MARKETING ENTERPRISES INFORMATION RETRIEVAL SYSTEM

(A CASE STUDY OF LEVENTIS STORES, KANO)

BY

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Submitted to the Department of
Mathematics/Computer Science
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In Partial fulfillment of the Requirements for the Award of Post-Graduate Diploma in Computer Science.

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CERTIFICATION

This project is certified to have been carried out by WAHAB NAJEEB AYIGORO and found to be adequate in scope and quality for the partial fulfillment of the requirement for award of post-Graduate Diploma (P. G. D.) in Computer Science in Mathematics/Computer Science Department at Federal University of Technology, Minna, Niger State.

Signature---------- Date----------

MALLAM ISAH AUDU
Supervision

Signature---------- Date----------

L. N. EZEAKO
H. O. D.

Signature..... Date.....

External Examiner.

DEDICATION

In memory of my sister (Mama Faridat) Monsurat Yusuf Ayigoro (RIP)

ACKNOWLEDGEMENT

First and foremost, I will like to thank God for giving me the ability to achieve this task. A lot of people have helped in one way or the other in completing this project. I am therefore highly indebted to the following peoples:

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ABSTRACT

The presented work is a case study of a management information system for Leventis Stores,Kano. Due to several undesirable factors associated with the current manual information system observed due to the analysis phase, a computerise version is presented in this study. Based on Henry, C. Lucas Jr. (1985) definition of a system as an organized, interacting, independent, integrated set of components which have a boundary and refer to information system as some tangible or intangible entity which reduces uncertainty about future state or event; the work is designed to provide easy usage, better management aid, and provides rooms for further development and improvement.

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CHAPTER ONE

1.1 INTRODUCTIONS

With the Largest and biggest store in Nigeria, and with branches in most parts of the country, the reason why they are called the Nigerian biggest retailers. There is a need for a store like a leventis super store to provide an information retrieval system on their items for their customers and for the management.

An information retrieval combines the technologies of computing and communications. All information, wich has to be saved, must be stored or filed in such a way that it can be quickly and easily retrieved when needed.

Information, wich is to be communicated to or accessed by several users. Will generally be held in a database in a computer system. A database is initially created by inputting all the data and storing it-on line in the system. The database is maintaining by regularly of updating the data. For example, it might be necessary to delete certain data items, add new data items, or alter data. This ensures that users who access the database will be given useful and accurate information. When user request information, the computer searches the database retrieve the information required and will even organize it so that it is presented to the user in the form wanted. The speed with wich this is carried out depends on the power of the computer and the amount of data contained in the database.

Every organization of course has an objective, achieving this objective therefore means that a day-to day running of the organization achieved. By providing an information retrieval facilities to their customers the organizations will surely satisfy the need for some if not all of their customers.

By providing an information retrieval system, the organizations will ease the hardship endured by their customers going round and round the store to make a purchase instead, a customer can access what the whole store has, provided a customers knows what he wants to buy and highlight such product. An Information about the product will

be given to customer such as department, price, status number will be displayed on the screen. From then on a customer can make a purchase; this saves energy and improves efficiency.

1.2 Aims and objective of the project

The aim of the project is to study the existing method of shopping activities at Leventis Store, and find ways by which information retrieval system will help the organizations to meet the desired objective. The project will also aim at reducing the current manpower involvement, and the time wastage in the current method of shopping activities.

The objective of the project is to provide a computerized information retrieval system that will ensure quick retrieval of items in the store. Secondly to provide a cost-effectiveness in terms of fewer manpower and less time and yet the organization having the satisfactions of accurate, fast and reliable data about their items in the store. Thirdly to provide the management with necessary information that will assist them in planning and control of their organization. It should also have efficient management information reporting facility that will enable the management to make decision for the overall success of the organization

Finally, reduction of manual tasks is another objective of the project. System design attempt to minimize routine task as much as possible. Thus, it is necessary to have a firm understanding of what the business is all about and how things occur within the business. A variety of sorting and selecting requirements can be accomplished either automatically as part of some output or on request as part of utility. Ammonite or two of computer sorting can be equivalent of hours of manual effort.

1.3 SCOPE AND LIMITATION

Although many obstacles were encountered during course of this study. The major one is vagueness of answers to direct research questions. Even though many people were ready and willing to help, specific answer were not given to direct questions due to the fact that employees were trying to protect company's secret from being discussed as any leakage could be used by competitors against them.

The scope of this project has a limitation, since as the name suggest, marketing enterprise information retrieval system taking Leventis as a case

study. This means that there could be some considerations that are only confined to leventis super store alone.

The project is limited to only information about the product in the leventis stores other types of organizational information are not included e.g. personal information, customer record, account record e.t.c

The program is also not an inventory program but it has a section where you can delete, add or change information on an item under the update module. This is done in order to keep correct information about the items. The re-order advice, which the programme also gives, is part of inventory. But is was incorporated here for the management so that when they run report, the programme will give them the necessary information like stock status, sales made per day, week, or month, stock received and re-order advice

1.4. LITERATURE REVIEW

This section south to review literate in an attempt to establish an understanding of the environment in which information retrieval system, which is part of management information (MIS) are developed and operated. It therefore treated as a review of the modern views of information systems.

Since approximately 1979, a date that marks the beginning of the wide spread proliferation of micro-computers in many organizations and government establishments decision aids and larger information systems have been designed, developed and applied to a variety of decision making problems.

