

**COMPUTERIZATION OF DRUG INVOICING IN
GLAXOWELLCOME NIGERIA LIMITED.**

BY

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(i)

CERTIFICATION

Having gone through this project carried out by **AKINDELE SAMSON OLUGBENGA**,
it is in our opinion that it is up to the standard for the award of a Postgraduate
Diploma in Computer science.

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DATE: =====

EXTERNAL EXAMINER

(ii)

DEDICATION

This project is dedicated to my loving and caring wife - Marilyn and daughter - Oluwatomiwo for creating a conducive environment for the completion of this work. Also to Mr. P.F. Adeyemi - my Vice-Principal at Annunciation school, Ikere-Ekiti for allowing God to use him to enable me complete my Secondary School Education.

ACKNOWLEDGEMENT

To God be the glory, honour and adoration for the grace given me to start, and to complete this project. He is indeed worthy to be praised.

I wish to place on record my sincere appreciation, and thanks to my supervisor, Prince R. O. Badmus - who is an epitome of an ideal lecturer's love for his student, for his words of encouragement when all hope seemed lost. He has been more of a father than a teacher to me. May God reward your labour of love.

I am very grateful to the H.O.D - Dr. K.R. Adeboye for his patience, and to all the lecturers in the department for working together as a team towards the achievement of my goal. May God bless you manifoldly (amen).

Finally, my thanks go to my friends - Deacon Albert Alabadan, Nnaoma Odokara and Gbenga Abdul- you have really proved yourselves to be friends indeed. It has been great knowing you.

ABSTRACT

Glaxowellcome Nigeria Limited is a trading company which markets a wide range of pharmaceutical products to Government Institutions, Hospitals, Pharmaceutical Chemists, and parastatals all over the country. Most of these products are obtained from the parent company in the United Kingdom.

In the course of this study, attempt will be made to describe the current state of drug invoicing and mention will be made of previous system. Deficiencies of previous method which include ineffective integration of the customers' data, and a cumbersome order-entry process will be discussed.

A general review of drug invoicing in Glaxowellcome Nigeria Limited be discussed including the various stages involved in order processing and the procedure involved in re-ordering.

An analysis of the system will be reviewed including the design of the current method of drug invoicing. The implementation stage which converts, theoretical system into practice through processes of system testing training, and conversion, bringing the new system into operation in place of the old will be mentioned.

Finally a summary of the detailed processes of drug invoicing will be outlined as well as recommendations on hand to improve on the current method.

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CHAPTER 1

INTRODUCTION

OVERVIEW OF DRUG INVOICING

1.1. Justification for The Study

Invoicing most times is the primary point of entry into an organization for valuable information like financial, and the accumulation of statistics.

To stay in business and be competitive, companies must make use of software capable of reducing administration costs by increasing sales productivity while at the same time providing better and efficient drug invoicing procedure.

From the above, it is clear that this study is intended to support the need for computerization of all drug invoicing in GlaxoWellcome Nigeria Limited.

1.2. Objective of The Study

The main objective of this study is to look at all the various stages involved in drug invoicing in Glaxowellcome with a view to critically appraise the old (manual) method of drug invoicing and compare it with the current method.

Mention is also to be made of the practical advantages of the computerized method of drug invoicing, and some of the inherent shortcomings of the current method.

The study also has as some of its objectives a detailed analysis of the system and the method employed in the development of the programme implementation.

1.3. Methodology of Study:

The existing system will be examined. This system is faster, easier and leads to increase in staff productivity, in that workers can not do other special tasks that otherwise would have been left undone because they had to do other duties mentally that is now performed by the computer. The old system involves checking whether the customer's account is in debit or not, if not the invoice is then raised after confirmation of stock position in the warehouse.

1.4. Scope and Limitation of Study:

This study will cover only the stages involved in drug invoicing in GWL including confirmation of orders up to delivery of goods. It will also cover handling of returned goods.

Time will not allow this study to be extended beyond the areas enumerated above, also difficulty in getting relevant materials as well as financial constraint will make it impossible to extend the study beyond the areas earlier mentioned. this is because a lot of money is involved in travelling to look for relevant materials which are not easily found anyway. The cost of typing, and binding the result of the study is also a limiting factor.

CHAPTER TWO

LITERATURE REVIEW

2.1 BRIEF HISTORY OF GLAXOWELLCOME

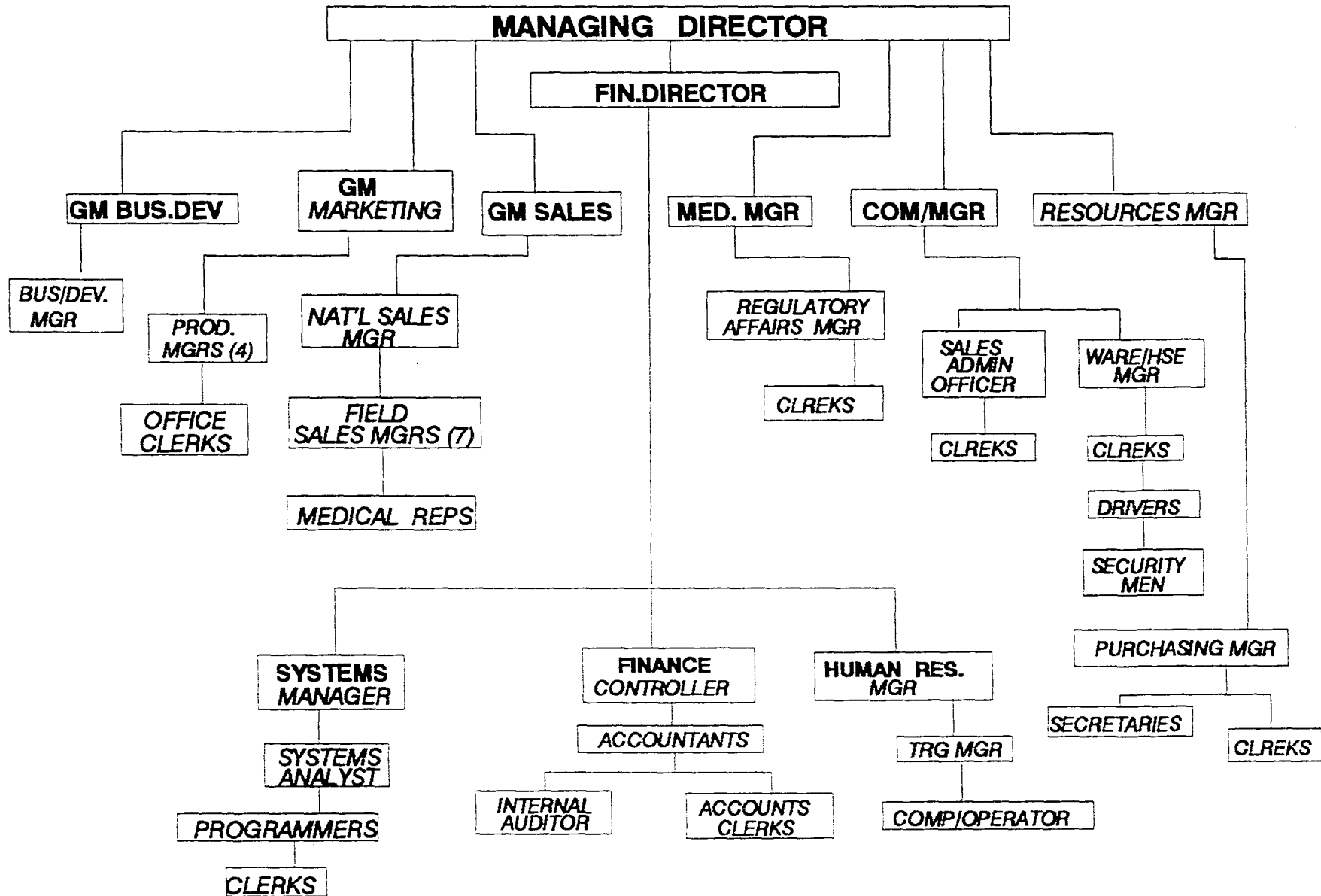
GlaxoWellcome Nigeria Limited is a multinational drug manufacturing company that started business in Nigeria in 1954 as Allen and Hanbury. This later metamorphosed into Glaxo Nigeria PLC. In 1994, Glaxo Nigeria Limited was formed as a separate company from former Glaxo Nigeria PLC now Evans Medical PLC.

In 1996, Glaxo U.K. acquired Wellcome foundation to form the new company Glaxowellcome. Glaxowellcome is the largest pharmaceutical company in the world, and the fastest growing. Its corporate objective is the discovery, development, manufacture and marketing of safe and effective medicines of the highest quality and benefit to patients and health care providers who need them.

The company's business is conducted to the highest professional standards and continue to invest in, and improve all aspects of business to assure its long term viability and leadership position.

Some products in the portfolio of Glaxowellcome Nigeria Limited - a company 100% wholly owned by Glaxo Group (U.K) include Antibiotics for example Fortum injection Anti-asthma drugs such as the popular Ventolin Inhaler, Antihypertensive - Lacipil, Antiulcer drug - Zantac.

