the most valuable resources in any organisation. Without a well-manipulated and interpreted data it will be difficult for an organisation to make decisions. Data could be stored in different structure vice hierarchical, Network and relational structure.

For effective management of data, a Database Management System (DBMS) is required. DBMS is a software package that constructs, expands, and maintains data contained in a database. Since the research work is based on Database Management System, the use of Dbase IV will be recommended it is one of the query languages. It allows users to make queries such as list all the sales on drugs for the day.

In general, the commands that use or manipulate database are part of data manipulation language (DML). This is a specific language normally provided with the Database Management System (DBMS). It allows users to have single and immediate access to data contained in the database. Thus it is of great help to users with little or no computer experience. It

saves time and money of tasking a programmer to develop a high-level program. Such as Basic, Pascal or Cobol.

FEATURES OF LANGUAGE CHOSEN:

Database Management System is software that constructs, expand, access and maintain data contained in the database. It serves as interface between the user and the database such that it enable the user to perform the following functions on the database: Add, Modify, View, Delete, Search, Organise, Print, Select, Summarise, Extract, Report on, and otherwise, manage the data contained in a database.

DBMS programs keep information in files and within each file is a collection of related information. The data in a file are organised into rows and columns with each row making up a record. A column of data is known as a field and the column heading is a fieldname, the contents of a field determine the field type. The usual Field types are numeric, character, memo, date, logical etc. The set of related fields are Field number, field name, field type, field width and field Dec.

Database is a mechanised shared and centrally controlled collection of data in an organisation. It is regarded as a way of storing data in a systematic and consistent manner a database can also be regarded as a databank.

INPUT SPECIFICATION:

It is important to identify name sets for the inclusion in the database structure. These are serial number, name, receipt number, total amount paid, description of item, pharmacy, account, date and remarks.

Two database files are used in the system namely DLYSALES.DBF and DLYSREC.DBF. The database files both have five fields each.

The structure is shown below:

DLYSALES.DBF

FIELD NUMBER	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH	DEC
1	SERIAL NUMBER	S_NO	N	10	-
2	NAME	NAME	C	20	-
3	RECEIPT NUMBER	RECPT_NO	N	10	-
4	TOTAL AMOUNT PAID	TOTAL_PAID	N	10	-
5	DESCRIPTION OF ITEM	DESCPT_ITM	C	20	-

DLYSREC.DBF

FIELD NUMBER	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH	DEC
1	DATE	DOP	DATE	8	-
2	RECEIPT NUMBER	RCPTNO	N	10	-
3	PHARMACY	PHARMACY	N	10	2
4	ACCOUNT	ACCOUNT	N	10	2
5	REMARKS	REMARKS	C	20	-

OUTPUT SPECIFICATION:

Normally the starting point of any system design emphasises the users need to receive all the required reports that are likely to provide useful information for decision making.

The report could be in a hard copy through printer or visual through the output device (monitor).

COMPLETED CONTROL LAYOUT FORM AND SCREEN
OUTPUT BELOW.

A. PROGRAM-----DLYSALES
S_NO-----
NAME-----
RECPT_NO-----
TOTAL_PAID-----
DESCPT_ITM-----

B. PROGRAM-----DLYSREC.
DOP-----
RCPTNO-----
PHARMACY-----
ACCOUNT-----
REMARKS-----

DESIGN OF THE SYSTEM.

The processing specification is a description of captioning of information into the Dbase file maintained by the system. The system flow charts pictorially represent the processing specification of the design.

See appendix xxv.

PROGRAM DEVELOPMENT.

The DLYSALES and DLYSREC Programs are written in database IV. This is based on the result of the investigation from the existing system. These programs are the automation of the manual ways of processing information in the Dlysales and Dlysrc such as updating, storage and retrieval of information as well as production of reports.

PROCEDURE FOR RUNNING THE PROGRAMS: The system has been designed in such a way that not much knowledge of computer is required from the user the following presents an instructional step for operating the system.

At the C:\ > prompt; type change directory to Dbase IV

C:\>CD\DBASE IV

Type Dbase and press ENTER Key

Dbase IV will be loaded

Press ALT E

Two options will appear on the screen

1 EXIT TO DOT PROMPT

2 QUIT TO DOS

Option one takes you to Dbase IV dot Prompt when pressed.

While Option two leave the control centre and quit Dbase IV.

Press enter key (↵) for the first option which will take you to Dbase IV Dot prompt

At the Dbase IV dot prompt enter command appears as seen below

ENTER COMMAND: \>

INSERT your Program disk in either drive A: or B: and change default to the drive where your programs reside by typing the below command at the dot prompt.

SET DEFA TO A: or B: depending on the drive in use

ENTER COMMAND: \>SET DEFA TO A: or B:

At Dot Prompt i.e. ENTER COMMAND: \>

Type DO DRFMAMN and press enter key (↵)

This will display two menus called menu1 and menu2 these two options consist of sub menus for DLYSALES.DBF and DLYSREC.DBF if either of menu is chosen, it consists of five options listed as shown below:

- [1] ADD RECORD
- [2] EDIT RECORD
- [3] DELETE RECORD
- [4] REPORT GENERATOR
- [0] EXIT

The above listed programs are subprograms to Dlysales and Dlysrec programs, which are executed when the desired option is chosen from the menu.

MENU 1.PRG AND MENU 2.PRG

These two programs are the main program files that display the menu options in the boxes.

Refers appendix ii, iii, xiii and xiv for menu1.prg, menu2.prg and output respectively

ADD RECORD:

The Add record option enable the program execute the ADD.PRG. And it allows the user to add new records to the database file it is usually the first routine in any program. The Data entry routine involves the creation of formatted screen displays, verification of data, setting of default values etc.

At the end of entering a record the program will pause and present the user with the message

“DO YOU WANT TO SAVE RECORD? (Y/N)”.

This will enable the user to choose whether to save the record or not.

After that it will present the user with another message

“DO YOU WANT TO CONTINUE? (Y/N)”.

This will enable the user to select an option to continue with the entering of another new record or abandon the work.

See Appendix iv,v,xv and xvi for the ADD.PRG and OUTPUT respectively.