Henry, C. Lucas JR, 1985, Murdrick and Ross, 1971 describe a system as an organized, interacting, interdependent, integrated set of components or variables which have boundary and refer to information system as some tangible or intangible entity which reduces uncertainty about a future state or event. Such systems are usually open, there are no fixed boundaries, and there is usually some exchange with other entities, systems, organizations or society as a whole. Lucas, however, argued that determining the boundry of a system is extremely important for systems analysis and designs. Systems tend to grow beyond reasonable boundaries as we find new components to add. In addition, setting the boundaries too narrowly can lead the analyst to

ignore important variables, which will have an impact on the system being designed.

An information retrieval system incorporates some special application programs. The application program analyses the data and reduces them to a form that is natural for human understanding. However, the most part of any information system deals with the definition, storage and manipulation of the data. The proliferation of the data is the main reason for information systems.

Originally, the data of such programs were handled individually, but much duplication of effort and data resulted. In addition, data could not be easily shared among different applications. File systems were introduced and to permit some data sharing, some standardized ways of accessing data evolved in the form of access methods (Tsichintzis and Bernstein, 1979).

Due to the limitation of traditional filing system the use of database management system (DBMS) become more prominent. The method evolved to facilitate data organization and access. This serve as an interface between the user and the physical copies of the data., Normally, in information retrieval system users specify what data they need and in what form. They do not need to specify where the data reside or how to get them. Although, a DBMS is by no means a necessity in an information system it is becoming more increasing in information retrieval environment.

The term database became more current in the late sixties. Prior to that time the data processing will have talked about files of data and data sets (James Martin 1977). Then later schema was introduced by W.C. McGee, but schema and subschema were first brought into usage by the Conference on Data System Language (CODASYI.) Task Group.

Information systems and database systems (Nick Roussopoolos and I. Co ark 1984) have been designed with the assumptions that there is a small and well defined set of trained users whose requirements must be satisfied. However, recent advances in communication network technology make this assumption no longer valid. Users from all around the nation and the whole world may access database that were not developed for them. The databases need satisfy not only the requirements of a prescribed set of users but also other end-users who might be at remote end. The most urgent requirement of these potential

Users is their ability to understand the meaning of the information in the database and its evaluation through time.

When the purpose of a retrieval information system is to retrieve data about a particular topic by not necessary specifying record keys, database systems may be used (James A. Senn, 1985).

Logically, accessing a database is quite different from accessing a traditional file, the programmer must know a great deal about how the file is physically structured. There is a significant difference between sequential, direct and indexed sequential access, in effect, the programmer using traditional files must be an expert on input and output techniques. All too often, this technical expertise is gained at the expenses of the application, in other words, there is a tendency for the programmer to worry more about how to get the data than about what data is gotten.

With a database the programmer can often ignore the physical nature of the data concentrating on the application logic (William S. Davis, 1981).

The CODASYI-network model; (Oue, 1977) and the relational model (Codd 1970) have both been in existence for more than a dozen of years. Database management systems based on even older model (e.g. hierarchical, shallow network, inverted list) are also still in use. Each of these approaches has certain strength and weakness. For instance the relational approach provides a high-level manipulation language, but allow nothing more than field redundancy for representing relationships among records of different types. In contrast, the CODASYL-network approach provides a more powerful construct for representing certain kinds of (i.e. one-to-many) relationships. However, its manipulation language is relatively low level and procedure.

The data processing industry has by tradition adopted the hierarchical structuring of data, as demonstrated by the acceptance of COBOL record and the PL/1. Consequently, a number of modern data-management system (IMS) exemplified this type of approach.

A distributed database system is defined as one where data is physically located at a number of remote locations. Three objectives are given for this approach to distributing data, this includes: -

The achievements of certain degree of transparency, where users at any mode can issue requests for information without knowing where the data is located, what hardware is supporting it, what communication protocols, operating systems and DBMS are used to support both production and query uses: to support changes in the DB requirements so that when they change, the data will change with them (Harold Urbach, 1984). 5.

Richard P.Kind ET al; (1983) presented a paper that described a schema for secondry-key based data retrieval. The Schema is designed for a document filing and retrieval system in which documents are filed under a large number of keys, but queries specify only a few keys. As this work is based on micro-computers with virtual memory the primary objective was minimization of page faults, with processing speed and simplicity of code also of critical importance with respect to both processing, with the Schema indicate good performance with respect to both processing time paging.

CHAPTER TWO

2.0 SYSTEM ANALYSIS AND DESIGN;

2.1 FACTS FINDINGS ABOUT THE CURRENT SYSTEM

In any successful system conversion from old to new, or in designing an entirely new system, current system method must be examined. This embraces the entire preliminary investigation or survey into what is being done, how they are being done and why. This was achieved through interviews, observations and record inspection as analyses below:

2.1.1 OBSERVATION;

This is where observation about the activities of the current system will be made. This is the act of knowing what to look for and how to assess its significance. This was done through matching who performed stock take and where he encounters difficulties. Imploring this technique it was observed that the staffs that perform the job of stock taking everyday find it difficult to complete the process and sometimes stays late night if there is a large sales. This may sometimes lead to error in entering the correct figure for each file. The method, though not all that efficient provides a first hand information on how activities are carried out in the store, It was also observed that the current method of shopping in the Store allows a customer to move round the shop and picks what he wants without a guard. This lead to shoplifting by some customers, which causes conflict between the staff as, pars who to blame.