ORGANISATION CHART OF GLAXOWELLCOME



2.2 FUNCTIONS OF GLAXOWELLCOME

The Managing Director is the overall head of Glaxowellcome Nigeria Limited. The Director of Finance and all the General Managers report to him, while he reports to South Africa which is the headquarter for Glaxowellcome operations in Africa and Middle East.

The Finance Director is responsible for the preparation of the Profit and loss account of the company, also has the responsibility of ensuring that the company records positive growth in sales and achieves a level of profitability.

The Finance Director has the finance controller and other accountants - they report to him directly. The General Manager (Business Development) is responsible for discovery of innovative drugs. She is assisted by a Business Development Manager.

The General Manager (Marketing) is responsible for the formulation of a workable marketing policy for the company. The marketing department also produces jotter pads and retain detail aid for representatives to use when discussing with Doctors and Pharmacists. He has four managers who have specific products.

These are: the Product Manager for Over- The - Counter drugs (OTC), Product Manager for Respiratory products, Product Managers for Antibiotics and gastroenterology.

The National Sales Manager has seven (7) field sales managers responsible to him. He is in charge of the overall sales of the company. There are about forty-five (45) medical Representatives reporting to the field sales managers who are in charge

of each sales area.

The National Sales Manager reports to the General manager (sales) who is the head of the sales department.

The Commercial Manager is an executive manager position. He is in charge of generating invoices, delivery documents and credit notes. He has sales admin officer and clerks who carry out these responsibilities. All the drivers, security men, warehouse staff report to him.

The Human Resources Manager who reports to the finance director is the head and he is in charge of training of staff, personnel and corporate affairs. He is assisted by the Training manager and a secretary.

The Systems Manager is responsible for the operation of all the Systems in the company. She reports to the Finance Director. She is assisted by a Systems Analysts, Programmers and Clerks.

Finally, the Resources Manager is involved in the procurement of materials for use in the company, he also determines and inputs drugs needed by the company from the parent company in Britain. He is assisted by the purchasing officer and some clerks.

The Medical Manager is in charge of organizing local clinical trials for all new products and liaise with the regulatory bodies. It is an executive manager position and she reports to the managing director.

2.3 DRUG AND INVOICING

Any substance used in the composition of medicine to cure, diagnose or prevent disease is known as X drug.

Invoicing implies issuing of letter of advice of the despatch of goods, with particulars of their price and quality.

A lot of steps are involved in the process of drug invoicing, these steps culminate in generation of an invoice.

If the steps are not sorted out through the use of computer it takes between one to two hours to complete the invoicing processes.

2.4 COMMON FEATURES OF DRUG INVOICING PROCESSES

Documents can be printed as transactions are entered, or as part of a batch process. The components of an order such as the price, quantity discount etc. become part of a calculation process.

As an order is entered, the customers available credit is adjusted and you are warned if the credit limit is exceeded. The initial entry might be a quotation rather than a firm order. In this case, a customer code is not needed until the quotation is converted into an order.

2.5 Picking Lists:

This is designed to contain product code description of items, Batch numbers and quantity despatched. These are always a provision for customers's name and

authorized signature with date.

Again, delivery documents are user definable, and each transaction type can have its own format. Which often include warehouse number, invoice number, product code, description, Batch number, location issued from, order quantity, despatch quantity and quantity received.

Provision is also made for the warehouse manager's signature and the drivers column as well as the customers signature. (Appendix 1)

Picking note comes in two copies:-

Warehouse

Sales Admin

The two copies of the picking notes go to the warehouse and on allocation of the goods according to the picking note the warehouse manager signs the picking note "okay" a copy is returned to sales admin. to process an invoice.

It is to be noted that picking note does not authorize supply to a customer.

Customers' orders are received daily (they are sent in mostly by the medical representatives). The order is accredited by checking whether it is from an approved customer and whether the product is valid and available in the warehouse. The sales admin generates despatch note and generate invoice.

The finance department apart from production of Trial balance, profit and loss and balance sheet also confirms whether a customer is in debit or credit. If in debit, the department advises the sales admin office not to treat the customer's order. The sales admin also generates picking notes, invoices and credit notes.

The warehouse sorts out the drugs from the location and generates a delivery note. After this it is approved by the warehouse manager and the goods are confirmed against the ordered quantity before they are despatched to the customer.

The current system is cumbersome, the invoice values are calculated manually, mistakes are bound to happen because of human error. It takes longer time to type the invoice using the manual typewriter.

The new system will further take care of sales data from order stage to invoicing and entering customer orders, printing picking lists and despatch notes.

It will further help the finance Department to process payments, receipts, salaries, general reports and overall co-ordination and control.

2.5 DRUG INVOICING

This section applies to drug invoicing only. orders can pass through a number of stages before being invoiced. The processing route is defined as SD sales order definitions and may include any or all of the following;

(1) Acknowledgment

- . **Picking Confirmation**
- . **Despatch**
- . **Despatch Confirmation**

Additionally, some orders may begin the processing cycle as quotations.

If picking and despatch stages are both defined, an order cannot be despatched until it has been picked. Similarly, an order cannot be invoiced until picking and

2.13. (iii) **Corrections after Despatch**

Order details may not be amended or deleted after despatch. order entry is used to enter a credit note for all or part of the order. See the section on credit notes. This entry should also update the stock ledgers to reflect the amended stock quantities. Use order entry to re-enter, all or part of the order if necessary. This will ensure that the correct information is reported in both business and account.

2.13. (iv) **Corrections before Invoice Printing**

Order entry is used and **AMEND** to change any information on the detail or header screens. To delete an order, all detail lines must first be deleted. To amend customer invoice address, all detail lines must first be deleted.

2.13. (v) **Corrections After Invoice Printing**

Order details may not be amended after printing. Order entry is used to enter a credit note for all or part of the order. Order entry is used to re-enter all, or part of the order if necessary. This is meant to correct information that is eventually reported.

CHAPTER 3

SYSTEMS ANALYSIS AND DESIGN

- 3.1. Introduction
- 3.2. Problem Identification and Definition
- 3.3. Feasibility Study
- 3.4. Testing project Feasibility
 - 3.4.1. Operational
 - 3.4.2. Economical
 - 3.4.3. Technical
- 3.5. Change over procedure
- 3.6. The Current System
- 3.7. Requirement Specification for the proposed new system
- 3.8. Cost and Benefit Analysis of the New System.
- 3.9. Elements of Design.
 - 3.9.1. Input
 - 3.9.2. Output
 - 3.9.3. Files
 - 3.9.4. Storage

CHAPTER 3

SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

The term 'System Analysis' has come to be concerned specifically with the development of computer-based business systems. This is not self-explanatory and it might have been better if system analysis referred generally to all kinds of business system without being linked necessarily to computers. The concept of using professional skills to investigate and analyze business problems and to design new systems is as relevant to situations which do not involve the use of computers.

For those who study clerical and factory systems, equally inappropriate labels such as 'organization and methods' and 'work study' have been attached.

There is need to become accustomed to such labels because they are applied in theory and practice, remembering only that the labels change their meaning for example, new kinds of information technology now applied to computer systems and the computer-assisted techniques for system design and construction which are tending to supersede the formerly more detailed approach are bringing with them new kinds of label. The terms 'business analyst' and 'systems engineer' have come into common use, reflecting the increasing emphasis on first establishing the essential business framework for the information systems and then of taking an engineering approach to the question of its construction.

The observation that a prospective computer user cannot escape from the

systems analysis is intended to indicate that the 'business analysis' function remains vital, however easily the 'system engineering' function can be obtained in ready-to-use form.

It is quite possible that systems analysis would have assumed much of its present importance even if computer-based business systems had not evolved during the past 30 years, since this period has been associated also with a steady increase in the professionalism applied to business management and services generally. However, it is not difficult to see why systems analysis became associated with computers. When business computers were new and relatively expensive it was hard to justify or make effective use of them without having undertaken a complete review of existing systems. It is still true that system objectives and requirements should be properly identified, and that new computer systems should meet them with optimum efficiency. There was also the very important consideration affecting early computer systems that, to select the equipment, design and specify the systems, write the programs and operate them all required new, highly specialized knowledge.

The business proposing to use a computer would be buying a piece of machinery with little of the kind of built-in or additional software facility which now translates much of the technical complexity into forms easily understood and managed by people without experience.

Information systems methodologies are used to produce specifications or designs of systems which require to be built. The processes of analysis usually precede the design.

In software development, adopting inappropriate models will simply lead to wrong expectations and so make the management of an already complex task more difficult. The cost of making alterations at the specification stage is much less than modifying the completed programs, for the purpose of this study, the structured approaches was used in improving program quality and some other more rigorous approaches have been developed for systems analysis.

Today, systems development is well supported by reliable and proven methodologies for investigation, analysis, design and implementation. These address issues such as overall planning, quality management and project management using well established techniques including data flow diagrams and entity-relationship models.

In this situation, a system methodology is successful if the system produced is used as specified. It can be judged a failure if it is;

- **never delivered**
- **abandoned**
- **re-developed**
- **delivered and never used**
- **used only after modification**

The output of the design must be agreed by the designer with the user, either a group or an individual who represents a group of users. Responsibility for software management is divided between a number of roles in GWL, not necessarily corresponding to individual members of staff.