EDITING RECORD:

This program allows the users to retrieve particular records for the purpose of modification. The program will display the message

“ENTER RECIEPT NUMBER”

And pause for the user to enter Receipt number, The Programme will search the Data Base File for a match with the number entered. If a match is found, then the corresponding record to that patient number will be displayed on the screen. And the cursor will be in the first field of the form, for the user to effect the modification, but if matching record is not found, the programme will display a message saying

“RECORD NOT FOUND”

Refers Appendix vi,vii,xvii and xviii for the EDIT.PRG and OUTPUT respectively.

DELETE RECORD:

This program is similar to the Edit program because the record is searched in the same way it is done in the edit program.

The program will display a message

“ENTER RECIEPT NUMBER”

And pause for the user to enter receipt number. And this is searched for if found then the delete procedure will take effect but if not found it will display

“RECORD NOT FOUND”.

Refers Appendix viii, ix, xix and xx for DELETE.PROG. And OUTPUT respectively.

REPORT GENERATOR:

This program module enables the user to generate report from the database file.

This report is presented either through the computer screen or through the printer as hard copy.

To view or print output, the output device used must be selected before the call of the database file.

Refers Appendix x, xi, xxi, xxii, xxiii and xxiv for REPORT.PRG and OUTPUT.

EXIT:

This option enables the program to quit whatever work is being done.

FILE SPECIFICATION:

The menu 1 program and menu 2 program are the filenames of the programs that will display the menu options and activate any of the subprograms, when the desired option is selected. These subprograms are also called program modules

Refer to Appendix ii and iii for the menu 1 program and menu 2 program

In this project, five program modules for each are developed with each having its own file

See below the names of the files:

ADD.PRG

EDIT.PRG

DELETE.PRG

REPORT.PRG

EXIT

The Dbase files created in this project are called DLYSALES.DBF and DLYSREC.DBF.

HARDWARE AND SOFTWARE REQUIREMENTS:

HARDWARE REQUIREMENTS:

The hardware of a computer refers to the various mechanical, magnetic, electrical and electronic parts of the computer. The most powerful the features of the hardware component the better the utilisation of the design system. For the hardware requirement a computer with the following specification will be ideal.

2 IBM computers with the following configuration:

PENTIUM 133 MHz

16 MB RAM

2.1 GB HARDDISK

1.44 MB (3.5") FLOPPY DISK

1.2 MB (5.25") FLOPPY DISK

CD ROM (X23)

14" SVGA MONITOR (1024X768PIXEL 0.28 DOT/PITCH)

ENHANCED KEY BOARD (101keys)

VGA ADAPTOR

1 LASER JET PRINTER (laser 4 plus)

UNINTERRUPTIBLE POWER SUPPLY (500volts).

This is very useful in order to avoid unnecessary interruption of power supply which may eventually lead to loss of information an uninterruptible power supply of about 500 volts will be suitable for this purpose. Acquisition of backup equipment is recommended to this effect.

SOFTWARE REQUIREMENTS:

The software of a computer system is a collection of program that is Responsible for the controlling of the activities of the computer. The essential software requirements for the proposed system are: -

MS-DOS 4.1 or higher version

DBASE IV MANAGEMENT SYSTEM PACKAGE

CONSUMABLE ITEMS

3.5" HD DISKETTES (Maxell)

5.25" HD DISKETTES (Maxell)

ACCOMODATION AND FURNITURE

A rugged room with Air conditioner

Computer tables and chairs

Office Cabinet.

SYSTEM CONVERSION

This involves the conversion of the old file data into the form required by the new system. The system changeover can take place when the system has been proved to the satisfaction of the systems analyst and the other implementation activities have been completed.

User managers are satisfied with the results of the system tests, staff training and reference manuals.

The target data for changeover is due

The change over may be achieved in a number of ways, such as direct, parallel running, pilot running and staged changeover.

- a) **DIRECT CHANGEOVER:** - This method is the complete replacement of the old system by the new, in one move. When a direct changeover is planned, system tests and training should be comprehensive and the changeover itself planned in detail. It is the least expensive but most risky. The old system may be held abeyance including people and equipment for security reasons.
- b) **PARALLEL RUNNING:** - This means processing current data by both the old and new system too crosscheck the results. The old system is kept alive and operational until the new system has been proved for at least one system cycle, using full live data in the real operational environment of place, people, equipment and time. It allows the results of the new system to be compared with the old system before acceptance by the user, Thereby promoting user confidence.
- c) **PILOT RUNNING:** - This is similar in concept to parallel running. Data from one or more previous period for the whole or part of the system is run on the new system

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ORGANOGRAM OF GARKI HOSPITAL