However, there is a distorted view about whether shopping procedures are being followed and observing did not also allow to fully learn what if a staff did not make a correct entry in a file during stock taking.

2.1.2 INTERVIEW;

2.1.2 INTERVIEW

In this method, informations were collected verbally through question posed to some respondents in different divisions of the organizations. These staffs are of course part of the existing system. Hence there are in a better position to give first hand and all necessary required information about the whole system. They may as well be potential users of the new system.

From this interview it reveals that staff of the customer division find it difficult to track down who is responsible for missing of some items. It's difficult for them to point at directly the staff responsible. Due to large amount of information and financial transaction going on. Both administrative and the finance division find it difficult to be dealing with the large volume of files for the process of insertion and the deleting of records.

2.1.3 RECORD INSPECTION

Some records of the finance division and administrative division were inspected to uncover more information that might be left uncovered through interview, due to either forgetfulness or omission. These records include all item prices and their location employee records and daily activities report. It is from this method that actual designed of output lay out on stock statues, stock level, stock number, supplier name, number were revealed. However, this method also unfolds some weakness of the system. Here some records are set to be missing, transactions are not properly recorded. One division blaming the other for it. Not all records intended to inspect was given out for inspection.

From the pros and cons of the above – discussed fact – finding techniques, it shows that it is unrealistic to make use of only one technique to obtain the desired requirement. This is the main reason why these three methods were employed in collecting necessary information for designing the new system. Therefore to summarize the finding of the current system are given as follows:- i) processes ii) control iii) stock control

for designing the new system. Therefore to summarize the findings of the current systems are given as follows: (I) Processes (ii) Control
(iii) Stock control.

2.2. ANALYSIS OF THE CURRENT SYSTEM;

2.2.1 ORGANISATION OF LEVENTIS STORES;

Leventis Super-Stores are a marketing enterprises that deals in retailing of marketing of household and industrial products. The Store has branches all over the Federation including its central warehouse at Lagos. The store has four main divisions, the consumer division, the administrative division, the finance division and the internal audit division.

These divisions work hand in hand to achieve maximum efficiency towards the set goal. The consumer divisions consist of the main shopping hall where shopping activities take place and have a number of staff (attendants) that overtook the activities of the hall. They also help in supervising customers while shopping to prevent shop lifting (theft).

The administrative division overlooks all the activities of the management aspect of the store and decision making process.

The internal audit division is responsible in forcing certain controls, which guide purchases, and accounts payable. This division comprises of the auditors. There is the head of the internal audit known as the controller systems and audit.

The finance division controls the financial activities of the whole organization. This division includes the accountants and the Cashiers. The division is headed by the Director Finance and Supplies that reports directly to the managing Director. The head has the sole responsibility of the following: keeping adequate financial standard of the organization; the suppliers are paid accurately and all financial matters.

PROCESS: There are five processes involved in the current system namely: Inquiry, orders, sales, data processing and report generation.

Inquiry is done at the customer division, where a customer will make an inquiry request about the items in the store and inquiry information will be given back to the customer. It is from there that one will decide whether to make a purchase or not.

The processing of orders is done in two forms, either to process order from the inquiry or to place order to supplier. This is done by:

(i) Requisition of supplier

(ii) Orders

(iii) Inspection and recording goods received

(iv) Processing and recording of invoices

(v) Payment.

The initial process starts off with requisition from the customer department, which is daily, signed and sent to the supply department. After this the supplier is chosen taking into consideration all the factors that come into play in choosing a good supplier like delivery time, credit facilities, quality etc. A local purchase order is then raised on the supplier, then a receipt is drawn on goods to local purchase order according to specification. A goods inward Note is raised after which the Customer way bill is endorsed by the storekeeper. The suppliers are then paid by cheque from the cash office or center.

A point to note is that after the Goods Inquired Note is raised and the Customer Way Bill is endorsed by the Storekeeper the Store is updated and the customer account record is updated.

1. Items cannot be ordered without due authorization.
2. Items cannot be accepted without being ordered.
3. Items cannot be accepted without being inspected.
4. Items cannot be paid for without being received.

The ordering process can be shown diagrammatically in fig.2.1.

After an inquiry is made, a customer might make a sale by issuing a sales report, the sales details are stored in sales record and sale details is also sent to the Data Processing in order to process the necessary information that will generate report. The orders details, the sales details are always sent to data processing for processing of the necessary information, which will be stored on the master record.

There are some controls imposed on regulating sales in Leventis stores Nigeria Limited. One notices at the first glance that sales have been streamlined in such a

way that once a sale is aimed, there is a sort of receipt in form of cash. The objectives, which these controls were designed to achieve, include the following: -

1. To determine whether the balance sheet or general ledger amount for cash is supported by valid accounts.
2. To determine if cash stated is collected.
3. To determine whether cash are properly classified and described.
4. To determine whether sales transactions have been properly accounted for during the period.
5. To ascertain whether the amount of sales has been recorded at its proper amount.

CONTROL

Segregation of duties

The organization took some measures in terms of preventing one individual from recording and processing a complete transaction.

It therefore involves the separating of duties involved in completing one transaction from another thereby reducing intentional manipulation and prevents errors.

One of the functions performed by Leventis Super Stores in a segregation is the system of authorization, execution, costly, recording and daily operations. Duties are also segregated in the method of goods and receipt procedure of supply orders. This is illustrated as follows:

A requisition is stored by the customer department that is filled by the chief supervisor, approved by the Manager and then sent to the supply department.