3.2. Problem Identification and Definition:

The problem is computerization of drug invoicing in GlaxoWellcome Nig. Ltd., Apapa, Lagos.

Drug invoicing means raising a letter of advice of the despatch of drugs, with particulars of their prices, and quantity to a customer. This stage must also include a thorough examination of all aspects so that an informed management judgement can be made on the resulting proposal. All elements of the proposed system must be defined and documented so that the user can see exactly how system requirements will be met.

3.3. Feasibility Study:

The first step in a feasibility study is usually to obtain information about the existing organization and systems. There is need to collect information about all relevant parts of the existing system. Which is the manual system of drug invoicing - the inputs, processes, files and outputs. It must be analyzed so that system problems can be identified, the validity of user objectives confirmed, and the feasibility of an acceptable solution is finally determined.

It must be both quantified and qualified. Information is needed about the organization, the various category of staff involved in drug invoicing, who takes what decision and who is responsible for an action. Information flows, including volumes, patterns and content all kinds of data processed through the system.

Rules and procedures governing computerization of drug invoicing must be understood and where not available verified, written procedures must be derived from a study of the stem in action. Exceptions to the data flows and procedures must be considered and evaluated.

The resources used in running the system must be identified such as the people, machines, materials, accommodation and their costs.

It is also necessary to examine historical information. Past data volumes, trends and previous system changes which have led to the present situation and which may be helpful both in having a clearer understanding of the present procedures and in making estimates about the future.

3.4. Testing Project Feasibility:

In considering project feasibility, some parameters must be assessed, these are operational, economic and technical feasibility of the system being designed.

Operational feasibility testing is aimed at determining whether this new system will produce any effect, which means whether the system in question will work.

Whereas, **economic feasibility** refers to the cost-benefit analysis of the new system. The total cost involved in changing from manual invoicing of drugs to computerized system.

This also includes cost of implementation of the new system vis-a-vis the benefits derivable from the computerized system.

On the other hand, **Technical feasibility** testing relates to determining whether the system can be feasible based on the current knowledge or skill available as well as available human resources.

3.5. Change Over Procedure:

There are three methods of changing over to a new system namely:

- (1) **Parallel** - The old and the new system are allowed to run concurrently using the same inputs and a comparison is made based on the output obtained with old and new system.
- (2) **Direct** - Unlike the Parallel System of change-over procedure, the old system is discontinued and the new system is put in place.
- (3) **Pilot** - This system of changeover is best used in an organization where there are many branches. The new system is put into use in a branch and then if the system is functional, then it is extended to other branches.

In the case of GlaxoWellcome Nig. Ltd., the parallel system is recommended because, the risk of failure associated with the direct system cannot be overemphasized especially if the new system collapses, or the human resources involved cannot operate the system very well. The company cannot afford to stop invoicing to customers because of changing to a new system.

The Pilot system is out of the question as GlaxoWellcome Ltd has only one office in Nigeria.

3.6. The Current System:

All invoices are raised at the Apapa office of the company and deliveries are also done from the office. There are about 50 products subdivided into about 20 groups for purposes of analysis.

Credit customers currently number about 400, and are categorized into institutional and private for sales analysis.

Currently an average of about 150 orders are received per day and they can be classified into zones.

There are 110 members of staff and about 10 departments to raise the Delivery Document which is handwritten

3.7. Requirement Specification for the Proposed New System:

In the process of arriving at the required specification for the proposed new system, such techniques as data flow diagrams, Data Dictionaries, and data analysis as well as normal for will be employed.

The requirement for the user of the system will be taken into consideration when the current system is evaluated with a view to produce a logical and reasonable model of the proposed system.

Consideration must also be given to the initial feasibility studies so that a proper assessment of the initial requirement can be made.

3.8. Cost and Benefit Analysis of the New System:

This can be viewed in the area of development and running of the new system.

A lot of benefits will accrue to GlaxoWellcome through the new system.

For instance invoices will be processed faster bearing in mind that about 150 orders are received per day.

Also, inventory control which involves complete recording of stock movement that is receipts, issues and transfers can be done faster. This cost can be translated into monetary value as stated below:

1. DEVELOPMENT COST

	N	K
System analysis and Design for 4 weeks at N 5,000 per week	20,000	-
Software development/implementation for 4 weeks	12,000	-
2. Personal computers at N70,000.00 each	140,000	-
Printer (Laser Jet 6L)	45,000	-
Installation	15,000	-
	N	K
Personal Training (4 weeks)	10,000	-
UPS, Stabilizer	20,000	-
	<hr/>	
	262,000	

2. OPERATING COST

	N	K
Supplies for 1 year	25,000	-
Equipment maintenance	10,000	-
Program	5,000	-
Labour cost (2 operators)	5,000	-
Utilities	10,000	-
A/C (2 HP)	50,000	-
Miscellaneous expenses	15,000	-
	<hr/>	
	120,000	-
	<hr/>	
Grand total	=	<u><u>N 382,000</u></u> -

3.9. Element of Design:

(1). Input:

The type of Input in the case includes source data originating from outside the computer system e.g.

- (i) Purchase invoices
- (ii) Customers order
- (iii) Communications originating within the organization like new customer record,
- (iv) Customer operations input such as job control parameters, such inputs may be on-line using video display units in interactive mode or through the use of turn round documents which have been prepared by the computer in an earlier process and are later input as a transaction to update a master-file record.

(2). Output:

This implies what emerges from a computer for the user to act upon.

The four main systems of output information for people to act upon are

(i) printing (ii) screen display (iii) microfilm etc. The types of output in the new system will include external which go outside the organization such as invoices, credit notes, tax returns, pay slips and customers statement of accounts.

Whereas internal output remain within the establishment but often require thorough consideration because they often play a major role in the operational efficiency of the system. Some outputs are also required within the computer services department such as control reports.

(3). Files:

This involves the method of how to storage data on backing storage devices.

An administrative officer may need more information them he can carry in his head. Hence purpose written records of information are needed. He may require in the process of

generating a customer's invoice the names, addresses, details of recent orders, special discount arrangements etc.

So to do the jobs it is programmed to perform, it needs access to much use information which is held on bulk or sacking store made like discs and magnetic tape.

The basic logical structure of a computer file is stated below with the smallest useful piece of information - an alphanumeric character.

Character:

Data item or field one or more characters

Record (one or more Data items)

Sub file (one or more records)

File (one or more sub-files).

The file involved can be a master, transaction, transfer, mark, output, dump or archival file.

(4). Storage:

Files can be stored using punch cards magnetic tape and exchangeable magnetic discs. Magnetic tape units will be used for this system since full storage devices is required using magnetic media.

CHAPTER FOUR

PROGRAM DEVELOPMENT AND IMPLEMENTATION.

- 4.1 Introduction
- 4.2 Choice of language
- 4.3 Features of language chosen
- 4.4 Software requirements and its features
- 4.5 Change over procedure
- 4.6 Starting the system
- 4.7 File menu
- 4.8 Exit/Quit module

4.1 INTRODUCTION:

It is now a fact that better business decisions need better information systems, and that information technology has become a necessary means of bringing those improvements, the remaining question is, how can the transition to better systems be achieved?

In considering system development we not only have to consider the tasks, and techniques involved in developing new computer based information systems but it must be considered along the line of whether or not it is a specific business problem which triggers the decision to consider system change.

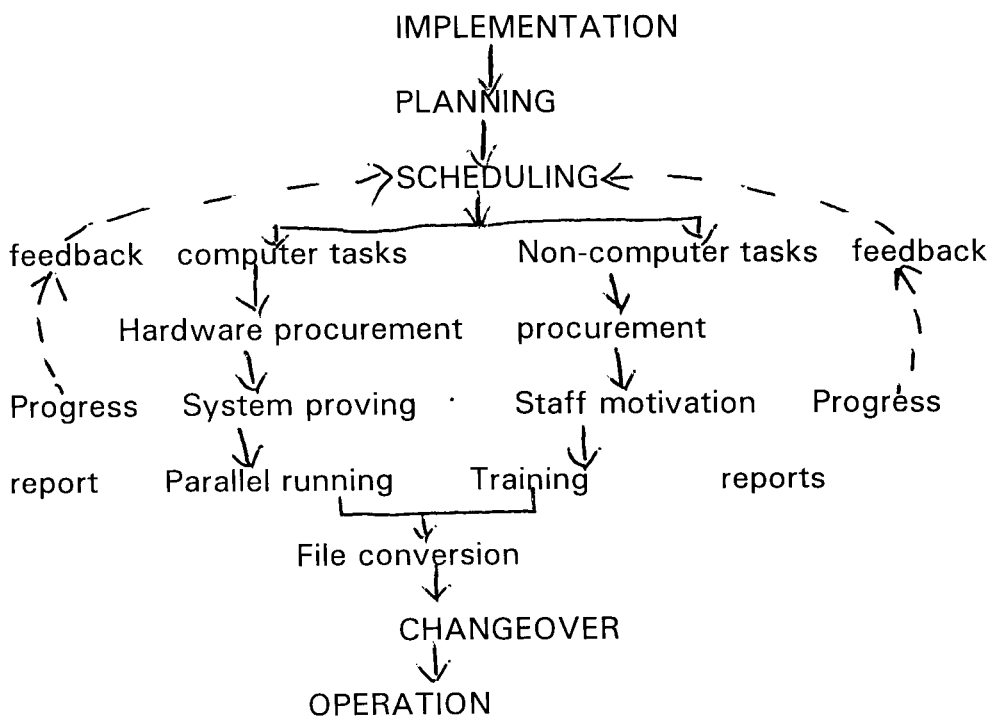
The implementation phase of this project covers the period from the acceptance of the tested design to its satisfactory operation, supported by the appropriate user, and operations manual.

