

**DEVELOPMENT OF A PHARMACY
MANAGEMENT SYSTEM (A CASE STUDY OF
ZAGBAYI PHARMACY, MINNA,
NIGER STATE)**

by

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CERTIFICATION

This is to certify that this project titled "**DEVELOPMENT OF A PHARMACY MANAGEMENT SYSTEM (A CASE STUDY OF ZAGBAYI PHARMACY, MINNA, NIGER STATE)**" was carried out by Abubakar Adamu with matriculation number PGD/MCS/SSSE/2001/2002/1086 in the department of mathematics and computer science, Federal University of Technology, Minna, Niger State

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ABSTRACT

In developing pharmacy management applications, one tries to construct an abstract representation of the data from a real world scenario and logistic constraints of the real-world problem under consideration. To do this, a suitable abstract language is needed. It must be rich enough to model the wide variety of problems encountered in the management of pharmacies, and it must also be precise so that a reasonable logical conclusions can be reached on time when management decisions have to be made. In application development, we have to model numeric and non-numeric data in the form of rules, and structural information often in the form of interrelationships between data.

We will see in this project the development of a "Pharmacy Management System", that aids administrators of pharmacies in reaching quick and reasonable decisions.

This project also features the use of databases in the computerised management of pharmacies.

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CHAPTER ONE

GENERAL INTRODUCTION TO COMPUTERS

1.1 WHAT IS A COMPUTER

A computer can be defined as an electronic device that has the ability to accept and process data by following a set of instructions to produce an accurate and efficient result. This set of instructions is referred to as a program and a program can be written in any of the numerous programming languages available today. The computer system accepts data as input, processes it and subsequently stores it in a storage device as information. This stored information can also be retrieved as result or output. The entire process of computation is carried out at a very high speed, which cannot be equaled to that of humans. For any machine to be called a computer, it has to possess a number of qualities of which the important ones are outlined below:

- Ability to accept data from the input device
- Ability to store data and information (i.e. there is existence of memory)
- Ability to process data to give information
- Ability to output information.

From the above definition of a computer, data and information can be defined as follows:

DATA is a term given to basic concrete (raw) facts or symbols such as numbers, names or values etc, while INFORMATION refers to the processed data, which is more useful as output.

The physical component of a computer machine that can be seen and touched (that is the mechanical and electronic parts) makes up what is known as the computer hardware. The hardware also includes peripherals such as input and output devices and other accessories.

The computer software consists of the programs that may be used in a computer system together with their associated documentation. There are basically two types of software namely:

- i. System software: These are also called operating systems as they communicate directly with the hardware of the computer. The operating system transforms high level codes into machine understandable binary codes for execution. Examples include Unix, Linux, Microsoft Windows 95, 98 and Windows XP.
- ii. Application software: These are software that has been designed for specific tasks in specific fields. They communicate with the computer hardware through the system software, and in most cases, they cannot function without the system software. Examples of application software are Microsoft Word, Microsoft Excel, AutoCAD, SPSS etc.

1.1.1 Types of Computers

There are different types of computers. These computer types vary with the different standards of classification. Basically, here, we are going to consider three standards for the classification of computers. They are classification by generation, classification by mode of operation and classification by size.

When classifying computers by generation, we have basically five classes or generations of computer; they are briefly outlined below:

i. **First generation computers (1951 – 1958):** These are the first set of computers produced and were built with vacuum tubes as their main components. The basic characteristics of computers of this generation are as follows:

- Heat and maintenance problems
- Limited main memory capacity
- Slow input and output i.e. card oriented
- Use of low level symbols language programming
- Use of vacuum tubes in electronic circuits

An example of a computer in this generation is the Universal Automatic Computer (UNIVAC), which was built in 1951.

ii. **Second generation computers (1959 – 1964):** These are computers that are an improvement over the first generation computers. They are relatively much faster than the first generation computers and are built with transistors as their main processing components. Some characteristics of computers in this generation includes:

- The use of transistors for internal operations
- Reduced heat generation
- The use of magnetic core as primary internal storage medium
- More flexibility of input and output

- Faster input and output – tape oriented
- Use of high level programming languages e.g. FORTRAN Computers in this generation were used for batch oriented applications e.g. in billing, payroll, updating, inventory etc.

iii. **Third generation computers (1965 – 1970):** This generation of computers was built with integrated circuits and computers in this generation are far more effective when compared to the computers that existed in the second generation. This is because a single integrated circuit could effectively carry out the job of over ten transistors. Some characteristics of computers that existed in this generation are as follows:

- Smaller size and better performance with reliability
- The emergence of the mini computers in this generation
- The use of integrated circuits (ICs) for internal operations. This IC is made with silicon.
- The use of magnetic core and solid state as main storage
- More flexibility with input and output – disc orientation instead of tapes in the second generation
- Extensive use of high level language (HLL)
- Remote processing and timely communication
- Availability of operating system programs to control input and output and perform many tasks previously handled by human operations.

Applications that existed in this generation include

- Airline Reservations
- Marketing forecasting
- Credit billing

iv. **Fourth generation Computers (1971 to date):** These sets of computers evolve as an improvement over the third generation computers. They use microprocessors as their building blocks of processing and are very efficient and fast compared to all other classes of computers mentioned above. Characteristics of computers in this generation are as follows:

- Increase in storage capability and speed
- Use of microprocessors. These microprocessors are also made of silicon.
- Versatility of input and output.
- Use of Large Scale Integration (LSI) and Very Large Scale Integration (VLSI)
- Modular design of programs and compatibility with different computers
- Availability of sophisticated programs for special applications

Some applications that characterises this generation are:

- Mathematical modeling and simulation
- Electronic fund transfer (EFT)
- Computer aided instruction (CAI)
- Computer aided manufacturing (CAM)
- Computer aided learning (CAL)

- v. **Fifth Generation Computers:** The computers that exist in this generation are also built on the silicon microprocessor technology and at a much more sophisticated and complex level. These computers are intended to imitate the intelligent behaviour of human beings and should be capable of generating new knowledge from existing knowledge. The field of study towards this realisation is called ARTIFICIAL INTELLIGENCE. Today, we have EXPERT SYSTEMS, which are software that allows the computer to act as an expert on some particular discipline and are available for consulting. Such software exists in medicine, geology and several other fields.

Computers in this generation are to be employed in the execution of very complex assignments.

Computers have different modes of operation and we can have the following classes of computers based on mode of operation as the standard of classification:

- i. **Analogue Computers:** These are computers whose input values are in the form of continuous varying quantities.
- ii. **Digital Computers:** This class of computers take their input values in the form of discrete values
- iii. **Hybrid Computers:** A hybrid computer is one that has the capability of the digital computers combined with the ability of the analogue computers.