This department then requests for quotation from at least three different suppliers and one is chosen. A local purchase order is then raised on the supplier and on receipt; these goods are checked against the local purchase order (LPO) Specification. The Store-keeper then raises the inwards note and the customer way bill endorsed by him and sent to stock control section to update the stock records. The updating of the Stores record is

done by some one other than the storekeeper. Cost Account records are updated in the account office by Accounting personnel's.

Meanwhile, the supplier's invoice after being matched with the goods inward note and the local purchase order is passed to accounts office for payment. The supplier comes to collect the cheque.

PHYSICAL:

In this area, custody of items in the store is specified. Access directly is limited to authorization personnel and adequate security measures are taken to ensure ultimate security prosecution.

There are some security measures undertaken by Leventis Super Stores Nigeria Limited, the first of which one comes across as soon as one enters the premises.

Apart from security personnel stationed outside the reception area one must also go through certain procedure in passing through the reception area after making a purchase. The security personnel must make sure that the goods bought have a receipt before one is allowed to go.

INTERNAL STOCK CONTROL:

Stock forms the backbone of any organization, Leventis Store inclusive. The control on stock items hence cannot be overlooked. Stock consists of all household and industrial products of Leventis Stores.

If stock is not regularly monitored an item may run out of stock without the management's knowledge. Stock controls are in existence in Leventis Stores to ensure that store does not run out of item or items to be expired without being removed.

1. The use of control stock cards, which indicates the movement of stock i.e. issues on receipts.
2. Leventis Stores has four types of stock count

a. Continuous stock count done by the store attendants and supervised by the Storekeeper.

b. Quarterly.

c. Year in.

d. Continuous stock count done by the Internal Audit Department.

The stock quantity is compared with the stock control cards to inquire for any shortages or excesses. Shortages are usually accounted for by the personnel in-charge i.e. the Storekeeper.

3. As regards to the receiving of goods the following procedures take place: -

   a. The storekeeper makes a physical check of the Description and quantity of the items on the local purchase order from the supplier with the stock bought.

   b. No goods are received without invoice from the supplier.

   c. Supplier must bring a waybill with the stock. In the case where there is no way bill, the invoice is received, photocopied and the copy is kept for record purpose while the original invoice to the cost accounts.

   d. After receiving the stock, the storekeeper signs and stamps the waybill and invoice. It can be signed on his behalf if he is not around by the stock controller or other stock keeper.

   e. A goods received note is prepared from the invoice and waybill 4 copies are made.

      i. The store control copy.

         ii. Store copy.

         iii. Accounts copy.

         iv. Engineer's copy for parts order supply.

4. As items are received and issued it is entered into the stock control card so as to know the stock level and record advice time and quantity at hand.

5. The stock control cad is usually initialized by the authorized employee after all compilation daily or after an entry has been made on the stock control cards.

6. All calculations and checks are carried out on the stock card to show any shortfalls.

7. A stock ledger card is maintained showing the quantity left in stock after several issues and receipts of stock materials. It also depicts the price of the stock item.

All these processes at manual level are due to lack of proper co-ordination as a result of uncoordinated information retrieval system in the current method. Hence, this new system will go a long way in solving this problem.

Having identified the problems facing Leventis Stores Nigeria Limited, the need to develop a more efficient information.

2.3 SYSTEM REQUIREMENT:

This includes the study of the current system to find out how it works and where improvement should be made or how an entirely new system would be evolved. Since a requirement can be said to be a physical unit of the current system that is need to be improved and therefore should be included in the new system.

Whenever new system are proposed a lot of considerations have to be made as regarding the reason of having why the new system and why changing the already existing (old) system. This can only be achieved through series of investigations, to be rest assured that there is the need for such a change and the proposed new system is applicable. These investigations and studies are as enumerated below: -

2.3.1 GENERAL AND CRITICAL SURVEY:

A more detailed study will be carried out in the purpose of fully understanding the existing system and identifying the basic data requirement needed. These investigations include: -

Input Information: The in formations required here are: - The different sections (Beverages, Household, Clothing, Sanitary wares etc). The products under each section like beverages. List of all their suppliers (Name, Address and Supplier number) in case of Leventis stores Kano they receive goods directly from the main warehouse at Lagos. The way in which this information is gathered will be discussed in later section of this paper.

Output Information: To utilize the intending new system property readable output information that cannot be ignored. Since in the context of computer science, any algorithm, which does not produce any form of output, leaves much to be desired of its

purpose and correctfulness. In view of the output requirement, its adoptability and reliability will be discussed in later section of this paper.

Stock control: This study became inevitable in order to fully understand the various processes involved during stock take. It's discovered that stock take is done every day after closing hours, and entries are made in different files under different sections for each item.

TECHNIUCAL FEASIBILITY:

Here it is intended to examine the hard ware capability and the software availability if any. Leventis stock has only computers in their administrative departments at the main warehouse in Lagos but all their branches including Kano where I did my fact finding they only have a cash machine for the cashier. Where a customer will take his purchase and pay to the cashier, which will be given a receipt. These are considered sufficient for the current system in use but expose the deficiency of the system as uneconomical and involving a lot of overhead.

On the other hand a new system can operate effectively on a 386 machines of any make equipped with 160MB or even lower hard disk memory. DOS 6.0 OR WINDOWS 3.1 AND Dbase IV as the database language, a floppy disk drive for making backups and restoring files as well as installation processes. It should also include a dot matrix printer of any speed but with at least medium text quality.