Planning for implementation begins from the initial conception of the project. It requires a thorough knowledge of the new system - its personnel needs, hardware and software requirements, file and procedure conversion activities - and of the current system; the changes to it. The job to be done first, drug invoicing or costing et cetera.

Since implementation involves the practical job of putting the theoretical design into practice, it may therefore involve the complete implementation of a computer complex (like in the case of this project) or the introduction of one small sub system.

During implementation many members of the staff are involved such as sales admin, warehouse and finance departments. This is further explained by the diagram shown below.

Organization Features in Systems Implementation



4.2 Choice of Language:

The language chosen was the D base III + for this project. Database is a single organized collection of structured data, stored with a minimum of duplication of data items so as to provide a consistent and controlled pool of data. This data is nothing but pieces of information put together for use, and is common to all users of the system but is independent of programs which use the data.

4.3 Features of Language Chosen:

Indeed Dbase III + is the leading database program. It has the following facilities:-

1. It can create simple database application, such as keeping of names and addresses or inventory records.
2. Files can be stored physically, or index files created to present sequences without actually sorting the database in a dbase base III +.
3. There is also the facility to generate reports and mailing labels from database files.
4. A large number of built-in functions are provided and also it offers a programming language that enables you to construct your own data applications.
5. It is versatile in many ways; a screen design facility is provided for the custom design for input and output screens and to perform error checking and editing on input.

4.3.(i) WHY DBASE

Database involves mechanized sharing and central controlling of data used in an organization. It means collection of useful information organized in a databank where data are stored. Dependency of data is very important as these are growing problems inherent in record keeping.

In view of the above a file management system was evolved. In this situation, data of the same type are grouped together into files with each file with its own application for the processing of data. In this computerization of drug involving for instance records concerning groups of customers are grouped together in one file.

These are for example customers who are distributors, they are grouped in one file. Government agencies like Central bank, NNPC and oil companies fall under parastatal customers hence they are grouped in one file.

The introduction of computer in this organization and the ever increasing sophistication of data processing system is of utmost importance.

Dbase allows for proper management and effective organization of the data not stored away for easy and efficient accessibility by the software used.

This programming language is portable and user friendly and in fact supports high productivity and flexible with the language chosen, there are other advantages which include data integration which means the information from several files is

coordinated, accessed and operated upon as though it is in a single file.

There is reduction in data redundancy or infact total elimination; and above all data independence is achieved with D base system.

Finally, data integrity is maintained as well as all data are centrally controlled for example information about distributors, parastatals and all their operations are controlled centrally which lead to enforcement of standards for all the database users.

4.4 Software Requirements and its Features:

Word Processing Program :- is an application software that is used to create documents from materials that someone else have written or dictated, a letter, a report, training plan.

Some of the features of word processing needed include the following: entering text - automatic word wrap, tab and indent, centre, underline and bold face, on-line thesaurus and outline dictionary as well as superscript and subscript.

Editing and formatting is also one of the features required as it is needed to correct drug invoicing and it include: moving between pages, insert and type-over, format control and text justification.

4.5 Change over procedure:

When the new system is fully tested and proved, changeover from the old to the new is possible. This can be accomplished in three ways:

1. direct changeover
2. parallel running

3. Pilot Operation.

1. Direct Changeover implies the introduction of a completely new system without any reference to any previous similar system which may exist.

The method is normally adopted only when there is insufficient similarity between the old and the new systems.

2. On the other hand, parallel running means processing current data simultaneously by both old and new systems in order to cross-check the results.

The main reason for using parallel running for implementation is as a standby in case the new system breaks down, as no irrecoverable position will have been reached.

This changeover procedure is recommended.

3. the pilot operation involves organization with network of branches. The system is first implemented in a particular location and the workability assessed before it is extended to other branches. This is commonly used in banks and other financial institutions.

4.6 Starting the System:

This project is written using the modular method, such that the main program calls the sub-programs.

To start the program, the user types "**GLAX. PRG**".

The Glax. Prg program calls the main program from where the user has the option of selection to call the other sub-program.

4.7 FILE MENU:

The program is such that it is a TOP-down (modular) program. that is, the main program calls any of the 4 sub programs that follows, using the menu pad selection type. The menu is as follows:

MAIN PROGRAM

1. SALES ORDERING MODULE
2. STOCK MONITORING MODULE
3. CUSTOMER REGISTRATION MODULE
4. KEEPING ORDER ON HOLD MODULE
5. QUIT/EXIT MODULE.

These were evenly distributed on the screen and the arrow key could be used to select any of the user's choice.

From any of the user's choice, each file could be:

- a. added to
- b. Edited
- c. Searched from
- d. Deleted from
- e. printed from.

4.8 EXIT/QUIT MODULE:

As previously discussed, the user could choose this option from the main menu to return to the Dot prompt.

CHAPTER FIVE

5.1 SUMMARY:

The present procedures which involves customers' orders received daily being accredited by checking whether it is from an approved customers and whether the product is valid and available in the warehouse is very cumbersome and time-wasting.

Moreover, internal orders are raised by departments requiring use of item or service.

The process of obtaining quotations from suppliers, and pricing of Local Purchase Orders (LPO) takes a long time to complete. This will be alleviated with the computerization of the system as stock position can be through the system, also Local Purchase Order can be generated through the computer.

The Warehouse normally checks stock physically at the end of the month manually. This problem will be solved with the new system as stock receipts and stock issues position at any point in time will only involve punching the computer.

5.2 RECOMMENDATIONS:

It is expected that the system will provide complete Management Information System (MIS) for the company, and also meet financial needs. It should also meet financial recording needs, and provide ease of use to all user departments such as the Sales Administration Departments, Resources, Warehouse as well as Finance Departments.

All the products marketed by the company should be subdivided into about 20

groups for purpose of analyses.

The system is to carry out most importantly sales order processing, which involves tracking sales from the time an order is received from a customer, through to the point where transactions are raised for posting into relevant ledger accounts to the invoicing stage. The documents that will be generated are:-

- * Picking notes (see appendix i)
- * Delivery notes (see Appendix ii)
- * Invoices and (see Appendix iii)
- * Credit notes (see Appendix iv)

Purchase order processing which involves taking of supplies from the time a suitable supplier is selected up to the point where suppliers invoices are processed for payment after goods are dully received.

The treatment of purchases is expected to be divided into two, namely:-

- (i) Goods for resale and
- (ii) General ie. those that will be utilized by Glaxowellcome Nigeria Limited.

Inventory control which involves complete recording of stock movement that is, issues, and Transfers. this area will also include stock verification, and adjustment that will make use of facilities available within the new system.

The documents that will be generated are:-

- * Goods Received Note
- * Goods (Issues) Notes
- * Goods Transfer Notes
- * Materials return Notes

The system will run on Network with four terminals distributed as follows:-

- * Finance/System
- * Sales Administration
- * Resources
- * Warehouse.

The server will be in the computer department.

In conclusion, the Finance department will be responsible for processing:

- * Payments
- * Receipts
- * Salaries
- * Overall Coordination and control
- * Generating reports

There will be four trained staff to handle the operations.

Sale Administration Department will take care of sales data from order stage to invoicing, and entering customers orders, printing picking notes and despatch goods notes.

Warehouse, resources Department will be responsible for processing of data relating to supplies from the receipts of quotations from suppliers through printing of purchase orders.

Warehouse will undertake the process of stock taking jointly with the Finance Department, and would require administrative approval for adjustments.

The finance Systems will take care of setting up, and overall maintenance of the system. This new system will no doubt improve the overall performance of the company.

5.3 CONCLUSION:

The project study has carefully analyzed the current problems and short coming of the manual system of drug invoicing, and has achieved through the new approach a complete spectrum of applications required to increase the productivity of order administration, distribution and inventory operations. This project consists of sales and purchase order processing, including invoicing and a purchase invoice register, together with an inventory control system.

This project will no doubt lead to increase staff productivity and will reduce waste in terms of stationeries used in manual

processing. The time between when an order is received in the office and when goods get to the customer is also shortened thereby leading to greater efficiency, customers will be able to receive their goods on time, sell and make more profit within a short period of time and hence reorder.

Also complaints from customers will be better handled, and treated faster with the computerization of the system of Glaxowellcome Nigeria limited.

Finally, through the use of the new system it will be faster to locate goods from the warehouse through the use of product codes, and categorization of the various location.

At the same time the sales admin officer can raise picking notes and generate invoices without having to get to the warehouse by merely checking the stock balance on his own personal computer.



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41, Creek Road,
P.M.B. 1401,
Apapa, Lagos, Nigeria.
Telephone: 5872054, 5803052, 5451985.
Fax: 5451986, 2615393
Cables & Telegrams: Glaxo, Apapa.