Classifying computers using their size as the standard of classification, we have basically four classes and they are briefly outlined below.

- i. **Mini Computers:** These are computers in the form of microchips in domestic and industrial appliances. They are usually designed to perform specific jobs and serve limited purposes.
- ii. **Micro Computers:** This class comprises of personal computers that are being used in day to day activities in domestic and industrial settings.
- iii. **Mainframe Computers:** These are large and very fast computers that are mainly used for specific industrial purposes. They can handle a very large amount of data, compute at a very high speed as well as handle very complex tasks with much ease. Examples of computers under this class are the switchboards that can be found in large organisations such as telecommunication firms.
- iv. **Super Computers:** These classes of computers are perhaps the largest and fastest and are usually developed for very specific industrial use, mostly in areas where expertise is needed. Examples of computers developed under this class are computers used for space research.

Classifying computers by generation, we have the following classes of computers:

1.1.2 Application of Computers:

At the moment, there is virtually no field of human endeavour in which the use of computers is not of a great importance. To highlight a few, we'll list some of the areas of application of computers: Word processing, desktop publishing, education, Power Generation, Space Works (Space Research), Science Development, Finance, Bookkeeping, Economics, Politics, Journalism, Aeronautics, Automobiles and several other areas of human expertise has been positively affected by the use of computers.

Research, military, communication, medicine, engineering, architecture, banking, accounting, statistics, commerce and agriculture are also areas of human endeavour that the application computers are of very great importance. One can conclude that any field of human endeavour in today's world that is not successfully aided by the use of computers does not contribute much to human existence as all fields of human endeavour that contribute to human existence makes use of computers in one way or the other. Below is a brief on the use of computers in some of the fields mentioned above.

Word Processing and Desktop Publishing: This is perhaps the most common area of application of computers. Several software have been developed to perform numerous tasks in this areas, examples include Microsoft Word, Corel WordPerfect and a host of other software.

Military: The use of computers in the development of weapons is a major landmark in the development of any army. Computers today are being used in global positioning systems (GPS) to track enemy locations, as well as to know what is going on in most parts of the earth. Computers are also being employed in the military as autopilots for unmanned aircraft in wars. Also, use of computers in war projections has aided many armies in attaining victory in wars. There are several other uses of computers in any military.

Education: Computers are being used in the educational sector for several purposes. Computer aided learning (CAL), Computer aided instruction (CAI), and intelligent and

analytical tutoring systems for various subjects and courses e.t.c are some uses of computers in this field.

Communication: Here computers are used to aid communication by enhancing the information technology strengths of computers. Computers can transfer information between its parts and from one place to another at a very high speed, so today we have communication satellite technologies, Very Small Aperture Terminals (VSAT) technologies, Global System for Mobile Communication (GSM) technologies, etc in existence with each technology making a useful use of one or more qualities of computers.

Research: The use of computers in collection, storage and analysis of research data and information has made research much easier and faster. Also the part that computers play in the technology of the Internet can never be overemphasized, and it is clear that the Internet is a big warehouse for research resources.

Medicine: Computers are presently being employed in medicine especially in form of expert systems to aid in medical diagnosis and to help increase the productivity of medical practitioners. These expert system help to make the service(s) of a medical expert available to more and more people within the same period of time as these systems can ask a patient a series of questions concerning his/her ill health and then diagnose the patient based on the complaints given.

Agriculture: Computers are being used in agriculture for projections and also for records keeping, though lately, they are being employed to carry out more complex tasks that require expertise.

Engineering: The application of Computer in engineering mainly for designs and manufacturing. Software now exists for Computer aided designs (CAD) and Computer Aided Manufacturing (CAM) that helps to solve a great deal of problems in this area.

Architecture: In architecture today, computers are being employed for the development of plans and models. Computer aided design software e.g. AutoCAD helps architects develop with much ease all types of drawings and plans. It also helps them in the projection of the strength of materials and buildings and to visualize structures pictorially before they are being laid on the earth.

Accounting and Statistics: Computers are used to reduce the workload on accountants and statisticians as computers have the ability to perform several calculations in a very short time and with great efficiency and accuracy. The application of computers in the financial and accounting world remains an important factor for the existence of these fields. Examples of software that are useful in these fields are Microsoft Excel, Standard Package for Scientists and Statisticians (SPSS) etc.

Banking: In the banking sector of today, e banking is the order of the day. Computers have made banking transactions much easier and banks today can attend to more

keeping in the pharmacy. This system will involve the use of combined utilization of the mathematical techniques and storage facilities of personal computers to assist pharmacists and pharmacy managers in taking marketing, purchasing and management decision and producing intended results in shorter time, more accurately and effectively.

To reach this aim, a customized computer system software was developed to simulate the common processes involved in the management of a pharmacy and to enhance the pharmacists' and the pharmacy managers' effectiveness, consistency and decision making process by very high speed and accurate use of the microprocessor of the personal computers.

1.3 SCOPE AND LIMITATION OF THE STUDY

Taking a careful look at the problems identified above, it is difficult to develop immediately a system, which will cover all the problems facing pharmacies and general pharmacy management. For this reason, our study is focussed on the ineffectiveness of the inventory, record keeping approach, drug dispensation and sales methodology and its computerisation. This is because of its importance for instance that these areas are taken as the pillar of every pharmacy and even most organisations. Its computerisation can even allow the control of the entire system and easy management and dispensation of drugs.

Another important reason is that the growth of every organisation can be measured through the effectiveness of its services and this in turn depends largely on the effectiveness and reliability of the methods of storing its growing data records and tracking of its inventory.

essence the major job here is inventory control. The marketing crew is responsible for adverts and general publicity of the pharmacy.

➤ **Manager Purchasing:** Heads the purchasing department. This department is composed mainly of the offices of the purchasing officer and drug control officer. The purchasing officer as the name implies is in charge of the drug purchases made and also works hand in hand with the store officer to get updated information about drugs that are to be purchased and those not to be purchased due to sale frequency of each drug. The drug control officer also works with the purchasing officer to ensure drugs purchased are NAFDAC approved. This is a sensitive office because this office ensures that the integrity of the organization is not compromised.

➤ **Manager Finance and Administration:** This is the office of the personnel officer of the pharmacy. Reporting to this office are the offices of the accountant of the company, the office of the record keeper, nurses and all sales boys and girls of the pharmacy.