Due to the fact that Leventis is a store and has branches across the nation, in future they might want to network their computers if installed, to have a centralized database for the whole Leventis organizations. The requirement of the equipment for networking is a server machine (that has network facility) with a large hard disk memory space, a Telephone line and a modern.

STRATEGIES FOR DETERMINING SYSTEM REQUIREMENTS:

There are two widely used strategies for determining system requirements. The data flow and decision-analysis strategy for understanding information systems for the purpose of this study, the data flow strategy will be used.

Data Flow Strategy:

Here emphasis is placed on data analysis. Four specified questions shall be considered.

What process makes up the system?

What data is used in each process?

What data is stored?

What data enters and leaves the system?

In the analysis of the current manual system at Leventis Stores Limited, facts were revealed. Based on this facts a new information retrieval system is proposed to better improve the data handling and present meaningful and concise information for the management for faster decision-making and better management information system.

The first level data flow diagram for the proposed new information retrieval system is shown in fig. 2.0.

Definition of Notations used in Data Flow Diagram:

Data Flow:

Data moves in a specific direction from one origin to a destination in the form of documents, and this figure is used to represent this operator.

ii. Processes:

The processes involved at cash stage of developing the system are represented using the following figure.

Data Store:

This is where data is stored and reformed by a process in the system. It may represent computer or non-computer devices represented as:

Source or Destination:

External Sources or Destination of Data, which may be people program organization or other entities interact with the system but are outside its boundary. They are represented by:

Each component in a flow diagram is labeled with a description name. Processes names are further identified with a number that will be used for identification purposes.

2.4 DESIGN OF A COMPUTERIZED SYSTEM:

With the system requirements at hand, this section particularly moves these requirements into their appropriate positions in the design process. It further deals with the element of design, processes of design sequences in which they may be carried out. Objectives of the design are also listed, the purpose of which is to serve as a means of communicating all that is required to be known to all interested parties.

2.4.1 OUTPUT DESIGN:

Determination of Output:

In the process of identifying and determining the system requirements, data to be input for processing can only be defined after establishing the output required from the system. For this proposed system to meet its status core, various reports must be produced.

The following output forms were designed to show at glance what report expected from the system.

Stock Status

2.4.1 OUTPUT DESIGN

DETERMINATION OF OUTPUT

In the process of identifying and determining the system requirements, data to be inputed for processing can be defined after establishing the output required from the system. For this proposed system to meet its status core, various reports must be produced.

The following output forms were designed to show at glance what report expected from the system.

Stock Status

Re-order Advice

Monthly report on items received

Monthly sales report

Detailed explanation on how these reports are generated at various stages of processing is available in chapter four (program documentation).

2.4.2 INPUT DESIGN

The requirement that all input and inquiries to be made via an interactive terminal display made it mandatory for a code defined display screen. This has to be facilitated by designing an input screen that will aid in instructing and directing users on where, how, when and what input with proper logical message guiding the movement of cursor and defined field size format which makes the appropriate data point. Input screen forms were designed and are shown in figures attached. The title and column heading are appropriately included.

Apart from input forms, multiple process design is also available to give users general information which he need and whenever input is to be made, the cursor automatically positions itself to such a point. The input screen can be seeing in appendix list figures.

recognizes three types of files, namely, Master file, Archival file, Transaction file.

Mater and Archival Files: These are the files into which information about the business activities are accumulated and also continue to exist. They are collection of records about the general items in stock. A master file record has a minimum life span of 1 year after which the records are expired and they are sent into an archival file on account of completed transaction. An archival file is a copy of master file on disks made for a long time storage of data that may be needed at much later time they can be kept away from the computer room for safety purpose depending on their importance.

Transaction Files: - These files serve two purposes. Accumulating data about daily transaction and update the master based file to reflect a current transactions, they are temporary, after the update they are no longer needed and are destroyed or erased automatically.

The system makes use of several files, all the modules uses files. The following are the list of database files to be used to implement the new system.

Master File

Order File

Sales File

Vendor File

Receipt File

Password File.

MASTER DBF

FIELD NAME	TYPE	SIZE	DESCRIPTION
STOCKNO	CHARACTER	6	Stock Number
STOCK NAME	CHARACTER	10	Stock name
SHELFLOC	CHARACTER	6	Stock Location
I QTY	NUMERIC	7	Initial quantity
P QTY	NUMERIC	7	Present quantity
R LEVEL	NUMERIC	3	Re-order level

S TYPE	CHARACTER	2	Stock type
ON ORDER	NUMERIC	7	on order quantity
S PRICE	NUMERIC	7	Stock price

ORDER DBF

ORDER NO	CHARACTER	6	Order Number
CUSTNO	CHARACTER	6	Customer No.
OR DATE	DATE	8	Order Date
DELI DATE	DATE	8	Delivery Date
P TERM	NUMERIC	2	Payment Term
OR AMOUNT	NUMERIC	9	Order Amount

SALES DBF

STOCKNO	CHARACTER	6	Stock Number
S PRICE	NUMERIC	6	Stock Price
SL QTY	NUMERIC	6	Quantity Sold
SL DATE	DATE	8	Date Sold

VENDOOR DBF

CUSTNO	CHARACTER	6	Customer No.
CUSTNAME	CHARACTER	20	Customer Name
ADDI	CHARACTER	20	Customer Address
ADD2	CHARACTER	20	Customer Address
PHONE	NUMERIC	7	Customer's Phone No.
R YEAR	CHARACTER	4	Registered Year

PASSWORD DBF

USERNAME	CHARACTER	15	Name of User
PASS WORD	CHARACTER	8	Password
AC LEVEL	CHARACTER	1	Access Level
LDATE	DATE	8	Last dates used.