PICKING NOTE

Appendix I

ACCOUNT NO.

OUR ORDER NO.

DESPATCH DATE

CUSTOMER

S/N	CODE	LOCATION	DESCRIPTIONS	BATCHES	QUANTITY DESPATCHE

Authorised by: _____

Date: _____



GLAXO NIGERIA PLC (T1161)
 Private Mail Bag 1120, Apapa
 Agbara Industrial Estate,
 Km 32, Lagos- Badagry Express Way Agbara
 Telephones: Agbara: 872050, 872054
 Cables and Telegrams: Glaxo, Apapa
 Telex: 22256
 Fax: 615393
 INMARSAT NOS: Telephone: 874-1772174
 Fax: 874-1772175
 Telex: 574-1772174

SALES INVOICE

Appendix III

INVOICE No
 INVOICE DATE
 ACCOUNT No.

DEPOT

INVOICE TO:

DATE ORDER RECEIVED
OUR ORDER No.

DELIVER TO

WH	PRODUCTION CODE	DESCRIPTION	QUANTITY	LIST PRICE	VALUE

TOTAL VALUE

Checked by: _____

Authorised by: _____

Director: Dr E. A. Elebute (Chairman), N. G. K. Wilson (British) (Managing), Alhaji I. M. Damcida, S. A. Edu, S. D. Jain (British), Prof. B. L. A. Fetuga, Mrs. A. A. Idowu, Dr. F. Di Muzio (Italian), O. Olaopa.

Glaxo

GLAXO NIGERIA PLC (T1161)
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Km 32, Lagos-Badagry Express Way Agbara
Telephones: Agbara: 872050, 872054
Cables and Telegrams: Glaxo, Apapa
Telex: 22256
Fax: 615393

CREDIT NOTE

Appendix IV

INMARSAT NOS: Telephone: 874-1772174
Fax: 874-1772175
Telex: 574-1772174

CREDIT NOTE NO.
DATE
ACCOUNT NO.
OUR ORDER NO

CUSTOMER

DEPOT

W.H.	PRODUCT CODE	DESCRIPTION	QUANTITY	LIST PRICE	VALUE
------	--------------	-------------	----------	------------	-------

--	--	--	--	--

COMMENTS	TOTAL VALUE
----------	-------------

Prepared by: _____ Authorised by: _____

Directors: Dr. E. A. Elebute (Chairman); N. G. K. Wilson (British) (Managing); C. R. Bullin (British) Alhaji I. M. Dancida; S. A. Edu,
Dr. M. El-Messidi (Egyptian); Prof. B. L. A. Fetuga, Mrs. A. A. Idowu

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```
=====
=  COMPUTERIZATION OF DRUG INVOIVING  =
=  IN GLAXOWELLCOME NIG. LTD          =
=                                     =
=  MAIN PROGRAMME                     =
=====
```

```
SET TALK OFF
SET BELL OFF
SET CONSOLE OFF
SET STATUS OFF
SET HEADING OFF
SET ESCAPE ON
SET COLO TO N+/GB+
CLEAR
DO header
DEFINE MENU glax
DEFINE PAD cust OF glax PROMPT "CUSTOMER REGISTRATION" AT 7,15
DEFINE PAD stock OF glax PROMPT "STOCK MONITORING" AT 7,45
DEFINE PAD sale OF glax PROMPT "SALES ORDER" AT 12,15
DEFINE PAD order OF glax PROMPT "ORDER ON HOLD" AT 12,45
DEFINE PAD ext OF glax PROMPT "EXIT FROM MENU" AT 17,30
ON SELECTION PAD cust OF glax DO cust_reg
ON SELECTION PAD sale OF glax DO sale_ord
ON SELECTION PAD stock OF glax DO stock
ON SELECTION PAD order OF glax DO order
ON SELECTION PAD ext OF glax DO ext
ACTIVATE MENU glax PAD cust
*ENDDO
```

```
PROCEDURE header
@1,1 TO 24,79 DOUBLE COLOR N+/B
@3,2 TO 3,78
@22,2 TO 22,78
@6,10 TO 19,70
@7,40 TO 17,40
@9,11 TO 9,69
@15,11 TO 15,69
SET COLOR TO GR+/GB
@2,27 SAY "COMPUTERISED DRUG INVOICING SYSTEM"
@4,35 SAY "MAIN MENU" COLOR G+/GB
@23,29 SAY "GLAXOWELLCOME NIGERIA LIMITED" COLOR R+*/B+
SET COLOR TO B+/GB
```

```
***** EXIT SUBROUTINE *****
```

```
PROCEDURE ext
SET COLO TO W/B
clear
deactivate menu
DO header
return
```

```
PROCEDURE F_SHOW
```

```

@ 1,2 to 22,79 doub
@ 2,28 say "CUSTOMER REGISTRATION"
@ 3,3 to 5,78
@ 7,10 say "CUSTOMER CODE  : "
@ 8,3 TO 8,78
@10,10 SAY "SURNAME      : "
@12,10 SAY "FIRSTNAME   : "
@14,10 SAY "ADDRESS     : "
@15,3 TO 15,78
@16,10 SAY "ACCOUNT NUMBER : "
@18,10 SAY "DATE       : "
@19,3 TO 19,78

```

***** CUSTOMER REGISTRATION SUBROUTINE *****

```

PROCEDURE cust_reg
SET COLOR TO W/B
clear
DEFINE MENU CUST_MNU
DEFINE PAD ADD OF CUST_MNU PROMPT "ADD" AT 4,5
DEFINE PAD EDIT OF CUST_MNU PROMPT "EDIT" AT 4,15
DEFINE PAD DELET OF CUST_MNU PROMPT "DELETE" AT 4,25
DEFINE PAD PRNT OF CUST_MNU PROMPT "PRINT" AT 4,37
DEFINE PAD VEW OF CUST_MNU PROMPT "VIEW" AT 4,49
DEFINE PAD SEARCH OF CUST_MNU PROMPT "SEARCH" AT 4,59
DEFINE PAD EXT OF CUST_MNU PROMPT "EXIT" AT 4,71
ON SELECTION PAD ADD OF CUST_MNU DO CUST_ADD
ON SELECTION PAD EDIT OF CUST_MNU DO CUST_EDIT
ON SELECTION PAD DELET OF CUST_MNU DO CUST_DEL
ON SELECTION PAD PRNT OF CUST_MNU DO CUST_PRNT
ON SELECTION PAD VEW OF CUST_MNU DO CUST_VEW
ON SELECTION PAD SEARCH OF CUST_MNU DO CUST_SCH
ON SELECTION PAD EXT OF CUST_MNU DO CUST_EXT
ACTIVATE MENU CUST_MNU PAD ADD

```

***** EXIT PROCEDURE *****

```

PROCEDURE CUST_EXT
CLEAR
DEACTIVATE MENU
DO HEADER
RETURN

```

***** ADD PROCEDURE *****

```

PROCEDURE CUST_ADD
@10,1 clear to 22,79
@ 2,2 to 23,79 double
store 0 to mCUST
store space(15) to msurname
store space(15) to mname
store space(40) to maddress
store ctod(' / / ') to mdates
store 0 to macc_num
DO F_SHOW

```

```

USE CUSTOMER
locate for CUST_code=mCUST
if found()
  store ' ' to que
  @21,24 say "Record exist already! Press a key to go on..." get
que
  read
  return
endif
@7,28 GET MCUST PICT '999999'
@10,28 GET MSURNAME PICT '@!'
@12,28 GET MNAME PICT '@!'
@14,28 GET MADDRESS PICT '@!'
@18,28 GET MDATES
@16,28 GET MACC_NUM PICT '9999999'
read

```

```

  DEFINE MENU add_opt
  DEFINE PAD save OF add_opt PROMPT "SAVE" AT 21,25
  DEFINE PAD cancel OF add_opt PROMPT "CANCEL" AT 21,55
  ON SELECTION PAD save OF add_opt DO save
  ON SELECTION PAD cancel OF add_opt DO xcan
  ACTIVATE MENU add_opt PAD save
return

```

procedure save

```

use customer
append blank
replace CUST_code with mCUST
replace surname with msurname
replace nAMEs with mName
replace address with maddress
*replace dates with mdates
replace ACC_NUM with mACC_NUM
@7,27 clear to 7,45
@ 10,10 clear to 21,77
DO F_SHOW
deactivate menu
return

```

procedure xcan

```

@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
DO F_SHOW
deactivate menu
return

```

```

*****          EDIT      PROCEDURE      OF      CUSTOMER
REGISTRATION*****
PROCEDURE CUST_EDIT

```

USE CUSTOMER

```

@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
DO F_SHOW
store 0 to mCUST
@7,28 get mCUST PICT '999999'
read
locate for CUST_code=mCUST_NO
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif

```

```

MCUST=CUST_code
MSURNAME=surname
MNAME=names
MADDRESS=address
MDATES=dates
MACC_NUM=ACC_NUM
@7,28 GET MCUST PICT '999999'
@10,28 GET MSURNAME PICT '@!'
@10,66 GET MNAME PICT '@!'
@11,28 GET MADDRESS PICT '@!'
@13,28 GET MDATES
@13,66 GET MACC_NUM PICT '9999999'
read

```