APPENDIX I

```
* PROGRAM-----DLYSALES.PRG AND DLYSREC.PRG
* WRITTEN BY--IKWUBIELA S.ADEM
* REGNO-----PGD/MCS/97/355
* NOTE-----THIS PROGRAM IS TO DISPLAY THE MENU
*             OPTIONS ON THE SCREEN.
*
*
```

```
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
DO WHILE .T.
  CLEAR
  @ 2,4 to 20,64 DOUBLE
  @ 5,32 SAY "MAIN MENU (DRF) "
  @ 6,32 TO 6,46 DOUBLE
  @ 8,27 SAY "TASK CODE"
  @ 8,42 SAY "TASK"
  @ 9,27 TO 9,35
  @ 9,42 TO 9,45
  @ 10,31 SAY "1" + SPACE (9) + "MENU1"
  @ 12,31 SAY "2" + SPACE (9) + "MENU2"
  @ 14,31 SAY "0" + SPACE (9) + "QUIT"
  CHOICE =0
  @ 19,29 SAY "ENTER A TASK CODE:"
  @ 19,48 GET CHOICE PICTURE "9" RANGE 0,2
  READ
  DO CASE
    CASE CHOICE = 1
      DO MENU1
    CASE CHOICE = 2
      DO MENU2
    CASE CHOICE = 0
      EXIT
  ENDCASE
ENDDO
SET TALK ON
SET SCOREBOARD ON
SET STATUS ON
CLEAR
RETURN
```

```
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
USE DLYSALES
DO WHILE .T.
  CLEAR
  @ 2,16 TO 22,64 DOUBLE
  @ 5,32 SAY "DAILY SALES MENU (DRF) "
  @ 6,32 TO 6,56 DOUBLE
  @ 8,27 SAY "TASK CODE"
  @ 8,42 SAY "TASK"
  @ 9,27 TO 9,35
  @ 9,42 TO 9,45
  @ 10,31 SAY "1" + SPACE (9) + "ADD RECORD"
  @ 12,31 SAY "2" + SPACE (9) + "EDIT RECORD"
  @ 14,31 SAY "3" + SPACE (9) + "DELETE RECORD"
  @ 16,31 SAY "4" + SPACE (9) + "REPORT"
  @ 18,31 SAY "0" + SPACE (9) + "QUIT"
  CHOICE = 0
  @ 21,29 SAY "ENTER A TASK CODE"
  @ 21, 48 GET CHOICE PICTURE "9" RANGE 0,4
  READ
  DO CASE
    CASE CHOICE = 1
      DO ADD1
    CASE CHOICE = 2
      DO EDIT1
    CASE CHOICE = 3
      DO DELETE1
    CASE CHOICE = 4
      DO REPORT1
    CASE CHOICE = 0
      EXIT
  ENDCASE
ENDDO
SET TALK ON
SET SCOREBOARD ON
SET STATUS ON
CLEAR
RETURN
```

```
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
DO WHILE .T.
  CLEAR
  @ 2,4 TO 22,64 DOUBLE
  @ 5,15 SAY "DAILY SALES RECONCILIATION (PH/ACCT) MENU"
  @ 6,15 TO 6,54 DOUBLE
  @ 8,21 SAY "TASK CODE"
  @ 8,42 SAY "TASK"
  @ 9,21 TO 9,30
  @ 9,42 TO 9,45
  @ 10,25 SAY "1" + SPACE(15) + "ADD RECORD"
  @ 12,25 SAY "2" + SPACE(15) + "EDIT RECORD"
  @ 14,25 SAY "3" + SPACE(15) + "DELETE RECORD"
  @ 16,25 SAY "4" + SPACE(15) + "REPORT"
  @ 18,25 SAY "0" + SPACE(15) + "QUIT"
  CHOICE=0
  @ 20,25 SAY "ENTER A TASK CODE"
  @ 20,45 GET CHOICE PICTURE "9" RANGE 0,4
  READ
  DO CASE
    CASE CHOICE =1
      DO ADD2
    CASE CHOICE =2
      DO EDIT2
    CASE CHOICE =3
      DO DELETE2
    CASE CHOICE =4
      DO REPORT2
    CASE CHOICE = 0
      EXIT
  ENDCASE
ENDDO
SET TALK ON
SET SCOREBOARD ON
SET STATUS ON
CLEAR
RETURN
```

```
* PROGRAM-----ADD RECORD
* WRITTEN BY----I.S. ADEM
* REG NO-----PGD/MCS/97/355
* NOTE-----THIS PROGRAM IS TO ADD NEW RECORD TO DLYSALES DBF
*
*
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
USE DLYSALES
CLEAR
DO WHILE .T.
APPEND BLANK
MNAME = SPACE(20)
STORE 0 TO MRECIEPTNO
MDESCRPITM = SPACE(20)
STORE 0 TO MTOTAMPD
STORE 0 TO MSNO
    @ 1,4 TO 23,70 DOUBLE
    @ 5,20 SAY "DATA ENTRY FORM"
    @ 5,43 SAY DATE()
    @ 6,20 TO 6,34 DOUBLE
    @ 6,43 TO 6,50 DOUBLE
    @ 10,15 SAY "S/NO" GET MSNO
    @ 12,15 SAY "NAME" GET MNAME
    @ 14,15 SAY "RECIPT NUMBER" GET MRECIEPTNO
    @ 16,15 SAY "TOTAL AMOUNT PAID" GET MTOTAMPD
    @ 18,15 SAY "DESCRIPTION OF ITEM" GET MDESCRPITM
    READ
    CHOICE = SPACE(1)
    @ 21,15 SAY "TO SAVE ENTRY ? (Y/N)" GET CHOICE PICTURE "!"
    READ
    IF CHOICE = "Y" .OR. CHOICE = "y"
        REPLACE S_NO WITH MSNO
        REPLACE NAME WITH MNAME
        REPLACE RECPT_NO WITH MRECIEPTNO
        REPLACE TOTAL_PAID WITH MTOTAMPD
        REPLACE DESCPT_ITM WITH MDESCRPITM
        CLEAR
    ELSE
        CLEAR
    ENDIF
    RESPONSE = SPACE(1)
    @ 22,15 SAY "DO YOU WANT TO CONTINUE ? (Y/N)" GET RESPONSE PICTURE '