CHAPTER THREE

PROGRAM DESCRIPTION AND DEVELOPMENT:

3.1 SYSTEM SPECIFICATION:

From the previous Chapters the design of the system was made. The project did not just stop there; it also requires that it put in usable form the computer can understand.

From the design, various programs were written to take care of the system activities. The flowchart of the system were drawn to show the logical flow of processing this program flow charts are shown in the appendix A (FIG.3.0 3.5).

3.2 DESCRIPTION OF EACH PROGRAM MODULE:

The various processing programs will be described here and totality of the programs will be seen in the appendix C.

Updating Module:

The program add, change/edit and deletes information on stock activities which includes sales, purchases, vendors by displaying information on the screen for viewing and modification. It also deletes records when necessary.

Reports Module:

This module is designed to take care of all outputs of the system. Based on the choice, it displays at screen or prints on file or printer. The format of the report layout is shown in appendix D.

Utility Module:

This program takes care of modification of password, backing up of files as well as restoring them.

About Module:

It is a program module that contains the summary report of the purpose of this work. The following are the modular structures of the system.

CHAPTER FOUR

4.0 IMPLEMENTATION, TESTING AND DEBUGGING:

4.1 PROGRAM IMPLEMENTATION:

With the system fully developed, necessary implementation strategies or procedures have to be performed before the new system is made useful. The process of putting the new system into use and the process of maintaining the system is what is referred to as implementation.

4.2 PROGRAM DEBUGGING AND TESTING:

Debugging refers to the process of executing a system on a file or artificial data set to detect any faulty result with the main aim of correcting them.

In this system development, the process of debugging took place in two phases:

i. Unit or module testing

ii. System testing.

Under the unit of module testing, each of the modules was debugged and tested on file and artificial data set to ensure that it works as required.

In the cases of system testing, the working capabilities of the communication or interactions between the modules were accessed.

The results of these tests was developed system which is believed to be free from errors be it syntax or logical and further equipped with error handling routine to help user decides the next action when a certain error during data processing occur.

SYSTEM SECURITY:

The system supports two levels security enforcement, an operated level and the level. The operator level restricts the user of some specified areas of the system while the user level allows only to viewing only some information and not any alteration to the files.

Backup:

This system provides a backup facility that allows files to be copied from the floppies in times of system crash.

Restore:

It also provides a restoring facility that files to be copied from the floppy into the system.

4.3 SYSTEM CONVERSION:

System Conversion is the process of changing from an old system to a new system. Various methods are used during conversion processes. This includes: Direct conversion where the new system completely replaces the old one directly. These systems do not offer security should the new one fails, phase-in conversion, on the other hand is a conversion done in phases. The parallel conversion method, which is suggested in this system, required conversion to be done in parallel with the old system. Reasons for this suggestion are

i. It offers greater security.
ii. We can fall back to the old system should there be any problem.
iii. It saves time when changing back to the old system since its still being used.

4.4 DOCUMENTATION:

USER GUIDE:

At the dot prompt type 'RIS' to start the system. The system will display a welcome message and then proceeds to ask for user name and password. It only allows three trials in attempt to after which it displays a warning message and logs off.

Data Processing:

After successful begin, there will be displayed depending on the type of user. If you are only a user (customer) it only displays stock status but if you are an operator, it allows you to process data, which includes updating, running report, password modification, backup and restoring files.

You select any menu by pressing 'ENTER' key when highlighted the main menu has submenu and are Manu driven to the core. You can exit the program by selecting the EXIT menu. This will allow you to quite either to dot prompt or Dos prompt depending of your choice of option.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION:

5.1 SUMMARY:

The objective of this Project is 'Retrieval information system' is to meet the demand for faster information retrieval, urgent production of license and reports. This was achieved by creating database files for data storage and writing programs to access these databases. The program can make available information within few seconds, which would otherwise have lasted for hours. The database can be updated by the program, which access the database to store information and also retrieves information. Some of the reports produced by the system are attached in appendix.

5.2 CONCLUSION:

This has been designed to take the advantage of the database characteristics of being able to store files and various programs, being able to refer file to these data files and also that for any particular program more than one data file and also that for any particular program more than one data file can be accessed and capture data for processing. It can be seen from the analysis of the system that there are still some other areas where

computers can be implored. Some areas like the accounting, complete inventory control. Hence further work is still open for any one who wishes to take up work on this area.

5.3 **RECOMMENDATION**:

From the study and findings on this system, it finds out that the advantages of the new system outnumbered the old system in the following areas:-

Storage is more accommodating.

Information retrieval is faster.

Omissions are minimized.

Manpower involvement is less.

It is cost effective.

Hence, it is recommended that the system be put into practice. It also recommends a parallel conversion should the need arise in changing part or whole of the system. The reasons for this suggestion are:-

i. It offers greater security.

ii. We can fall back to the old system should there be any problem.

iii. It saves time when changing back to the old system since its still being used.