Below is a pictorial representation of the organogram structure of the hierarchy of the offices in the pharmacy.

system that is expected to handle the records of individual supply of drugs and items as they come in, their stay under the custody of the pharmacy and their outward movement from the pharmacy. Once these have been solved, then the major problem of the pharmacy would have been removed and the efficiency of the pharmacy is bound to improve in the absence of these problems.

3.3 BENEFITS OF THE AUTOMATED SYSTEM

Of the several benefits and advantages associated with the automation of any system, the few that will be of great advantage to the system at hand will be specified below.

- **Faster access to information:** The new automated system provides a much more fast access to information. This is especially true for records of drugs and items that have been dispensed or sold over a long period of time. When trying to search through all the available records for a particular record, the new automated system makes such operations faster.
- **Easy dispensation of drugs:** The new automated system makes the dispensation of drugs and items easier by providing an efficient and digital way of computation and storage.
- **Easy and Fast Inventory taking:** The new automated system allows the managers of the pharmacy to take an inventory of the drugs and items in the pharmacy very quickly, thus making managerial decisions easy and quickly.

- The new automated system helps reduce the bulk of papers in the record storage section. This advantage is brought about by the storage of most (or all) records of incoming and outgoing drugs and items in the computer system. It also helps to put all the stored data in one compact and easy to access physical position. This makes transfer and movement of the records from one location to another easier.

3.4 SYSTEM DESIGN

The software design is broken down below and given as follows:

3.4.1 Input Design: The design of the data input module has provision for several sets of data input, they are briefly outlined below.

- Incoming Drugs and Items: There is a provision for the input of records of incoming drugs. This record includes the drug or item name, the unit and total price, the manufacturer's name, the date the drug or item was delivered and the supplier from whom the drug or item was purchased (if not purchased from the manufacturer). The proposed minimum sale price of the drug or item will also be included in the input data. Other input data includes details about the different amount distributed to different office or branches (outlets) of the pharmacy and a general remark about the drug or item from the medical director, the purchasing manager and the sales manager respectively.
- Invoice: This option allows the sales operator to issue invoice and register sales of drugs and items. The form accepts the stock ID (every stock item or drug have their respective unique stock identifier), and displays the shelf where the stock

- The new automated system allows the management of the pharmacy to see with ease a list of the drugs and items that has expired or that will expire in the nearest future.
- Cost effectiveness: The new automated system provides the management with information for effective planning and it reduces workload significantly. The automated system also helps to store the data in the physical storage area of the computer, thus increasing the convenience of processing such data. These whole lots of advantages are provided at a cheap and reasonable cost.
- The automated system brings about new innovations and allows the staff of the company more time of their own to come up with other new innovations in other sectors of the pharmacy.
- The automated system allows for a free and easier assessment of operations, dispensation and sales. It makes it easier to check through the list of records of drugs dispensed and items sold and make necessary assessment and decisions that can positively affect the activities of the pharmacy.
- The automated system makes the correction of mistakes easier and neater.
- The automated system provides an efficient and reliable digital security that prevents unauthorised personnel from accessing the restricted data of the pharmacy.
- The new automated system helps to store information for a longer time with the quality of storage being kept intact i.e. there is no depreciated quality of the physical data storage formats.

item is being placed, the stock name, the stock type, the unit price of the item and allows the operator to enter the number of units to be sold. At this point, the software automatically calculates the total price for that entry to be bought and also allows the software operator to enter other stock entries on the same invoice. The invoice number is automatically generated for each invoice.

3.4.2 Output Design: The output design of the system has the following parts incorporated in it:

- Report of Daily Sales: This report shows the list of all drugs and items sold on a particular day. It has the ability to display the results in two formats: for details of items sold and a summary of the items sold.
- Report of Individual Invoice: This report or sub module reveals the details of a particular invoice whose number will be entered. It gives the details of all the items bought when that particular invoice was issued.
- Report of Alphabetical Stock List: This report shows the list of all the stock in the pharmacy alphabetically. Among other information, this report shows the stock name, the stock ID, the shelf number where the item can be found, the unit selling price and the total available quantity of the stock item available.
- Report of Stock on a Particular Shelf: This report shows the list of stock on a particular shelf whose number must be entered. It shows the stock name, stock ID, and the expiry date of the item and some other information about the stock item.

- Report of Out of Stock Items: This report shows the items that the pharmacy has run out of stock. It shows the stock ID, the shelf number where the stock is supposed to be and the stock name.
- Report of Drugs to be Expired in the next Four Months: This report list all the drug items whose expiry date falls within the next four months. The report lists the stock ID, the stock name, the shelf number where the stock item is placed, the quantity available and the expiry date of the item as well as some other information concerning the stock item.
- Report of Drugs to be Expired in the next Twelve Months: This report list all the drug items whose expiry date falls within the next twelve months. The report lists the stock ID, the stock name, the shelf number where the stock item is placed, the quantity available and the expiry date of the item as well as some other information concerning the stock item.
- Report of Expired Drugs: This report lists all the expired drugs found in the pharmacy. The report lists the stock ID, the stock name, the shelf number where the stock item is placed, the quantity available and the expiry date of the item as well as some other information concerning the stock item. All drugs and items that do not have an expiry date are also listed in this report.
- Report of Drugs by Shelf Number: This report lists all stock items in the order of their shelf numbers. It shows the stock name, stock ID, and the expiry date of the item, the quantity available and some other information about the stock item. The stocks are listed according to their respective shelf numbers.

- Report of Drugs by Stock ID: This report lists all stock items in the order of their stock ID. It shows the stock name, stock ID, and the expiry date of the item, the quantity available and some other information about the stock item. The stocks are listed according to their respective stock IDs.
- Report of Stock Items by Supplier: This report lists all the stock items, listed in the order of their respective suppliers. This report lists the stock ID, the stock name, the supplier name, the quantity available, the unit price amongst other vital information concerning the stock item.
- Report of Stock by Manufacturer name: This report lists all the stock items, listed in the order of their respective manufacturer's name. This report lists the stock ID, the stock name, the manufacturer's name, the quantity available, the unit price amongst other vital information concerning the stock item.
- Report of Stock Items by Re-order level: This report lists the stock items in the pharmacy, arranged in ascending order according to their re-order level. The re-order level of a stock item is the minimum quantity that the stock item can fall to before the computer starts prompting the operator to remind him/her that the pharmacy is running out of that stock item. This report lists the stock name, the stock ID, the re-order level as well as some other vital information concerning the stock item.
- Report of Branch History: This report lists the allocation/distribution of items/products to the main office and all other branch offices. This report is needed so that the management of the pharmacy can easily keep track of the items distributed to the respective branches.