```

```
READ
IF RESPONSE = "Y" .OR. RESPONSE ="y"
CLEAR
LOOP
ELSE
EXIT
ENDIF
ENDDO
CLOSE DATABASE
SET TALK ON
SET SCOREBOARD ON
SET STATUS ON
RETURN
```

```
* PROGRAM-----ADD
* WRITTEN BY-----IKWUBIELA S. ADEM
* REG NO-----PGD/MCS/97/355
* NOTE-----THIS PROGRAM IS TO ADD RECORD TO DLYSALES
* RECONCILIATION B\W PHY/ACCOUNT
*
*
SET TALK OFF
SET SCOREBOARD OFF
SET STATUS OFF
USE DLYSREC
CLEAR
DO WHILE .T.
APPEND BLANK
MRMKS = SPACE (20)
STORE CTOD(" / / ") TO MDATE
STORE 0 TO MRCPTNO
STORE 0.00 TO MPHARM, MACCOUNT
  @ 1,4 TO 23,65 DOUBLE
  @ 5,25 SAY "DATA ENTRY FORM"
  @ 6,25 TO 6,39 DOUBLE
  @ 10,20 SAY "DATE OF PURCHASE" GET MDATE
  @ 12,20 SAY "RECIPT NUMBER" GET MRCPTNO
  @ 14,20 SAY "PHARMACY" GET MPHARM
  @ 16,20 SAY "ACCOUNT" GET MACCOUNT
  @ 18,20 SAY "REMARKS" GET MRMKS
READ
CHOICE=SPACE (1)
@ 20,20 SAY "DO YOU WANT TO SAVE THIS ENTRY ? (Y/N)"
@ 20,62 SAY GET CHOICE PICTURE "!"
READ
IF CHOICE = "Y" .OR. CHOICE = "y"
REPLACE DOP WITH MDATE
REPLACE RCPTNO WITH MRCPTNO
REPLACE PHARMACY WITH MPHARM
REPLACE ACCOUNT WITH MACCOUNT
REPLACE REMARKS WITH MRMKS
CLEAR
ELSE
CLEAR
ENDIF
RESPONSE = SPACE (1)
@ 22,20 SAY "DO YOU WANT TO CONTINUE ? (Y/N)"
@ 22,55 SAY GET RESPONSE PICTURE "!"
```



```
READ
IF RESPONSE ="Y".OR. RESPONSE = "y"
LOOP
ELSE
EXIT
ENDIF
ENDDO
CLOSE DATABASE
SET TALK ON
SET SCOREBOARD ON
SET STATUS ON
RETURN
```

```
* PROGRAM-----EDIT RECORD
* WRITTEN BY-----I.S. ADEM
* REG NO -----PGD/MCS/97/355
* NOTE-----THIS PROGRAM IS TO EDIT RECORD IN DLYSALES DBF
**
**
SET TALK OFF
* OPEN DATABASE FILE
USE DLYSALES
DO WHILE .T.
CLEAR
* FORMATTING DATA EDITING SCREEN
STORE 0 TO MRECIEPTNO
  @ 1,4 TO 23,70 DOUBLE
  @ 4,20 SAY "DATA EDITING ROUTINE"
  @ 4,43 SAY DATE ( )
  @ 5,20 TO 5,39 DOUBLE
  @ 5,43 TO 5,52 DOUBLE
  @ 8,20 SAY "ENTER RECIEPT NUMBER" GET MRECIEPTNO
  READ
LOCATE FOR RECPT_NO = MRECIEPTNO
IF .NOT. FOUND ( )
  @ 15,20 SAY "RECORD NOT FOUND"
ELSE
  STORE RECPT_NO TO MRECIEPTNO
  STORE S_NO TO MSNO
  STORE NAME TO MNAME
  STORE TOTAL_PAID TO MTOTAMPD
  STORE DESCPT_ITM TO MDESCRPITM
  @ 10,15 SAY "ENTER S/NO" GET MSNO
  @ 12,15 SAY "ENTER NAME" GET MNAME
  @ 14,15 SAY "ENTER RECIEPTNO" GET MRECIEPTNO
  @ 16,15 SAY "ENTER TOTAL AMOUNT PAID" GET MTOTAMPD
  @ 18,15 SAY "ENTER DESCRIPTION OF ITEM" GET MDESCRPITM
  READ
  CHOICE = SPACE(1)
  @ 20,15 SAY "DO YOU WANT TO SAVE ENTRY ? (Y/N)"
  @ 20,52 SAY GET CHOICE PICTURE "!"
  READ
IF CHOICE = "Y".OR. CHOICE = "y"
  * ADD TO DATABASE
  REPLACE S_NO WITH MSNO
  REPLACE NAME WITH MNAME
  REPLACE RECPT_NO WITH MRECIEPTNO
```

```
REPLACE TOTAL_PAID WITH MTOTAMPD
REPLACE DESCPT_ITM WITH MDESCRPITM
CLEAR
ELSE
  CLEAR
ENDIF
ENDIF
CH = SPACE (1)
@ 21,15 SAY "DO YOU WANT TO EDIT MORE RECORDS ? (Y/N) "
@ 21,58 SAY GET CH PICTURE "!"
READ
IF CH ="Y" .OR. CH = "y"
  LOOP
ELSE
  EXIT
ENDIF
ENDDO
CLOSE DATABASE
SET TALK ON
RETURN
```

* NOTE -----THIS PROGRAM IS TO EDIT RECORD IN DLYSREC.DBF-

*
*

USE DLYSREC
DO WHILE .T.

CLEAR
STORE 0 TO MRCPTNO
@ 1,4 TO 23,75 DOUBLE
@ 2,20 SAY "DATA EDITING ROUTINE"
@ 3,20 TO 3,42 DOUBLE
@ 6,23 SAY "ENTER RECIEPT NUMBER" GET MRCPTNO
READ

LOCATE FOR RCPTNO = MRCPTNO
IF .NOT. FOUND()
@ 8,23 SAY "RECORD NOT FOUND"

ELSE

STORE RCPTNO TO MRCPTNO
STORE DOP TO MDATE
STORE PHARMACY TO MPHARM
STORE ACCOUNT TO MACCOUNT
STORE REMARKS TO MRMKS
@ 10,23 SAY "RECIEPT NUMBER" GET MRCPTNO
@ 12,23 SAY "ENTER DATE" GET MDATE
@ 14,23 SAY "ENTER AMOUNT FOR PHARMACY" GET MPHARM
@ 16,23 SAY "ENTER AMOUNT FOR ACCOUNT" GET MACCOUNT
@ 18,23 SAY "ENTER REMARKS" GET MRMKS
READ

CHOICE = SPACE (1)

@ 19,23 SAY "DO YOU WANT TO SAVE RECORD ? (Y/N) "

@ 19,61 SAY GET CHOICE PICTURE "!"