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```
❖ MENUS PRG
❖ DESCRIPTION: PROGRAM MENUS
❖ PROGRAMMED BY:  WAHAB . N.A.
```

```
Procedure menus
Moss = .t.
Do while moss
Set colo to
Clea
Deactivate menu
PUBLIC  c  menu
IF ISCOLOR ()
C menu = 'GB+/w,B/n,W/G"
ELSE
STORE B/G/ TO c MENU
ENDIF
• SET STATUS OFF
• SCORBOARD OFF
SER COLOR TO  ,,,R/W+
SET COLOR OF NORMAL TO B+/g
Do title do mainmenu
Loop
Enddo .f.
Clear
Return

Procedure mainmenu
DEFINE MENU BAYMENU
        DEFINE PAD update OF barmenu PROMPT "UPDATE RECORDS" AT 7,1,
        MESSAGE "ADD, change, or Delete records of a specified database"
        DEFINE PAD point of barmenu PROMPT "PRINT REPORTS" AT 7, 20,
        MESSAGE  "Print Data To File, Screen Or Printer"
        DEFINE PAD utilities OF barmenu PROMPT "UTILITY" AT 7,38,
        MESSAGE "Password modification, Backup or restore database files"
        DEFINE PAD about OF barmenu PROMPT "ABOUT" AT 7,53,
        MESSAGE "About the software"
        DEFINE PAD exit OF barmenu PROMPT "EXIT" AT 7,67,
        MESSAGE "Exit to Dos or Dot Prompt,"
ON SELECTION PAD update of barmenu update
ON SELECTION PAD print OF barmenu Do menu reports
ON SELECTION PAD utilities OF barmenu Do menu utilities
ON SELECTING PAD about OF barmenu Do menu about & about
ON SELECTION PAD exit OF barmenu Do menu exit
ACTIVATE MENU barmenu

Procedure for update sub menu
PROCEDURE MENU update
DEFINE POPUP updates FROM 8,2 TO 13,20,
MESSAGE "PRESS first letter of menu choice, of highlight and press enter"
DEFINE BAR 1 OF updates prompt "ADD RECORD",
MESSAGE "Adds a record to the current database"
```

IF ISCOLOR ()

C MENU – 'GB+W, B/n, W/G'

ELSE

STORE B/G TO c-menu

ENDIF

*SET STATUS OFF

*SET SCOREBOARD OFF

SET COLOR TO,,,R/W+

SET COLOR OF NORMAL TO B+/g

Do title

Do main menu

Loop

Enddo .f.

Set colo to

Clear

Return

Procedure main menu

DEFINE MENU barmenu

DEFINE PAD update of bar menu PROMPT 'UPDATE RECORDS' AT 7, 17

MESSAGE 'Add change, or delete records of a specified database'

DEFINE PAD Print of barmenu PROMPT' PRINT REPORTS, AT 7,207

MESSAGE 'Print data to file, screen of printer'

DEFINE PAD utilities of barmenu prompt' UTILITY AT 7,387

MESSAGE 'Password modification, Backup or Restore Database files'

DEFINE PAD about of barmenu prompt' ABOUT' AT 7,337

MESSAGE ' about the software'

DEFINE PAD exit of barmenu prompt 'Exit' at 7,67,

MESSAGE 'Exit to Dos or Dot prompt'

ON SELECTION PAD update of barmenu Do menu update

ON SELECTION PAD Print of barmenu Do menu reports

ON SELECTION PAD Utilities of barmenu Do Manu utilities

ON SELECTION PAD about of barmenu Do menu about & about

ON SELECTION PAD Exit of barmenu do menu exit.

ACTIVATE MENU barmenu

Procedure for update sub menu

PROGRAMME menu update

DEFINE POPUB update from 8,2 TO 13,207

MESSAGE 'Press first letter of menu choice, on highlight and press enter'

DEFINE EAR 1 OF UPDATE PROMPT ADD RECORDS'

MESSAGE, 'Add a record to the current database.

DEFINE BAR 2 OF UPDATES PROMPT 'CHANGE RECORDS,

MESSAGE 'Change the contents of some fields in a records'

DEFINE BAR 3 OF updates prompt DELECTE RECORDS',

MESSAGE 'Delete an existing record that is no longer needed'

DEFINE BAR 4 OF UIPDATES PROMPT 'EXIT'.

MESSAGE 'Exit the updating submenu'

ON SELECTION POPUP updates Do updating

ACTIVATE POPUP UPDATES RETURN.

A Procedure for report sub menu

PROCEDURE Menu reports

DEFINE POPUP report from 8,21 To 16,42,

MESSAGE 'press first letter of menu choice or highlight and press enter

DEFINE BAR 1 of report prompt' Stock status',

MESSAGE "Prints specify stock status'

DEFINE BAR 2 of report PROMPT'ALES',

MESSAGE "Prints report on specify sales,

DEFINE BAR '3 of report PROMPT' RE ORDER ADVICE'.

MESSAGE 'Prints a stock i.e. order advice'

DEFINE BAR 4 of Report PROMPT' STOCK RECEIVER',

MESSAGE 'Prints report on stocks received'

DEFINE BAR 5 OF report prompt'

DEINE BAR OF 6 report PROMPT VIEW',

MESSAGE 'View specified files by blows

DEFINE BAR 7 OF report PROMPT VIEW

MESSAGE " print the sub menu

DEFINE BAR POPUP report Do reporting

ACTIVATE POPUP report

Return.

PROCEDURE reporting

Clear

DEFINE WINDOW access FROM 3,6 TO 20,60

DO CASE

CASE BAR () = 1

Do rpts &&with status

Case bar ()= 2

Do rpts &&with sales

Case bar () = 3

Do rpts &&with advice

Case bar () = 4

Do rpts &&with receive

Case bar () = 7

Return to menus

End ease

Return

ACTIVATE WINDOW access

SKIP 1

BROWSW

**DEACTICVATE WINDOW access

** CASE BAR () – 2

** Do pre rec with – 1

** CASE BAR () = 3

** USE DAT

** ACTIVATE WINDOW access

** BROWSE

** GO TOP

** DEACTIVATE WINDOW access

** CASE BAR () = 4

** USE DAT

** ACTIVATE WINDOW access

** GO BOTTOM

** BROWSE

*** DEACTIVATE WINDOW access

** CASE BAR () = 5

DO SKIP

** CASE BAR () = 6

** Do find rec

** CASE BAR () =7

** Do exit

** ENDCASE

** RETURN

*SUB MENU FOR THE UTILITY PROGRAM

PROCEDURE menu utilities

DEFINE POPUP utility from 8,39 To 13,63,

MESSAGE "Press first letter of menu choice, or highlight and press enter'

DEFINE BAR 1 OF utility PROMPOT' PASSWORD MODIFICATION;.

MESSAGE "Add, change and delete password'

Define Bar 2 of utility PROMPT' BACKUP DATA FILES',

MESSAGE 'Makes copies of the databases'

DEFINE BAR 3of utility PROMPT' RESTORES DATA MILES',

MESSAFE "COPIES database from a floppy to C:'

DEFINE BAR 4 OF utility PROMPT' EXIT',

MESSAGE "exit this submenu'

ON SELECTION POPUP utility Do utilize