- Report of Particular Drug/Item Details: This report list all the details associated with a particular stock item. It allows the user to enter the stock ID and it automatically displays all detailed information about the item. Amongst other information about the item whose number was entered, this report shows the Stock ID, the stock name, the unit price, the quantity available and the expiry date.

3.4.3 Miscellaneous Design: This includes all other functional aspects of the software design. These design aspects includes the following:

- Security: The security of the software is designed in such a way that before logging on to the software, an administrator password is required. Without this administrator password, the user is not allowed to log on to the software. This security feature was put in place so as to restrict the users that will have access to the data in the software as this data might be considered as confidential to the pharmacy. This feature also limits the number of people who can enter data into the software so as to reduce fraud to the lowest minimum.
- Ease of Use: The design of the software is also made in such a way that users need minimum knowledge of computer operations before they can log on to the software and use the software so long as the user has the correct administrator password. The software was designed to be user friendly.
- Portability: The design of the software was done in such a way that the software is made portable on several operating system platforms (mostly different version of the windows operating system). The software also has the portability to work on

different computer architectures, so long the architecture of the computer meets the minimum requirements specified and the operating system installed is compliant with the minimum specifications of the software designer.

- Efficiency: The design of the software takes efficiency into proper consideration, as the software is extremely efficient for the task it was meant to perform. It performs all the computations required accurately and on time. The method of storage of records within the database also ensures that records are kept safe and accurate such that records cannot get mixed up.
- Reliability: The software is a very reliable one as it produces correct output and the data are being stored in formats that meets international storage standards and specifications. Once there is an absence of hardware failure, then there is little or no expectancy of software failure that may result in loss of data within the software or a mix up of data within the software. Since the storage and computation within the software is very efficient, then any management can confidently rely on the results produced by the software.

3.5 FILE ORGANISATION:

File organisation is a way of specifying the organisation of records within the files and the items of each record.

In this software, all records are organised in a relational database. This database contains tables that hold respective information for the proper functioning of the software and the safe keeping of records. The tables and the entire database itself are stored on the

hard disk drive of the host computer system. This is done to ensure that the records are kept in the safest possible storage location on the host computer system.

CHAPTER 10

SOFTWARE DESIGN

10.1 SYSTEM REQUIREMENTS

The proposed system is a system designed to meet the requirements of the user. The first step in the design process is to determine the requirements of the user. This is done by interviewing the user and by analyzing the data that will be processed by the system. The requirements of the user are then used to design the system. The design process involves determining the data that will be processed by the system, the operations that will be performed on the data, and the format of the data. The design process also involves determining the hardware and software resources that will be required to implement the system. The design process is an iterative process, and it may be necessary to revise the design as more information is gathered about the user's requirements.

A system with a hard disk drive is a system that is designed to meet the requirements of the user.

The computer system is a system that is designed to meet the requirements of the user.

Efficiency and cost

CHAPTER FOUR

SOFTWARE DESIGN

4.1 SYSTEM REQUIREMENTS

The proposed system is a system that makes constant use of its database due to the fact that most of its data is being stored in a database and the software has facilities for processing and reporting data from the database. The system also possesses the ability of handling run time calls to and from the database from the application end user while maintaining the integrity of the system. After a proper study of the developed system, the following was reached as a conclusion for the minimum system requirements for the software to function effectively and maintain its integrity and efficiency.

- A system with a hard disk storage size of at least five (5) gigabytes.
- The computer system's memory capacity should be at least 64 megabytes for efficiency and speed.
- The computer system should have a processor speed of at least 233 MHz.
- The computer system should have a 3.5 floppy disk drive so diskette backup of the data will be possible.
- An uninterrupted power supply (UPS) unit, which will keep the computer system on and working in the event of power failure from the power source. This is needed so that the software can close normally always and thus ensure that data is kept safe and intact.

4.2 IMPLEMENTATION OF THE SYSTEM

Implementation simply means putting into effect the intention depicted in the design. It has the objective of utilizing the system designed to obtain an operational system, which must have been fully tested. To achieve this, operations activities like coding, documentation, testing, debugging, user training and changeover are to be carried out.

The coding of the software was done with Microsoft Visual FoxPro 6.0 and an efficient use of its database was enhanced. This is because of the improved numerous facilities it provides; its ability to handle large programs of this nature and its excellent database handling capabilities.

Before implementation, the program was tested for errors that may be in existence and the errors found were amended accordingly. There are different types of testing methods available and the testing methods employed in the testing and implementation of this software are as follows in the order they were used:

- Unit Testing: The individual unit functions having their respective and clearly defined specifications were tested.
- Module Testing: The co-operation of the individual functions when they are put together was tested at this stage. The module testing, like the unit testing yielded successful results.
- Subsystem Testing: in this stage, efforts were made on module interface with the assumption that the modules themselves are correct.
- System Testing (Integration Testing): This was the final testing stage that the software passed through. At this testing stage, efforts were made more on finding

errors in the design and the coding of the software. This testing stage was also concerned with the validation of the results that were yielded when the system was being used for what it has been designed for. At this stage, the data used to test the software were the same as those used in the old system and their respective results were compared. Also, data already processed by the old procedure was worked upon by the new procedure.

4.3 SOFTWARE RESULTS/OUTPUT

Below are some pictorial highlights of the software usage and output generated from the software:

Fig. 4.1: The stock registration and inventory form

STOCK INVENTORY		Type	Allocation / Distribution (Offices)	
Shelf No.	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
Stock ID	<input type="text"/>	<input type="text"/>	Main Office	<input type="text"/>
Stock Name	<input type="text"/>	<input type="text"/>	Quantity	<input type="text"/>
Stock Description	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
Total Quantity	<input type="text"/>	Expiry Date	Branch (Name)	<input type="text"/>
Unit Quantity	<input type="text"/>	<input type="text"/>	Quantity	<input type="text"/>
Unit on Order	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
Date Supplied	<input type="text"/>	<input type="text"/>	Branch (Name)	<input type="text"/>
Unit Cost Price	<input type="text"/>	<input type="text"/>	Quantity	<input type="text"/>
Unit Selling Price	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
Total Cost Price	<input type="text"/>	<input type="text"/>	Branch (Name)	<input type="text"/>
Total Selling Price	<input type="text"/>	<input type="text"/>	Quantity	<input type="text"/>
Supplier's ID	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
Supplier's Name	<input type="text"/>	<input type="text"/>	Branch (Name)	<input type="text"/>
Supplier's Address	<input type="text"/>	<input type="text"/>	Quantity	<input type="text"/>
Manufacturer's Name	<input type="text"/>	<input type="text"/>	Office Code	<input type="text"/>
			Branch (Name)	<input type="text"/>
			Quantity	<input type="text"/>