READ

IF CHOICE = "Y" .OR. CHOICE = "y"

REPLACE DOP WITH MDATE

REPLACE RCPTNO WITH MRCPTNO

REPLACE PHARMACY WITH MPHARM

REPLACE ACCOUNT WITH MACCOUNT

REPLACE REMARKS WITH MRMKS

CLEAR

ELSE

CLEAR

ENDIF

ENDIF

CH =SPACE(1)

@ 20,23 SAY "DO YOU WANT TO EDIT MORE RECORDS ? (Y/N) "

```
@ 20,66 SAY GET CH PICTURE "!"  
READ  
IF CH = "Y" .OR. CH = "y"  
  LOOP  
ELSE  
  EXIT  
ENDIF  
ENDDO  
CLOSE DATABASE  
RETURN
```

```
* PROGRAM-----DELET RECORD
* WRITTEN BY-----I.S. ADEM
* REG NO-----PGD/MCS/97/355
* NOTE-----THIS PROGRAM IS TO DELET RECORD IN DLYSALES DBF
**
**
SET STATUS OFF

DO WHILE .T.
  GO TOP
  CLEAR
  STORE 0 TO MRECIEPTNO
  @ 1,4 TO 23,70 DOUBLE
  @ 3,20 SAY "DATA DELETING ROUTINE"
  @ 3,43 SAY DATE()
  @ 4,20 TO 4,40 DOUBLE
  @ 4,43 TO 4,50 DOUBLE
  @ 8,15 SAY "ENTER RECIEPT NUMBER" GET MRECIEPTNO
  READ
  LOCATE FOR RECPT_NO = MRECIEPTNO
  IF .NOT. FOUND ()
    @ 9,15 SAY "RECORD NOT FOUND"
  ELSE
    @ 10,15 SAY "ENTER S/NO" GET S_NO
    @ 12,15 SAY "ENTER NAME" GET NAME
    @ 14,15 SAY "ENTER TOTAL AMOUNT PAID" GET TOTAL_PAID
    @ 16,15 SAY "ENTER DESCRIPTION OF ITEM" GET DESCPT_ITM
    DELETE
    CH = SPACE (1)
    @ 18,15 SAY "DO YOU WANT TO DELETE THIS RECORD ? (Y/N) "
    @ 18,60 SAY GET CH PICTURE "!"
    READ
    IF CH = "Y" .OR. CH = "y"
      PACK
      @ 20,15 SAY "RECORD IS DELETED"
    ELSE
      RECALL
      @ 21,36 SAY "RECORD IS RECALLED"
      WAIT SPACE (19) + "PRESS ANY KEY TO CONTINUE"
    ENDIF
    CLEAR
    CH = SPACE (1)
    @ 22,15 SAY "DO YOU WANT TO DELETE MORE RECORDS? (Y/N) "
    @ 22,60 SAY GET CH PICTURE "!"
    READ
```

```
IF CH = "Y".OR. CH = "y"  
  LOOP  
ELSE  
  EXIT  
ENDIF  
ENDIF  
ENDDO  
CLOSE DATABASE  
SET STATUS ON  
RETURN
```

```
SET TALK OFF
* OPEN DATABASE
USE DLYSREC
DO WHILE .T.
  GO TOP
  CLEAR
  STORE 0 TO MRCPTNO
  @ 1,4 TO 21,75 DOUBLE
  @ 3,20 SAY "DATA DELETING ROUTINE"
  @ 4,20 TO 4,40 DOUBLE
  @ 8,20 SAY "ENTER RECIEPT NUMBER" GET MRCPTNO
  READ
  LOCATE FOR RCPTNO= MRCPTNO
  IF .NOT. FOUND ()
    @ 15,20 SAY "RECORD NOT FOUND"
  ELSE
    @ 10,20 SAY "ENTER DATE OF PURCHASE" GET DOP
    @ 12,20 SAY "ENTER FOR PHARMACY" GET PHARMACY
    @ 14,20 SAY "ENTER FOR ACCOUNT" GET ACCOUNT
    @ 16,20 SAY "ENTER REMARKS" GET REMARKS
    CLEAR GETS
    DELETE
    CH = SPACE (1)
    @ 17,20 SAY "DO YOU WANT TO DELETE THIS RECORD ? (Y/N) "
    @ 17,65 SAY GET CH PICTURE "!"
    READ
    IF CH = "Y" .OR. CH = "y"
      PACK
      @ 18,20 SAY "RECORD IS DELETED"
    ELSE
      RECALL
      @ 19,20 SAY "RECORD IS RECALLED"
    ENDIF
    CLEAR
    CH = SPACE (1)
    @ 19,20 SAY "DO YOU WANT TO CONTINUE DELETING ? (Y/N) "
    @ 19,63 SAY GET CH PICTURE "!"
    READ
    IF CH = "Y" .OR. CH = "y"
      LOOP
    ELSE
      EXIT
    ENDIF
  ENDIF
```



```
ENDDO  
CLOSE DATABASE  
SET TALK ON  
RETURN
```