```

DEFINE MENU add_opt
DEFINE PAD save OF add_opt PROMPT "SAVE" AT 21,25
DEFINE PAD cancel OF add_opt PROMPT "CANCEL" AT 21,55
ON SELECTION PAD save OF add_opt DO save
ON SELECTION PAD cancel OF add_opt DO xcan
ACTIVATE MENU add_opt PAD save
return

```

procedure save

```

locate for CUST_code=mCUST
if found()
  replace CUST_code with mCUST
  replace surname with msurname
  replace nAMES with mName
  replace address with maddress
  replace dates with mdates
  replace acc_num with macc_num
  use
  @ 7,27 clear to 7,45
  @ 9,10 clear to 21,77
  do f_show

  deactivate menu
  return
endif

```

```
procedure xcan
```

```
@ 7,27 clear to 7,45  
@ 9,10 clear to 21,77  
do f_show  
deactivate menu  
return
```

```
*****          DELETE          PROCEDURE          OF          CUSTOMER  
REGISTRATION*****  
PROCEDURE CUST_DEL
```

```
USE CUSTOMER
```

```
@ 9,1 clear to 21,79  
@ 1,2 to 22,79 double  
do f_show  
store 0 to mcust  
@7,28 get mcust PICT '999999'  
read  
locate for cust_code=mcust  
if .not. found()  
    store ' ' to que  
    @21,20 say "Record not found!..Press a key to go on..." get que  
    read  
    return  
endif
```

```
@ 21,12 CLEAR TO 21,77
```

```
Mcust=cust_code  
MSURNAME=surname  
MNAME=names  
MADDRESS=address  
MDATES=dates  
MACC_NUM=acc_num  
@7,28 say Mcust PICT '999999'  
@10,28 say MSURNAME PICT '@!'  
@10,66 say MNAME PICT '@!'  
@11,28 say MADDRESS PICT '@!'  
@13,28 say MDATES  
@13,66 say MACC_NUM PICT '9999'  
store 'N' to que  
@ 21,15 SAY "Are you sure you want to delete this record? [Y/N]"  
get que  
read  
do case  
    case que $ 'yY'  
        locate for cust_code=mcust  
        if found()  
            delete  
            pack  
            @21,12 clear to 21,77
```

```

        store ' ' to resp
        @21,20 say "Record Deleted!...Press a key to go on..."get resp
        read
        use
        endif
    case que $ 'nN'
        use
    endcase

```

```

@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
do f_show
return

```

```

*****          SEARCH      PROCEDURE      OF      CUSTOMER
REGISTRATION*****
PROCEDURE CUST_SCH

```

```

USE CUSTOMER
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
do f_show
store 0 to mcust
@7,28 get mcust PICT '999999'
read
locate for cust_code=mcust
if .not. found()
    store ' ' to que
    @21,20 say "Record not found!..Press a key to go on..." get que
    read
    return
endif
@ 21,12 CLEAR TO 22,77
Mcust=cust_code
MSURNAME=surname
MNAME=names
MADDRESS=address
MDATES=dates
MACC_NUM=acc_num
@7,28 say Mcust PICT '999999'
@10,28 say MSURNAME PICT '@!'
@10,66 say MNAME PICT '@!'
@11,28 say MADDRESS PICT '@!'
@13,28 say MDATES
@13,66 say MACC_num PICT '9999'
@21,12 CLEAR TO 22,77
store ' ' to que
@21,20 SAY "Press a key to go on..."get que
read
use
@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
do f_show
return

```

```
***** VIEW PROCEDURE OF CUSTOMER
REGISTRATION*****
PROCEDURE CUST_VEW
```

```
@9,1 Clear to 24,79
do f_show
@10,1 SAY "CUSTOMER"
@11,2 SAY "CODE"
@11,12 SAY "SURNAME"
@11,28 SAY "NAME"
@11,42 SAY "ADDRESS"
@11,63 SAY "DATE"
@10,72 SAY "ACCOUNT"
@11,72 SAY "NUMBER"
@12,1 TO 12,79
LINCNT=13
USE CUSTOMER
go top
do while .not. eof()
  @LINCNT,1 SAY STR(CUST_CODE,6)
  @LINCNT,12 SAY SURNAME
  @LINCNT,28 SAY NAMES
  @LINCNT,42 SAY ADDRESS
  @LINCNT,63 SAY DATE
  @LINCNT,71 SAY ACC_NUM
  LINCNT=LINCNT+1
  IF LINCNT=22
    store ' ' to que
    @21,20 SAY "Press any key to see the rest..." get que
    read
    @ 13,1 clear to 23,79
    lincnt=13
  endif
  skip
  loop
enddo
if eof()
  lincnt=lincnt+2
  @lincnt,30 say "END OF FILE!"
  store ' ' to resp
  @21,20 say "Press any key to return..." get resp
  read
  @ 9,0 clear to 21,79
  @ 1,2 to 22,79 double
  DO F_SHOW
  return
endif
```

```
***** REPORT PRINTING PROCEDURE OF CUSTOMER
REGISTRATION*****
PROCEDURE CUST_PRNT
```

```

@19,25 to 22,60 double
store 'N' to que
@ 20,28 SAY "Ensure printer is ready!"
@ 21,27 say "Send report to print?[Y/N] "get que
read
do case
  case que $ 'Yy'
    do prn_cust
  otherwise
    @19,25 clear to 22,61
    return
endcase

```

```

***** PRINT OPTION MODULE OF CUSTOMER REGISTRATION
*****

```

```

procedure prn_cust

```

```

store repl("-",135) to line
@ 20,28 clear to 21,56
set color to w*/b
@ 21,27 say "PRINTING REPORT!"
set color to w/b
SET DEVICE TO PRINT
@prow()+1,120 say date()
@prow()+1,3 SAY "CUSTOMER CODE"
@prow(),20 SAY "SURNAME"
@prow(),35 SAY "NAME"
@prow(),54 SAY "ADDRESS"
@prow(),72 SAY "DATE"
@prow(),98 SAY "ACCOUNT NUMBER"
@prow()+1,1 say line
USE CUSTOMER
go top
do while .not. eof()
  @prow()+1,2 SAY STR(CUST_CODE,6)
  @prow(),20 SAY SURNAME
  @prow(),35 SAY NAME
  @prow(),54 SAY ADDRESS
  @prow(),72 SAY DATE
  @prow(),98 SAY STR(ACC_NUM,5)
  IF prow()=65
    set device to screen
    store ' ' to que
    @23,20 SAY "Printer out of paper... Press a key to go on" get
  que
  read
  set device to print
endif
skip
loop
enddo
if eof()
  @prow()+2,30 say "END OF FILE!"
  set device to screen

```



```

    @19,24 clear to 22,61
    store ' ' to resp
    @22,20 say "Press any key to return..." get resp
    read
    @ 9,0 clear to 21,79
    @ 1,2 to 22,79 double
    DO F_SHOW
    return
endif
RETURN

```

```

*****          SALES          ORDERING          SUBROUTINE
*****
PROCEDURE sale_ord
CLEAR
@ 1,2 to 23,79 doub
@ 2,28 say "SALES ORDERING MODULE"
@ 3,3 to 5,78
@ 7,10 say "ORDER NUMBER      : "
@ 7,45 say "CUSTOMER CODE    : "
@ 8,3 TO 8,78
@10,10 SAY "NAME              : "
@12,10 SAY "ORDER DATE       : "
@14,10 SAY "DESTINATION      : "
@16,10 SAY "PRODUCTION CODE : "
@16,45 SAY "QUANTITY         : "
@18,10 SAY "UNIT PRICE       : "
@20,10 SAY "TOTAL AMOUNT    : "
@19,3 TO 19,78
STORE 0 TO MORDER
STORE 0 TO MCUST
STORE SPACE(25) TO MNAME
STORE CTOD(" / / ") TO MDATE
STORE SPACE(20) TO MDESTINY
STORE SPACE(3) TO MP_CODE
STORE 0 TO MQNTY
STORE 0 TO MPRICE
STORE 0 TO MTOTAL
@ 7,28 GET MORDER PICT '99999'
@ 7,60 GET MCUST PICT '99999'
READ
USE CUSTOMER
LOCATE FOR CUST_CODE=MCUST
IF .NOT. FOUND()
    STORE ' ' TO QUE
    @22,12 SAY "NOT A REGISTERED CUSTOMER!...PRESS A KEY.."GET QUE
    READ
    USE
    RETURN
ENDIF
CLOSE ALL
@10,28 GET MNAME PICT '@!'
@12,28 GET MDATE
@14,28 GET MDESTINY PICT '@1'

```