Buttons: New, Update, Save, Delete, Refresh, Browse, Exit

Fig 4.2: The Invoice Issuance Form

Pharmacy Management System (PMS) Stock Sales

Pharmacy Management

Invoice No: 111 INVOICE Date: 02/11/2003

Stock ID	Shelf No	Stock Name	Type	Qty. Sold	Unit Price	Amount (Sub Total)
1	1	50% DEXTROSE 100MG		1	600.00	600.00
5	1	50% DEXTROSE 100MG	OTHERS	1	400.00	400.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00
0	0			0	0.00	0.00

Discount (%) : 0 Net Price (Before Dis.) : 1000.00
 Payment Mode : Net Price (After Dis.) : 1000.00
 Details (Indicate Cheque No.) : Amount Paid : 0.00
 Balance : 1000.00

Customer Info:
 Customer ID :
 Customer Address :
 Address :

Buttons: New, Save, Refresh, Browse, Print, Exit

Fig 4.3: Report of Alphabetical stock list

Pharmacy Management System (PMS) Stock Sales

Print Preview

ALPHABETICAL STOCK LIST

AL: 02 November 2003

STOCK NAME	STOCK ID	SHELF NO	TYPE	TOTAL/QT	UNIT/QT	UNIT SEL PRICE	TOTAL PRICE
10% SALICYLIC ACID	2409	45		1	1	320.00	320.00
20% SALICYLIC ACID	2410	45		1	1	400.00	400.00
21 DAYS COMPLEXION	3009	53		0	1	120.00	0.00
50% DEXTROSE	1608	32	OTHERS	5	1	120.00	600.00
911 LEAVE-IN	2431	45		0	1	420.00	0.00
A3 CREAM	129	3	OTHERS	0	1	700.00	0.00
A3 DEPIL CREAM (HAIR	2464	46		1	1	460.00	460.00
ABAKTAL (PEFLOXACIN)	1729	34		3	1	160.00	480.00
ABAKTAL 400MG TAB	1992	39		1	1	920.00	920.00
ABC PLUS SENIOR TAB.	2216	43		3	1	980.00	2940.00
ABIDEC DROPS 25ML,	2112	41		11	1	580.00	6380.00
ABIDEC M/VIT DROPS	2286	43		1	1	1400.00	1400.00
ABITREN 100MG TAB.	768	15		3	10	180.00	540.00
ACCOLATE TAB (20MG)	1030	20		1	1	1300.00	1300.00
ACICLOVIR TAB 400MG	1966	30		0	5	800.00	0.00
ACILIN (ACYCLOVIR)	4000	36		5	5	600.00	3000.00
ACTIFED SYRUP 60ML	1010	20	SYRUP	32	1	200.00	6400.00
ACTIFED TAB	1009	20	PACKET	51	10	50.00	2550.00
ACTIFED TABLETS	439	9		1	1	980.00	980.00
ACTRAPID INSULIN	3072	54		3	1	750.00	2250.00
ACU-CHECK DIABETICS	2561	48		1	1	4200.00	4200.00

Fig 4.4: Report of Drugs and Items to be expired in the next four months

Pharmacy Management System (PMS) Stock Sales

Print Preview

LIST OF DRUGS TO BE EXPIRED IN THE NEXT 4 MONTHS Date: 02/11/2003

SHELF NO	STOCK ID	NAME	QTY	EXPIRY DATE	UNIT PRICE
20	1002	PIRITON TAB. 4MG	144	30/01/2004	20.00
52	2876	SAVLON CREAM 30G	2	30/11/2003	520.00
52	2887	KENACOMB CREAM 10G	3	30/11/2003	380.00
52	2912	CANESTEN CREAM (UK)	1	30/11/2003	750.00
54	3060	VINERISTIC INJ.	1	30/11/2003	770.00
54	3061	HEALER SUPPOSITORY	20	30/11/2003	770.00
50	2714	RIFAMYCINE CHIBRET EYE	5	30/11/2003	0.00
50	2727	ISOPTO CARPINE 2% (10ML)	5	30/11/2003	400.00
50	2738	RIFAMYCINE CHIBRET	3	30/11/2003	560.00
43	2272	WATER BALANCE TAB.	2	30/11/2003	1100.00
30	1963	GRISEOFULVIN TAB. 500MG	11	30/11/2003	240.00
38	1964	RINACTAL INH 300 TAB.	11	30/11/2003	240.00
30	4603	VIREST 400MG	10	30/11/2003	420.00
39	2006	MOGADON 5MG TAB	9	30/11/2003	45.00
39	2029	SANDOMIGRAN TAB 0.5MG	3	30/11/2003	290.00
40	2055	FELDENE 20MG CAPSULES	14	30/11/2003	70.00
42	2153	NIGHT TIME SYRUP	2	30/11/2003	600.00
28	1408	AMPICLOX DROPS 90MG/0.6ML	7	30/11/2003	800.00
33	1655	TRANSFUSION SET	7	30/11/2003	60.00

Fig 4.5: Report of a particular stock detail

Pharmacy Management System (PMS) Stock Sales

Print Preview

STOCK HISTORY

STOCK ID: 3003 DATE: 02/11/2003

DRUG NAME: ALOE VERA SOAP 75G

DESCRIPTION: VERA SOAP

SHELF NO: 53 TYPE:

TOTAL QTY. 3

UNIT QTY. 1

QTY. ON SHELF 0

UNIT SELLING PRICE 90.00

MANUFACTURED DATE / /

EXPIRY DATE 20/02/2004

RE-ORDER LEVEL 4

MANUFACTURER: NOTHERN AROMATICS LTD INDIA

SUPPLIER: GPI

Above are some of the outputs generated by the execution of the software. Fig 4.1 represents the stock inventory form. This form is used to register new stock items in the pharmacy. It could also be used to update the details about a stock item as well as to register the delivery of new quantities of already registered stock items. Each stock item in the pharmacy must have a unique stock ID - this is the primary key of all the stock items available in the pharmacy.

Fig 4.2 shows the invoice issuance form. This window is used to register all invoices issued out for items sold. The database keeps track of all invoices issued out and the respective items purchased with the respective invoices.

Fig 4.3 shows the report of an alphabetical list of all stock items in the pharmacy. All items that are out of stock are also included in this report. With this, the management can easily have a glance at all the items available. At the end of this report is a total in naira of the worth of all the drugs and items in the pharmacy.