APPENDIX X

```
* PROGRAM..... REPORT PRG
* WRITTEN BY .... I.S.ADEM
* REG NO ..... PGD/MCS/355/97
* NOTE..... THIS PROGRAM IS TO GENERATE REPORTS
* FROM DAILY SALES.DBF
*
CLEAR
M_DEVICE = SPACE (1)
@ 2,5 SAY "OUTPUT DEVICE TO SCREEN OR PRINTER (P/S) "
@ 2,48 SAY GET M_DEVICE PICTURE "!"
READ
*
USE DLYSALES
*
M_SORT = " "
  @ 6,5 SAY " SORT RECIPT NUMBER (Y/N) " GET M_SORT PICTURE "!"
  READ
  IF M_SORT = "Y" .OR. M_SORT = "y"
  STORE 0 TO MRECIPTNO
  IF MRECIPTNO = RECPT_NO
  SORT ON RECPT_NO/A TO DLYSALES.DBF
  ENDIF
ENDIF
CLOSE DATABASE
*
CLEAR
* TO VIEW REPORT ON THE SCREEN OR TO PRINT
IF M_DEVICE = "S"
SET DEVICE TO SCREEN
ENDIF
  IF M_DEVICE ="P"
  SET DEVICE TO PRINT
  ENDIF
  CLEAR
Pn = 1
@ 2,10 SAY "GARKI GEN. HOSPITAL,DEPT OF HEALTH SERVICES,
@ 2,57 SAY FCDA,ABUJA"
@ 4,25 SAY "DAILY SALES (DRF), PHARMACY UNIT"
@ 8,10 SAY "TODAY'S DATE:"
@ 8,26 SAY DATE()
@ 8,38 SAY "PAGE:"
@ 8,40 SAY Pn
@ 10,0 SAY "S_NO      NAME      RECPT_NO
@ 10,41 SAY TOTAL_PAID  DESCPT_ITM "
```

```
@ 11,0 SAY REPLICATE ("_",79)
STORE 0 TO SC
SC = 13
GO TOP
DO WHILE .NOT. EOF()
  @ SC,0 SAY S_NO
  @ SC,8 SAY NAME
  @ SC,26 SAY RECPT_NO
  @ SC,35 SAY TOTAL_PAID
  @ SC,52 SAY DESCPT_ITM
  SC = SC + 1
  IF M_DEVICE = "S"
    IF SC = 23
      WAIT
      @ 13,0 CLEAR TO 23,79
      SC = 13
    ENDIF
  ENDIF
  IF M_DEVICE = "P"
    IF SC = 54
      EJECT
      Pn= Pn + 1
      @ 2,20 SAY "GARKI GEN. HOSPITAL, DEPT OF HEALTH SERVICES,
      @ 2,67 SAY FCDA,ABUJA"
      @ 6,20 SAY "DAILY SALES (DRF) "
      @ 8,10 SAY "TODAY'S DATE"
      @ 8,26 SAY DATE()
      @ 8,36 SAY "PAGE:"
      @ 8,40 SAY Pn
      @ 10,0 SAY "S_NO          NAME                      RECPT_NO
      @ 10,41 SAY TOTAL_PAID  DESCPT_ITM "
      @ 11,0 SAY REPLICATE ("_",79)
      SC = 13
    ENDIF
  ENDIF
  IF EOF()
    WAIT SPACE (19) + "PRESS ANY KEY TO EXIT"
  ENDIF
  SKIP
  WAIT
ENDDO
SET DEVICE TO SCREEN
USE
RETURN
```

```
* PROGRAM.....REPORT.PRG
* WRITTEN BY.....I.S.ADEM
* REG NO.....PGD/MCS/355/97
* NOTE.....THIS PROGRAM IS TO GENERATE REPORTS
*           FROM DLYSREC.DBF
*
*
      M_DEVICE =SPACE (1)
      @ 2,5 SAY "OUTPUT DEVICE TO SCREEN OR PRINTER (P/S)"
      @ 2,49 SAY GET M_DEVICE PICTURE "!"
      READ
*
USE DLYSREC
*
      M_SORT = " "
      @ 6,5 SAY "SORT RECIEPT NUMBER (Y/N)" GET M_SORT PICTURE "!"
      READ
      IF M_SORT = "Y".OR. M_SORT = "y"
      STORE 0 TO MRCPTNO
      IF MRCPTNO =RCPTNO
      SORT ON RCPTNO/A TO DLYSREC.DBF
      ENDIF
      ENDIF
CLOSE DATABASE
*
CLEAR
*
* TO VIEW REPORT ON THE SCREEN OR TO PRINT
      IF M_DEVICE ="S"
      SET DEVICE TO SCREEN
      ENDIF
      IF M_DEVICE ="P"
      SET DEVICE TO PRINT
      ENDIF
*
CLEAR
*
      Pn =1
      @ 2,10 SAY "GARKI GENERAL HOSPITAL, DEPT OF HEALTH,
      @ 2,57 SAY FCDA,ABUJA"
      @ 4,10 SAY "DAILY SALES RECONCILIATION OF ACCOUNT
      @ 4,49 SAY B/W PHARM/ACCOUNT UNIT"
      @ 6,10 SAY "TODAY'S DATE:"
      @ 6,21 SAY DATE()
```

```
@ 6,36 SAY "PAGE:"
@ 6,40 SAY Pn
@ 10,2 SAY "DOP          RCPTNO          PHARMACY
@ 10,47 SAY ACCOUNT      REMARKS"
@ 11,2 SAY REPLICATE ("_",79)
STORE 0 TO SC
SC = 13
GO TOP
DO WHILE .NOT.EOF ()
@ SC,0 SAY DOP
@ SC,8 SAY RCPTNO
@ SC,25 SAY PHARMACY
@ SC,41 SAY ACCOUNT
@ SC,57 SAY REMARKS
SC=SC+1
IF M_DEVICE ="S"
  IF SC = 23
    WAIT
    @ 13,0 CLEAR TO 23,79
    SC =13
  ENDIF
ENDIF
IF M_DEVICE = "P"
  IF SC = 54
    EJECT
    Pn=Pn +1
    @ 2,10 SAY "GARKI GEN HOSPITAL, DEPT OF HEALTH SERVICES,
    @ 2,57 FCDA,GARKI"
    @ 4,10 SAY "DAILY SALES RECONCILIATION OF ACCOUNT
    @ 4,49 B/W PHARM/ACCOUNT UNIT"
    @ 6,10 SAY "TODAY'S DATE"
    @ 8,26 SAY DATE()
    @ 8,36 SAY "PAGE:"
    @ 8,40 SAY Pn
    @ 10,2 SAY "DOP          RCPTNO          PHARMACY
    @ 10,47 SAYACCOUNT      REMARKS"
    @ 11,2 SAY REPLICATE ("_",79)
    SC =13
  ENDIF
ENDIF
IF EOF ()
  WAIT SPACE (19) + "PRESS ANY KEY TO EXIT"
ENDIF
SKIP
WAIT
ENDDO
SET DEVICE TO SCREEN
USE
RETURN
```


<u>DATA ENTRY FORM</u>	
DATE OF PURCHASE	/ /
RECIPT NUMBER	0
PHARMACY	0
ACCOUNT	0
REMARKS	

ENTER RECIEPT NUMBER 234

RECIEPT NUMBER 234

ENTER DATE 09/06/99

ENTER AMOUNT FOR PHARMACY 300

ENTER AMOUNT FOR ACCOUNT 300

ENTER REMARKS BALANCED

```

Record = 36eiv\adem\DLYSREC Rec 36/49
234
9/06/99
300
300
BALANCED

```


1
 GARKI GENERAL HOSPITAL, DEPARTMENT OF HEALTH SERVICES, FCDA, ABUJA

DAILY SALES (DRF), PHARMACY UNIT

TODAY'S DATE: 19/07/99 PA 1

S_NO	NAME	RECPT_NO	TOTAL_PAID	DESCPT_ITM
0				
1	BENJAMIN MAJI	123	300.00	DRUGS
2	ADEM IKWUBIELA	33	200.00	DRUGS
3	ADE SILO	23	200.00	DRUGS
4	ADEYI	345	0.00	DRUG

17Record No 4..
 DLYSALES: Record No 5..
 Press any key to continue...