```

@16,28 GET MP_CODE PICT '@1'
@16,60 GET MQNTY PICT '99999'
@18,28 GET MPRICE PICT '99,999,999.99'
READ
MTOTAL = MPRICE * MQNTY
@20,28 SAY MTOTAL PICT '99,999,999.99'
USE STOCK
LOCATE FOR PROD_CODE=MP_CODE
IF FOUND()
  IF QNTY<MQNTY
    @22,10 CLEAR TO 22,77
    STORE ' ' TO HOLD
    @22,12 SAY "GOODS OUT OF STOCK! KEEP ORDER ON HOLD? [Y/N]"GET
HOLD
  READ
  IF HOLD ="N"
    USE
    RETURN
  ELSE
    IF HOLD ="Y"
      DO ORDER
    ENDIF
  ENDIF
ENDIF
ELSE
  @22,10 CLEAR TO 22,77
  @22,12 SAY "PRODUCT NOT AVAILABLE"
  WAIT+' '
ENDIF
@22,10 CLEAR TO 22,77
@22,12 SAY "PRODUCT STILL AVAILABLE!!!"
*DO PICK
*DO DELIVER
*DO INVOICE
RETURN

```

***** PLACING ORDER ON HOLD *****

PROCEDURE O_SHOW

```

@ 1,2 to 22,79 doub
@ 2,35 say "ORDERS ON HOLD"
@ 3,3 to 5,78
@ 7,10 say "CUSTOMER CODE : "
@ 7,45 say "PRODUCT CODE : "
@ 8,3 TO 8,78
@10,10 SAY "SURNAME : "
@12,10 SAY "OTHERNAMES : "
@14,10 SAY "ADDRESS : "
@15,3 TO 15,78
@16,10 SAY "PRODUCT DESCRIPTION:"
@18,10 SAY "DATE OF ORDER : "
@20,10 SAY "QUANTITY : "
@20,45 SAY "UNIT PRICE : "

```

@19,3 TO 19,78

***** ORDER ON HOLD SUBROUTINE *****

PROCEDURE ORDER

SET COLOR TO W/B

clear

DEFINE MENU ORD_MNU

DEFINE PAD ADD OF ORD_MNU PROMPT "ADD" AT 4,5

DEFINE PAD EDIT OF ORD_MNU PROMPT "EDIT" AT 4,15

DEFINE PAD DELET OF ORD_MNU PROMPT "DELETE" AT 4,25

DEFINE PAD PRNT OF ORD_MNU PROMPT "PRINT" AT 4,37

DEFINE PAD VEW OF ORD_MNU PROMPT "VIEW" AT 4,49

DEFINE PAD SEARCH OF ORD_MNU PROMPT "SEARCH" AT 4,59

DEFINE PAD EXT OF ORD_MNU PROMPT "EXIT" AT 4,71

ON SELECTION PAD ADD OF ORD_MNU DO ORD_ADD

ON SELECTION PAD EDIT OF ORD_MNU DO ORD_EDIT

ON SELECTION PAD DELET OF ORD_MNU DO ORD_DEL

ON SELECTION PAD PRNT OF ORD_MNU DO ORD_PRNT

ON SELECTION PAD VEW OF ORD_MNU DO ORD_VEW

ON SELECTION PAD SEARCH OF ORD_MNU DO ORD_SCH

ON SELECTION PAD EXT OF ORD_MNU DO ORD_EXT

ACTIVATE MENU ORD_MNU PAD ADD

***** EXIT PROCEDURE *****

PROCEDURE ORD_EXT

CLEAR

DEACTIVATE MENU

DO HEADER

RETURN

***** ADD PROCEDURE *****

PROCEDURE ORD_ADD

@10,1 clear to 22,79

@ 2,2 to 23,79 double

store 0 to mCUST

store 0 to mPROD

store space(15) to msurname

store space(15) to mname

store space(40) to maddress

store space(25) to mdesc

store ctod(' / / ') to mORdate

store 0 to mQNTY

store 0 to mPRICE

DO O_SHOW

USE HOLD

locate for CUST_code=mCUST

if .NOT. found()

STORE ' ' TO QUE

@21,24 SAY "CUSTOMER NOT REGISTERED!..Press a key to go

on...."GET QUE

READ

```

RETURN
ELSE
LOCATE FOR PROD_CODE=MPROD
IF .NOT. FOUND()
store ' ' to que
@21,24 say "PRODUCT NOT AVAILABLE! Press a key to go on..."
get que
read
return
endif
ENDIF
@7,30 GET MCUST PICT '999999'
@7,60 get mprod
@10,30 GET MSURNAME PICT '@!'
@12,30 GET MNAME PICT '@!'
@14,30 GET MADDRESS PICT '@!'
@16,30 GET Mdesc
@18,30 GET MorDATE
@20,30 GET Mqnty PICT '9999999'
@20,60 GET MACC_NUM PICT '9999999'
read
use HOLD
append blank

DO SAVE_OPT

PROCEDURE SAVE_OPT

DEFINE MENU add_opt
DEFINE PAD save OF add_opt PROMPT "SAVE" AT 21,25
DEFINE PAD cancel OF add_opt PROMPT "CANCEL" AT 21,55
ON SELECTION PAD save OF add_opt DO save
ON SELECTION PAD cancel OF add_opt DO xcan
ACTIVATE MENU add_opt PAD save
return

procedure save

replace CUST_code with mCUST
replace prod_code with mprod
replace surname with msurname
replace nAMEs with mName
replace address with maddress
replace desc with mdesc
replace ordate with mordate
replace qnty with mqnty
replace price with mprice
@7,27 clear to 7,45
@ 10,10 clear to 21,77
DO O_SHOW
deactivate menu
return

procedure xcan

```

```
@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
DO O_SHOW
deactivate menu
return
```

```
***** EDIT PROCEDURE OF order on
hold*****
PROCEDURE ord_EDIT
```

```
USE hold
```

```
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
DO O_SHOW
store 0 to mCUST
@7,28 get mCUST PICT '999999'
read
locate for CUST_code=mCUST
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
store 0 to mprod
@7,28 get mprod PICT '999999'
read
locate for prod_code=mprod
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
```

```
MCUST=CUST_code
mprod=prod_code
MSURNAME=surname
MNAME=names
MADDRESS=address
MorDATE=ordate
mdesc=desc
Mqnty=qnty
@7,30 GET MCUST PICT '999999'
@7,60 get mprod
@10,30 GET MSURNAME PICT '@!'
@12,30 GET MNAME PICT '@!'
@14,30 GET MADDRESS PICT '@!'
@16,30 GET Mdesc
@18,30 GET MorDATE
@20,30 GET Mqnty PICT '9999999'
@20,60 GET Mprice PICT '9999999'
read
```

```
use HOLD
do save_opt
```

```
*****          DELETE      PROCEDURE    OF      ORDER    ON      HOLD
*****
PROCEDURE ord_DEL
```

```
USE hold
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
do o_show
store 0 to mCUST
@7,28 get mCUST PICT '999999'
read
locate for CUST_code=mCUST
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
store 0 to mprod
@7,28 get mprod PICT '999999'
read
locate for prod_code=mprod
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
```

```
MCUST=CUST_code
mprod=prod_code
MSURNAME=surname
MNAME=names
MADDRESS=address
MorDATE=ordate
mdesc=desc
Mqnty=qnty
@7,30 say MCUST PICT '999999'
@7,60 say mprod
@10,30 say MSURNAME PICT '@!'
@12,30 say MNAME PICT '@!'
@14,30 say MADDRESS PICT '@!'
@16,30 say Mdesc
@18,30 say MorDATE
@20,30 say Mqnty PICT '9999999'
@20,60 say Mprice PICT '9999999'
@ 21,12 CLEAR TO 21,77
store 'N' to que
@ 21,15 SAY "Are you sure you want to delete this record? [Y/N]"
```

```

get que
read
do case
  case que $ 'yY'
    locate for cust_code=mcust .and. cust_prod=mprod
    if found()
      delete
      pack
      @21,12 clear to 21,77
      store ' ' to resp
      @21,20 say "Record Deleted!...Press a key to go on..."get resp
      read
      use
    endif
  case que $ 'nN'
    use
endcase

```

```

@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
do o_show
return

```

```

*****          SEARCH      PROCEDURE      OF      hold      on
order*****
PROCEDURE ord_SCH

```

```

USE hold
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
do o_show
store 0 to mcust
store 0 to mCUST
@7,28 get mCUST PICT '999999'
read
locate for CUST_code=mCUST
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
store 0 to mprod
@7,28 get mprod PICT '999999'
read
locate for prod_code=mprod
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
@ 21,12 CLEAR TO 22,77

```

```

LINCNT=LINCNT+1
IF LINCNT=22
  store ' ' to que
  @21,20 SAY "Press any key to see the rest..." get que
  read
  @ 13,1 clear to 23,79
  lincnt=13
endif
skip
loop
enddo
if eof()
  lincnt=lincnt+2
  @lincnt,30 say "END OF FILE!"
  store ' ' to resp
  @21,20 say "Press any key to return..." get resp
  read
  @ 9,0 clear to 21,79
  @ 1,2 to 22,79 double
  DO O_SHOW
  return
endif

```

***** STOCK MONITORING PROCEDURE *****

PROCEDURE S_SHOW

```

@ 1,2 to 22,79 doub
@ 2,35 say "STOCK MONITORING"
@ 3,3 to 5,78
@ 7,10 say "PRODUCT CODE : "
@ 8,3 TO 8,78
@10,10 SAY "DESCRIPTION      :"
@12,10 SAY "STOCK LOCATION  :"
@14,10 SAY "BATCH NUMBER   :"
@15,3 TO 15,78
@16,10 SAY "QUANTITY SUPPLIED  :"
@18,10 SAY "DATE STOCKED       :"
@20,10 SAY "UNIT PRICE        :"

```

***** STOCK MONITORING SUBROUTINE *****

PROCEDURE STOCK