Fig 4.4 reveals the output of the report that shows the list of all drugs and items whose expiry date falls within the next four months. This is necessary for easy identification of all items that will soon expire, so that managerial decisions can be effectively made easily on them.

Fig 4.5 is a view of the details of a particular stock item.

CHAPTER FIVE

GENERAL OBSERVATIONS AND RECOMMENDATIONS

5.1 GENERAL OBSERVATIONS

As a student of Mathematics and Computer Science, I observe that our focus among others should be establishing the fact that all manual operations in any organisation will yield better and timely results if they were automated. The pharmacy that we looked into in this project is in no way an exception.

The awareness of the fact that automation of activities will undoubtedly improve the activities of a pharmacy gave birth to the idea of this project work as software development is a continuously growing area of computer science.

Software development is an area that is so broad that no one software can be developed that it will automate every area of human activities. Nevertheless, it is possible to develop software to meet specific and defined areas of human activities.

This project has thus revealed the fact that automation can go a long way to reduce the stress and improve efficiency of pharmacy managers while on the job. The software developed can be used for the effective and efficient management of any pharmacy. The prove of this is in the results got from the software execution.

5.2 RECOMMENDATION

As a result of the above general observations, I believe it is critical to focus on the development of software to automate human activities, so that more work can be done per unit of time. This additional job that can be done per unit of time can also be realised with more efficiency. Since software can greatly improve human efficiency, pharmacy management is not an exception. Therefore, more tools and software should be developed for automating human activities, especially in the areas of the development of pharmacy management systems.

REFERENCES

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- Holmes B. J. (1989) Computer Science, third Edition
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APPENDIX

PROGRAM CODES FOR THE SOFTWARE

program poss

CLOSE all

* set environment

```
SET TALK OFF
SET STATUS OFF
SET SCORE OFF
SET PATH TO C:\poss
SET ECHO OFF
SET BELL OFF
SET SAFETY OFF
SET DATE BRITISH
SET CENTURY ON
SET SYSMENU OFF
SET ESCA OFF
SET HELP OFF
SET STATUS BAR OFF
SET DEBUG OFF
SET CLOCK OFF
```

CLOSE all

SET SYSMENU TO

_SCREEN.CAPTION ="Pharmacy Management System(PMS)"

application.visible = .f.

PUBLIC cuser_id, cpasswd,accessmode,ntrial

PUBLIC diffdate

diffdate = 0

ntrial = 1

DO FORM frmintro

READ EVENTS && fit this place

*QUIT

Program Codes For Frmstock

cmdnew_click()

* to enter new stock inventory

flag = 1

thisform.txtstockid.enabled = .t.
thisform.txtshelfno.enabled = .t.
thisform.txtstockname.enabled = .t.
thisform.txtstockdesp.enabled = .t.
thisform.cbostocktype.enabled = .t.
thisform.txttotalqty.enabled = .t.
thisform.txtqty.enabled = .t.
thisform.txtbcode.enabled = .t.
thisform.txtoffice.enabled = .t.
thisform.txtqty1.enabled = .t.
thisform.txtbcode1.enabled = .t.
thisform.txtoffice1.enabled = .t.
thisform.txtqty2.enabled = .t.
thisform.txtbcode2.enabled = .t.
thisform.txtoffice2.enabled = .t.
thisform.txtqty3.enabled = .t.
thisform.txtbcode3.enabled = .t.
thisform.txtoffice3.enabled = .t.
thisform.txtqty4.enabled = .t.
thisform.txtbcode4.enabled = .t.
thisform.txtoffice4.enabled = .t.
thisform.txtsupid.enabled = .t.
thisform.txtsupname.enabled = .t.
thisform.txtsupadd.enabled = .t.
thisform.txtmanuf.enabled = .t.
thisform.txtexpdate.enabled = .t.
thisform.txtunitqty.enabled = .t.
thisform.txtucprice.enabled = .t.
thisform.txtrolevel.enabled = .t.
thisform.txtusprice.enabled = .t.
thisform.txttprice.enabled = .f.
thisform.txttsprice.enabled = .f.
thisform.txtstockdate.enabled = .t.

thisform.cmdnew.enabled = .f.
thisform.cmdupdate.enabled = .f.
thisform.cmdsave.enabled = .t.
thisform.cmddelete.enabled = .f.
thisform.cmdrefresh.enabled = .t.
thisform.cmdbrowse.enabled = .t.
thisform.cmdexit.enabled = .t.

thisform.txtshelfno.setfocus

cmdsave_click()

```

messagebox(" Shelf Number can not be blank please ",16,"ERROR")
thisform.txtshelfno.value = 0
thisform.INIT

case mstockid = 0
    messagebox(" Stock Identification can not be blank please
",16,"ERROR")
    thisform.txtstockid.value = 0
    thisform.INIT

case len(mstockname) = 0
    messagebox(" stock name can not be blank please ",16,"ERROR")
    thisform.txtstockid.value = 0
    thisform.txtshelfno.value = 0
    thisform.txtstockname.value = ""
    thisform.INIT

case mtotalqty = 0
    messagebox(" Total Quantity can not be zero please ",16,"ERROR")

    thisform.txtstockid.value = 0
    thisform.txtshelfno.value = 0
    thisform.txtstockname.value = ""
    thisform.txttotalqty.value = 0

    thisform.INIT

case mqty = 0
    messagebox(" Quantity can not be zero please ",16,"ERROR")
    thisform.txtstockid.value = 0
    thisform.txtshelfno.value = 0
    thisform.txtstockname.value = ""
    thisform.txttotalqty.value = 0
    thisform.txtqty.value = 0
    thisform.INIT

case flag = 1
    seek mstockid
    if !found()
        append blank
        replace stockid with mstockid
        replace shelfno with mshelfno
        replace stockname with mstockname
        replace stockdesp with mstockdesp
        replace stocktype with mstocktype
        replace totalqty with mtotalqty