PC:\...adem\DLYSALES Rec 5/18 NumCapsIns

S_NO	NAME	RECPT_NO	TOTAL_PAID	DESCPT_ITM
1	BENJAMIN MAJI	1230	300.00	DRUGS
2	ADEM IKWUBIELA	331	200.00	DRUGS
3	ADE SILO	239	200.00	DRUGS
4	ADEYI	3456	0.00	DRUG
5	JOY	43	0.00	DRUG
6	JOY JAMES	2342	200.00	DRUGS
7	MOMOH KABIRELA	2342	300.00	DRUGS
8	IKWUBIELA ADEM	2342	300.00	SURGICAL
9	Tayo Ade	908	0.00	drugs
10	ADEM	987	0.00	DRUG
11	IKWUBIELA ADEM	3426	200.00	DRUGS
12	Momoh Kabir	23451	0.00	drugs
13	ADE ADE	5344	200.00	DRUGS
14	ADEYI ODE	3427	300.00	SURGIAL MATERIALS
15	JOY JAMES	2348	200.00	DRUGS
16	GRACE WANDE	0	0.00	
17	ELAMEYI ODE	6783	2134.00	DRUGS
18	STELLA ONYEKE	2345	400.00	SURGICAL
TOTAL			4934.00	

1

GARKI GENERAL HOSPITAL, DEPT OF HEALTH, FCDA, ABUJA

DAILY SALES RECONCILIATION OF ACCOUNT B/W PHARM/ACCOUNT UNIT

TODAY'S DATE: 19/07/99 PAGE 1

DOP	RCPTNO	PHARMACY	ACCOUNT	REMARKS
/ /	23456	900000.00	890000.00	acct short with 1000
/ /	0	0.00	0.00	
/ /	0	2 0.00	0.00	
/ /	0	3 0.00	0.00	
/ /	0	4 0.00	0.00	
/ /	0	5 0.00	0.00	
	19ecord No	6...		
	DLYSREC: Record No	7...		
	Press any key to continue...			
	C:\dbaseiv\adem\DLYSREC		Rec 7/49	NumCapsIns

APPENDIX XXIV

DOP	RCPTNO	PHARMACY	ACCOUNT	REMARKS
/ /	23456	900000.00	890000.00	acct short with 1000
/ /	0	200.00	200.00	BALANCED
24/06/99	2341	200.00	200.00	BALANCED
23/05/99	2342	340.00	340.00	BAL
/ /	2344	200.00	200.00	BALANCED
09/06/99	234	300.00	300.00	BALANCED
25/06/99	2349	300.00	300.00	BALANCED
12/09/99	200	600.00	786.00	UNBAL
12/06/99	201	1000.00	1000.00	BAL
22/12/99	9708	9800.00	9800.00	BAL
TOTAL		912940.00	903126.00	

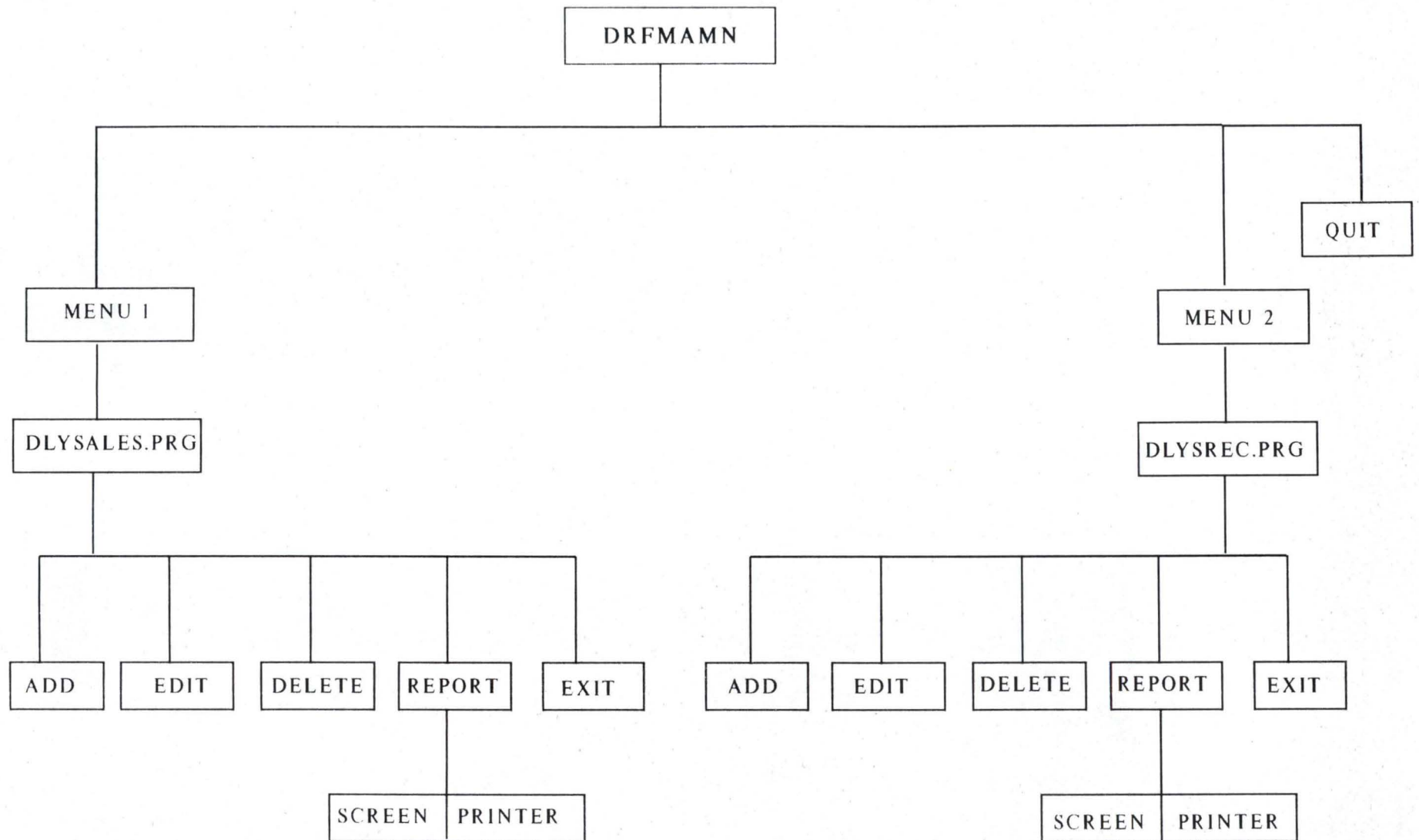


Table Structure (DLYSREC.DBF)