```

@10,1 clear to 22,79
@ 2,2 to 23,79 double
DO S_SHOW
SET COLOR TO W/B
clear
DEFINE MENU STK_MNU
DEFINE PAD ADD OF STK_MNU PROMPT "ADD" AT 4,5
DEFINE PAD EDIT OF STK_MNU PROMPT "EDIT" AT 4,15
DEFINE PAD DELET OF STK_MNU PROMPT "DELETE" AT 4,25
DEFINE PAD PRNT OF STK_MNU PROMPT "PRINT" AT 4,37

```



```

DEFINE PAD VEW OF STK_MNU PROMPT "VIEW" AT 4,49
DEFINE PAD SEARCH OF STK_MNU PROMPT "SEARCH" AT 4,59
DEFINE PAD EXT OF STK_MNU PROMPT "EXIT" AT 4,71
ON SELECTION PAD ADD OF STK_MNU DO STK_ADD
ON SELECTION PAD EDIT OF STK_MNU DO STK_EDIT
ON SELECTION PAD DELET OF STK_MNU DO STK_DEL
ON SELECTION PAD PRNT OF STK_MNU DO STK_PRNT
ON SELECTION PAD VEW OF STK_MNU DO STK_VEW
ON SELECTION PAD SEARCH OF STK_MNU DO STK_SCH
ON SELECTION PAD EXT OF STK_MNU DO STK_EXT
ACTIVATE MENU STK_MNU PAD ADD

```

```

***** EXIT PROCEDURE *****
PROCEDURE STK_EXT
CLEAR
DEACTIVATE MENU
DO HEADER
RETURN

```

```

***** ADD PROCEDURE *****
PROCEDURE STK_ADD
@10,1 clear to 22,79
@ 2,2 to 23,79 double
store 0 to mSTOCK
store space(25) to mDESC
store space(35) to mLOCAT
store space(15) to mBATCH
store ctod(' / / ') to mSTdate
store 0 to mQNTY
store 0 to mPRICE
DO S_SHOW
USE STOCK
@7,30 GET MSTOCK PICT '999999'
LOCATE FOR PROD_CODE=MSTOCK
IF .NOT. FOUND()
  @10,30 GET MDESC PICT '@!'
  @12,30 GET MLOCAT PICT '@!'
  @14,30 GET MBATCH PICT '@!'
  @16,30 GET MQNTY
  @18,30 GET MSTDATE
  @20,30 GET MPRICE PICT '99,999,999.99'
  read
ELSE
  @7,30 GET MSTOCK PICT '999999'
  @10,30 SAY MDESC PICT '@!'
  @12,30 GET MLOCAT PICT '@!'
  @14,30 GET MBATCH PICT '@!'
  @16,30 GET MQNTY
  @18,30 GET MSTDATE
  @20,30 SAY MPRICE PICT '99,999,999.99'
  read
ENDIF

```

```
use STOCK
append blank
DO SAVE_OPT
```

```
PROCEDURE SAVE_OPT
```

```
DEFINE MENU add_opt
DEFINE PAD save OF add_opt PROMPT "SAVE" AT 21,25
DEFINE PAD cancel OF add_opt PROMPT "CANCEL" AT 21,55
ON SELECTION PAD save OF add_opt DO save
ON SELECTION PAD cancel OF add_opt DO xcan
ACTIVATE MENU add_opt PAD save
return
```

```
procedure save
```

```
replace prod_code with mSTOCK
replace DESC with mDESC
replace LOCAT with mLOCAT
replace BATCH with mBATCH
replace QNTY with mQNTY
replace STdate with mSTdate
replace price with mprice
@7,27 clear to 7,45
@ 10,10 clear to 21,77
DO S_SHOW
deactivate menu
return
```

```
procedure xcan
```

```
@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
DO S_SHOW
deactivate menu
return
```

```
***** EDIT PROCEDURE OF order on
hold*****
PROCEDURE STK_EDIT
```

```
USE STOCK
```

```
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
DO S_SHOW
store 0 to mSTOCK
@7,28 get mSTOCK PICT '999999'
read
locate for PROD_code=mSTOCK
if .not. found()
store ' ' to que
@21,20 say "Record not found!..Press a key to go on..." get que
read
```

```

return
endif
mSTOCK=prod_code
MDESC=DESC
MLOCAT=LOCAT
MBATCH=BATCH
MSTDATE=STdate
Mqnty=qnty
MPRICE=PRICE

@7,30 GET MSTOCK PICT '999999'
@10,30 GET MDESC PICT '@!'
@12,30 GET MLOCAT PICT '@!'
@14,30 GET MBATCH PICT '@!'
@16,30 GET MQNTY
@18,30 GET MSTDATE
@20,30 GET MPRICE PICT '99,999,999.99'
read
use STOCK
do save_opt

```

```

*****          DELETE          PROCEDURE          OF          CUSTOMER
REGISTRATION*****
PROCEDURE STK_DEL

```

```

USE STOCK
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
do s_show
store 0 to mSTOCK
@7,28 get mSTOCK PICT '999999'
read
locate for prod_code=mSTOCK
if .not. found()
store ' ' to que
@21,20 say "Record not found!..Press a key to go on..." get que
read
return
endif
mSTOCK=prod_code
MDESC=DESC
MLOCAT=LOCAT
MBATCH=BATCH
MSTDATE=STdate
Mqnty=qnty
MPRICE=PRICE

@7,30 SAY MSTOCK PICT '999999'
@10,30 SAY MDESC PICT '@!'
@12,30 SAY MLOCAT PICT '@!'
@14,30 SAY MBATCH PICT '@!'
@16,30 SAY MQNTY
@18,30 SAY MSTDATE

```

```

@20,30 SAY MPRICE PICT '99,999,999.99'
@ 21,12 CLEAR TO 21,77
store 'N' to que
@ 21,15 SAY "Are you sure you want to delete this record? [Y/N]"
get que
read
do case
  case que $ 'yY'
    locate for PROD_code=mstock
    if found()
      delete
      pack
      @21,12 clear to 21,77
      store ' ' to resp
      @21,20 say "Record Deleted!...Press a key to go on..."get resp
      read
      use
    endif
  case que $ 'nN'
    use
endcase

```

```

@ 7,27 clear to 7,45
@ 9,10 clear to 21,77
do s_show
return

```

```

*****          SEARCH      PROCEDURE      OF      hold      on
order*****
PROCEDURE stk_SCH

```

```

USE stock
@ 9,1 clear to 21,79
@ 1,2 to 22,79 double
do s_show
store 0 to mSTock
@7,28 get mSTock piCT '999999'
read
locate for prod_code=mSTock
if .not. found()
  store ' ' to que
  @21,20 say "Record not found!..Press a key to go on..." get que
  read
  return
endif
@ 21,12 CLEAR TO 22,77
mSTOCK=prod_code
MDESC=DESC
MLOCAT=LOCAT
MBATCH=BATCH
MSTDATE=STdate
Mqnty=qnty
MPRICE=PRICE

```

```
@7,30 SAY MSTOCK PICT '999999'  
@10,30 SAY MDESC PICT '@!'  
@12,30 SAY MLOCAT PICT '@!'  
@14,30 SAY MBATCH PICT '@!'  
@16,30 SAY MQNTY  
@18,30 SAY MSTDATE  
@20,30 SAY MPRICE PICT '99,999,999.99'
```

```
store ' ' to que  
@21,20 SAY "Press a key to go on..."get que  
read  
use  
@ 7,27 clear to 7,45  
@ 9,10 clear to 21,77  
do o_show  
return
```

```
***** VIEW PROCEDURE OF STOCK  
MONITORING*****  
PROCEDURE stk_VEW
```

```
@9,1 Clear to 24,79  
do s_show  
@10,1 SAY "product"  
@11,2 SAY "CODE"  
@11,12 SAY "DESCRIPTION"  
@11,34 SAY "LOCATION"  
@11,54 SAY "QUANTITY"  
@10,65 SAY "UNIT"  
@11,65 SAY "PRICE"  
@12,1 TO 12,79  
LINCNT=13  
USE STOCK  
go top  
do while .not. eof()  
  @LINCNT,1 SAY STR(PROD_CODE,6)  
  @LINCNT,12 SAY DESC  
  @LINCNT,34 SAY LOCAT  
  @LINCNT,54 SAY QNTY  
  @LINCNT,65 SAY PRICE  
  LINCNT=LINCNT+1  
  IF LINCNT=22  
    store ' ' to que  
    @21,20 SAY "Press any key to see the rest..." get que  
    read  
    @ 13,1 clear to 23,79  
    lincnt=13  
  endif  
  skip  
  loop  
enddo  
if eof()  
  lincnt=lincnt+2
```

```
@lincnt,30 say "END OF FILE!"
store ' ' to resp
@21,20 say "Press any key to return..." get resp
read
@ 9,0 clear to 21,79
@ 1,2 to 22,79 double
DO S_SHOW
return
ENDIF
```

```
***** END OF PROGRAMM *****
```