```

```
replace bcode with mbcodes
replace qty with mqty
replace office with moffice
replace bcode1 with mbcodes1
replace qty1 with mqty1
replace office1 with moffice1
replace bcode2 with mbcodes2
replace qty2 with mqty2
replace office2 with moffice2
replace bcode3 with mbcodes3
replace qty3 with mqty3
replace office3 with moffice3
replace bcode4 with mbcodes4
replace qty4 with mqty4
replace office4 with moffice4
replace supid with msupid
replace supname with msupname
replace supadd with msupadd
replace manuf with mmanuf
replace expdate with mexpdate
replace datetest with expdate - date()
replace unitqty with munitqty
replace ucprice with mucprice
replace rolevel with mrolevel
replace usprice with musprice
replace tprice with mteprice
replace tprice with mtsprice
replace stockdate with mstockdate
```

```
select 2
  seek msupid
  if found()
    replace supid with msupid
    replace supname with msupname
    replace supadd with msupadd
  else
    append blank
    replace supid with msupid
    replace supname with msupname
    replace supadd with msupadd
  endif
else
  messagebox(" Duplicate Stock ID not allowed ",16,"ERROR")
  thisform.init
endif
```



```

case flag = 2
select 1
    seek mstockid
    if found() AND shelfno = mshelfno
        replace stockid with mstockid
        replace shelfno with mshelfno
        replace stockname with mstockname
        replace stockdesp with mstockdesp
        replace stocktype with mstocktype
        replace totalqty with mtotalqty + totalqty
        replace bcode with mbcode
        replace qty with mqty + qty
        replace office with moffice
        replace bcode1 with mbcode1
        replace qty1 with mqty1
        replace office1 with moffice1
        replace bcode2 with mbcode2
        replace qty2 with mqty2
        replace office2 with moffice2
        replace bcode3 with mbcode3
        replace qty3 with mqty3
        replace office3 with moffice3
        replace bcode4 with mbcode4
        replace qty4 with mqty4
        replace office4 with moffice4
        replace supid with msupid
        replace supname with msupname
        replace supadd with msupadd
        replace manuf with mmanuf
        replace expdate with mexpdate
        replace datetest with expdate - date()
        replace unitqty with munitqty
        replace ucprice with mucprice
        replace rolevel with mrolevel
        replace usprice with musprice
        replace tcprice with mtcprice
        replace tsprice with mtsprice
        replace usprice with musprice
        replace stockdate with mstockdate

```

```

select 2
    seek msupid
    if found()
        replace supname with msupname
        replace supid with msupid

```

```

        replace supadd with msupadd
    else
        append blank
        replace supname with msupname
        replace supid with msupid
        replace supadd with msupadd
    endif
    thisform.init
else
    messagebox(" Invalid Stock ID or Shelf Number please
",16,"ERROR")
    thisform.init
endif

endcase
thisform.init

```

cmddelete_click()

* to delete record

```

flag = 3
thisform.txtstockid.enabled = .t.
thisform.txtshelfno.enabled = .t.
thisform.txtstockname.enabled = .t.
thisform.txtstockdesp.enabled = .t.
thisform.cbostocktype.enabled = .t.
thisform.txttotalqty.enabled = .t.
thisform.txtqty.enabled = .t.
thisform.txtbcode.enabled = .t.
thisform.txtoffice.enabled = .t.
thisform.txtqty1.enabled = .t.
thisform.txtbcode1.enabled = .t.
thisform.txtoffice1.enabled = .t.
thisform.txtqty2.enabled = .t.
thisform.txtbcode2.enabled = .t.
thisform.txtoffice2.enabled = .t.
thisform.txtqty3.enabled = .t.
thisform.txtbcode3.enabled = .t.
thisform.txtoffice3.enabled = .t.
thisform.txtqty4.enabled = .t.
thisform.txtbcode4.enabled = .t.
thisform.txtoffice4.enabled = .t.
thisform.txtsupid.enabled = .t.
thisform.txtsupname.enabled = .t.
thisform.txtsupadd.enabled = .t.
thisform.txtmanuf.enabled = .t.

```

```
thisform.txtstockid.enabled = .t.  
thisform.txtshelfno.enabled = .t.  
thisform.txtstockname.enabled = .t.  
thisform.txtstockdesp.enabled = .t.  
thisform.cbostocktype.enabled = .t.  
thisform.txttotalqty.enabled = .t.  
thisform.txtqty.enabled = .t.  
thisform.txtbcode.enabled = .t.  
thisform.txtoffice.enabled = .t.  
thisform.txtqty1.enabled = .t.  
thisform.txtbcode1.enabled = .t.  
thisform.txtoffice1.enabled = .t.  
thisform.txtqty2.enabled = .t.  
thisform.txtbcode2.enabled = .t.  
thisform.txtoffice2.enabled = .t.  
thisform.txtqty3.enabled = .t.  
thisform.txtbcode3.enabled = .t.  
thisform.txtoffice3.enabled = .t.  
thisform.txtqty4.enabled = .t.  
thisform.txtbcode4.enabled = .t.  
thisform.txtoffice4.enabled = .t.  
thisform.txtsupid.enabled = .t.  
thisform.txtsupname.enabled = .t.  
thisform.txtsupadd.enabled = .t.  
thisform.txtmanuf.enabled = .t.  
thisform.txtexpdate.enabled = .t.  
thisform.txtunitqty.enabled = .t.  
thisform.txtucprice.enabled = .t.  
thisform.txtrolevel.enabled = .t.  
thisform.txtusprice.enabled = .t.  
thisform.txttprice.enabled = .f.  
thisform.txttsprice.enabled = .f.  
thisform.txtstockdate.enabled = .t.
```

```
thisform.cmdnew.enabled = .f.  
thisform.cmdupdate.enabled = .f.  
thisform.cmdsave.enabled = .t.  
thisform.cmddelete.enabled = .f.  
thisform.cmdrefresh.enabled = .t.  
thisform.cmdbrowse.enabled = .t.  
thisform.cmdexit.enabled = .t.
```

```
thisform.txtshelfno.setFocus
```

```
cmdsave_click()
```

```
replace bcode with mbcodes
replace qty with mqty
replace office with moffice
replace bcode1 with mbcodes1
replace qty1 with mqty1
replace office1 with moffice1
replace bcode2 with mbcodes2
replace qty2 with mqty2
replace office2 with moffice2
replace bcode3 with mbcodes3
replace qty3 with mqty3
replace office3 with moffice3
replace bcode4 with mbcodes4
replace qty4 with mqty4
replace office4 with moffice4
replace supid with msupid
replace supname with msupname
replace supadd with msupadd
replace manuf with mmanuf
replace expdate with mexpdate
replace datetest with expdate - date()
replace unitqty with munitqty
replace ucprice with mucprice
replace rolevel with mrolevel
replace usprice with musprice
replace tcprice with mtcprice
replace tsprice with mtsprice
replace stockdate with mstockdate
```

```
select 2
  seek msupid
  if found()
    replace supid with msupid
    replace supname with msupname
    replace supadd with msupadd
  else
    append blank
    replace supid with msupid
    replace supname with msupname
    replace supadd with msupadd
  endif
else
  messagebox(" Duplicate Stock ID not allowed ",16,"ERROR")
  thisform.init
endif
```



```

case flag = 2
select 1
    seek mstockid
    if found() AND shelfno = mshelfno
        replace stockid with mstockid
        replace shelfno with mshelfno
        replace stockname with mstockname
        replace stockdesp with mstockdesp
        replace stocktype with mstocktype
        replace totalqty with mtotalqty + totalqty
        replace bcode with mbcodes
        replace qty with mqty + qty
        replace office with moffice
        replace bcode1 with mbcodes1
        replace qty1 with mqty1
        replace office1 with moffice1
        replace bcode2 with mbcodes2
        replace qty2 with mqty2
        replace office2 with moffice2
        replace bcode3 with mbcodes3
        replace qty3 with mqty3
        replace office3 with moffice3
        replace bcode4 with mbcodes4
        replace qty4 with mqty4
        replace office4 with moffice4
        replace supid with msupid
        replace supname with msupname
        replace supadd with msupadd
        replace manuf with mmanuf
        replace expdate with mexpdate
        replace datetest with expdate - date()
        replace unitqty with munitqty
        replace ucprice with mucprice
        replace rolevel with mrolevel
        replace usprice with musprice
        replace tcprice with mtcprice
        replace tsprice with mtsprice
        replace usprice with musprice
        replace stockdate with mstockdate