NAME	TYPE	WIDTH	DECIMAL	INDEX
DOP	Date	8	0	None
RCPTNO	Numeric	10	0	None
PHARMACY	Numeric	10	2	None
ACCOUNT	Numeric	10	2	None
REMARKS	Character	20	0	None

Table Records (DLYSALES.DBF)

NAME	RECPT NO	TOTAL PAID
JOY JAMES	2342	200.00
ITM		

NAME	RECPT NO	TOTAL PAID
ITM		

NAME	RECPT NO	TOTAL PAID
ITM		

Table Records (DLYSREC.DBF)

	RCPTNO	PHARMACY	ACCOUNT	REMARKS
/9900	23456	900000.00	890000.00	acct short with 1000
/9900	23457	6000.00	6000.00	BAL
/9900	23458	10000.00	10000.00	BAL
/9900	23459	15000.00	15000.00	BAL
/9900	23450	20000.00	20000.00	BAL
/9900	23451	4000.00	4000.00	BAL
/9900	23452	2500.00	3000.00	SHORT OF #500 BY PH
/9900	23453	5000.00	5000.00	BAL
/		.	.	
/		.	.	
/		.	.	
/		.	.	
/		.	.	
/		.	.	
/9900	2342	1000.00	1000.00	BALANCED
/		.	.	
/		.	500.00	BAL
/		.	.	
/		.	500.00	BALANCED
/		.	900000000	BALANCED
/		.	.	
/		2000.00	2000.00	BALANCED
/		200.00	200.00	BALANCED
/		.	.	
/1999	2341	200.00	200.00	BALANCED
/1999	2342	340.00	340.00	BAL
/		.	.	
/		.	.	
/		.	.	
/	2344	200.00	200.00	BALANCED
/		.	.	
/		.	.	
/1999	234	300.00	300.00	BALANCED
/1999	2349	300.00	300.00	BALANCED
/		.	.	
/	0	0.00	0.00	
/	0	0.00	0.00	
/		.	.	
/		.	.	
/	0	0.00	0.00	
2/1999	200	600.00	786.00	UNBAL
2/1999	201	1000.00	1000.00	BAL
2/1999	9708	9800.00	9800.00	BAL
/		.	.	
/		.	.	
/		.	.	

No. 1
7/99

	RCPTNO	PHARMACY	ACCOUNT	REMARKS
/	23456	900000.00	890000.00	acct short with 1000
/	0	200.00	200.00	BALANCED
6/99	2341	200.00	200.00	BALANCED
5/99	2342	340.00	340.00	BAL
/	2344	200.00	200.00	BALANCED
6/99	234	300.00	300.00	BALANCED
6/99	2349	300.00	300.00	BALANCED
9/99	200	600.00	786.00	UNBAL
6/99	201	1000.00	1000.00	BAL
2/99	9708	9800.00	9800.00	BAL
		912940.00	903126.00	

e No. 1
07/99

NO	NAME	RECPT_NO	TOTAL_PAID	DESCPT_ITM
1	BENJAMIN MAJI	1230	300.00	DRUGS
2	ADEM IKWUBIELA	331	200.00	DRUGS
3	ADE SILO	239	200.00	DRUGS
4	ADEYI	3456	0.00	DRUG
5	JOY	43	0.00	DRUG
6	JOY JAMES	2342	200.00	DRUGS
7	MOMOH KABIRELA	2342	300.00	DRUGS
8	IKWUBIELA ADEM	2342	300.00	SURGICAL
9	Tayo Ade	908	0.00	drugs
10	ADEM	987	0.00	DRUG
11	IKWUBIELA ADEM	3426	200.00	DRUGS
12	Momoh Kabir	23451	0.00	drugs
13	ADE ADE	5344	200.00	DRUGS
14	ADEYI ODE	3427	300.00	SURGIAL MATERIALS
15	JOY JAMES	2348	200.00	DRUGS
16	GRACE WANDE	0	0.00	
17	ELAMEYI ODE	6783	2134.00	DRUGS
18	STELLA ONYEKE	2345	400.00	SURGICAL
AL		61344	4934.00	

1

GARKI GENERAL HOSPITAL, DEPARTMENT OF HEALTH SERVICES, FCDA, ABUJA
DAILY SALES (DRF), PHARMACY UNIT

TODAY'S DATE: 19/07/99 PA 1

NAME	RECPT_NO	TOTAL_PAID	DESCPT_ITM
BENJAMIN MAJI	123	300.00	DRUGS

14Record No 1
SALES: Record No 2
Press any key to continue...

C:\...adem\DLYSALES Rec 2/18 NumCaps In

e No. 1
07/99

NO	NAME	RE F_NO	TOTAL_PAID	DESCPT_ITM
1	BENJAMIN MAJI	1230	300.00	DRUGS
2	ADEM IKWUBIELA	331	200.00	DRUGS
3	ADE SILO	239	200.00	DRUGS
4	ADEYI	3456	0.00	DRUG
5	JOY	43	0.00	DRUG
6	JOY JAMES	2342	200.00	DRUGS
7	MOMOH KABIRELA	2342	300.00	DRUGS
8	IKWUBIELA ADEM	2342	300.00	SURGICAL
9	Tayo Ade	908	0.00	drugs
10	ADEM	987	0.00	DRUG
11	IKWUBIELA ADEM	3426	200.00	DRUGS
12	Momoh Kabir	3451	0.00	drugs
13	ADE ADE	5344	200.00	DRUGS
14	ADEYI ODE	3427	300.00	SURGIAL MATERIALS
15	JOY JAMES	2348	200.00	DRUGS
16	GRACE WANDE	0	0.00	
17	ELAMEYI ODE	5783	2134.00	DRUGS
18	STELLA ONYEKE	2345	400.00	SURGICAL
71		1344	4934.00	