```

```

select 2
    seek msupid
    if found()
        replace supname with msupname
        replace supid with msupid

```

```

        replace supadd with msupadd
    else
        append blank
        replace supname with msupname
        replace supid with msupid
        replace supadd with msupadd
    endif
    thisform.init
else
    messagebox(" Invalid Stock ID or Shelf Number please
",16,"ERROR")
    thisform.init
endif

endcase
thisform.init

```

cmddelete_click()

* to delete record

```

flag = 3
thisform.txtstockid.enabled = .t.
thisform.txtshelfno.enabled = .t.
thisform.txtstockname.enabled = .t.
thisform.txtstockdesp.enabled = .t.
thisform.cbostocktype.enabled = .t.
thisform.txttotalqty.enabled = .t.
thisform.txtqty.enabled = .t.
thisform.txtbcode.enabled = .t.
thisform.txtoffice.enabled = .t.
thisform.txtqty1.enabled = .t.
thisform.txtbcode1.enabled = .t.
thisform.txtoffice1.enabled = .t.
thisform.txtqty2.enabled = .t.
thisform.txtbcode2.enabled = .t.
thisform.txtoffice2.enabled = .t.
thisform.txtqty3.enabled = .t.
thisform.txtbcode3.enabled = .t.
thisform.txtoffice3.enabled = .t.
thisform.txtqty4.enabled = .t.
thisform.txtbcode4.enabled = .t.
thisform.txtoffice4.enabled = .t.
thisform.txtsupid.enabled = .t.
thisform.txtsupname.enabled = .t.
thisform.txtsupadd.enabled = .t.
thisform.txtmanuf.enabled = .t.

```

```
thisform.txtexpdate.enabled = .t.  
thisform.txtunitqty.enabled = .t.  
thisform.txtucprice.enabled = .t.  
thisform.txtrolelevel.enabled = .t.  
thisform.txtusprice.enabled = .t.  
thisform.txttprice.enabled = .f.  
thisform.txttsprice.enabled = .f.  
thisform.txtstockdate.enabled = .t.  
thisform.cmdnew.enabled = .t.  
thisform.cmdupdate.enabled = .t.  
thisform.cmdsave.enabled = .t.  
thisform.cmddelete.enabled = .t.  
thisform.cmdrefresh.enabled = .t.  
thisform.cmdbrowse.enabled = .t.  
thisform.cmdexit.enabled = .t.  
thisform.txtsheljno.setFocus
```

cmdbrowse_click()

```
* to browse records  
do form frmbrowse
```

cmdupdate_click()

```
* to update stock inventory  
flag = 2  
thisform.txtstockid.enabled = .t.  
thisform.txtsheljno.enabled = .t.  
thisform.txtstockname.enabled = .t.  
thisform.txtstockdesp.enabled = .t.  
thisform.cbostocktype.enabled = .t.  
thisform.txttotalqty.enabled = .t.  
thisform.txtqty.enabled = .t.  
thisform.txtbcode.enabled = .t.  
thisform.txtoffice.enabled = .t.  
thisform.txtqty1.enabled = .t.  
thisform.txtbcode1.enabled = .t.  
thisform.txtoffice1.enabled = .t.  
thisform.txtqty2.enabled = .t.  
thisform.txtbcode2.enabled = .t.  
thisform.txtoffice2.enabled = .t.  
thisform.txtqty3.enabled = .t.  
thisform.txtbcode3.enabled = .t.  
thisform.txtoffice3.enabled = .t.  
thisform.txtqty4.enabled = .t.  
thisform.txtbcode4.enabled = .t.  
thisform.txtoffice4.enabled = .t.  
thisform.txtsupid.enabled = .t.
```

```
thisform.txtsupname.enabled = .t.  
thisform.txtsupadd.enabled = .t.  
thisform.txtmanuf.enabled = .t.  
thisform.txtexpdate.enabled = .t.  
thisform.txtunitqty.enabled = .t.  
thisform.txtucprice.enabled = .t.  
thisform.txtrolelevel.enabled = .t.  
thisform.txtusprice.enabled = .t.  
thisform.txttprice.enabled = .t.  
thisform.txttsprice.enabled = .f.  
thisform.txtstockdate.enabled = .t.  
thisform.cmdnew.enabled = .f.  
thisform.cmdupdate.enabled = .f.  
thisform.cmdsave.enabled = .t.  
thisform.cmddelete.enabled = .f.  
thisform.cmdrefresh.enabled = .t.  
thisform.cmdbrowse.enabled = .t.  
thisform.cmdexit.enabled = .t.  
thisform.txtshelfno.setFocus
```

cmdexit_click()

release

```
mstockid,mshelfno,mstockname,mstockdesp,mtotalqty,mrcode,mqty,moffice,mrcode1,  
mqty1,moffice1;  
mrcode2,mqty2,moffice2,mrcode3,mqty3,moffice3,mrcode4,mqty4,moffice4,ms  
upname,msupid,msupadd;  
mmanuf,mexpdate,munitqty,mucprice,mrolelevel,musprice,mtcprice,mtsprice,msto  
ckdate,mstocktype  
thisform.release
```