```
ACTIVATE POPUP utility
Return
PROCEDURE Utilize
DO CASE
CASE BAR () = 1
  Do utilize &&list recs
CASE BAR () = 2
Do utili &&print recs
CASE BAR () – 3
  Do utili
CASE BAR () = 4
  Do exit
ENDCASE
RETURN
Procedure exit
Close database
Set colo to
Clea
Return to menus
*This procedures activities about submenu
PROCEDURE menu about
DEFINE POPUP about from 8,54 To 11,70,
MESSAGE 'Press first letter of menu choice or highlight and press enter'
DEFINE BAR 1 OF about PROMPTA' The software'.
MESSAGE "Details about this software
```

DEFINE BAR 2 OF about PROMPT EXIT',

MESSAGE "Exit this submenu'

ON SELECTION POPUP about Do summary

ACTIVATER POPUP ABOUT

Return

PROCEDURE summary

Do Case

CASE BAR () = 1

Do about &&with count

CASE BAR () = 2

Do exit && Ind

CASE BAR () – 3

Do exit

ENDCASE

Deactivate popup

Clear

Do men

Return

PROCEDURE menu exit

*The exit pull down menu

Define popup exit from 8,58 to 11,79

Define bar 1 of exit prompt' quit to DOS;,

Message "Ends Database session'

Define bar 2 of exit prompt "Exit to dot prompt'.

Message 'Exit current system to dot prompt'

On selection popup exit do exit call

Activate popup exit

Return

Procedure exit call

Do case

Case databases

Quit

Case bar 90 =2

Close databases

Quit

Case bar () =2

Moss .f.

DEACTIVATE MENU

CLOSE ALL

Set Clock off

Set colo to

Clear all

Return

End case

Return

****

* MENU FOR ITEMS RECEIVED

****

Procedure for report sub menu

PROCEDURE a status

DEFINE POPUP status from 8,21 To 15,42,

MESSAGE 'Press first letter of menu choice or highlight and press enter'

DEFINE BAR 1 of report PROMPT' STOCK STATUS'.

MESSAGE 'Prints specify stock status

MESSAGE "Prints report on specify sales',

DEFINE BAR 3 of report prompt' Re order advice',

MESSAGE 'Prints a stock reorder advice'

DEFINE BAR 4 of report prompt' stock received'.

MESSAGE "Prints report on stocks received'

DEFINE BAR 5 of report PROMPT'----------'SKIP

DEFINE BAR 6 of report PROMPT' VIEW',

MESSAGE View specified files by browsing records'.

DEFINE BAR 7 of report PROMPT' EXIT',

MESSAGE Exit the submenu

ON SELECTION POPUP report Do acc'

ACTIVATE POPUP report'

Return

Procedure title

*Draw lines and boxes for menu with colors for effect

@ U,2 say cdow(date())+' "+)trim(str(date()))+' 1cmonth(dated)),

'+1trim(sti (year (date () colo rgt/w

@ u,61 say Time: colo w+/1

Set clock to 0,69

@

```
Return

PROCEDURE UPS

SET C OLO TO

CLEAR

SET TALK OFF

SET BELL ON

SET STATUS OFF

SET ESCAPE ON

SET DELE ON

SET SCOREBOARD OFF

SET CURS OFF

USE PASSWORD

DO WILLE .T.

SET COLOUR TO RG+

@ 3,15 TO 19,70 DOUBLE

SET COLOR TO R/W

@ 3,35 SAY' '+ CAS +"RECORD ON' Color w*/r*

Set colo to w/b1

@ 6,30 Say' SALES '

@ 8,30 SAY' STOCKS '

@ 10,30 SAY' SUPPLIES '

@ 12,30 SAY' ORDERS '

@ 14,30 SAY' VENDORS '

@ 16,30 SAY' QUIT '

SET COLOR TO W/G+
```

@ 06,52 SAY' 1'

@ 08, 52 SAY' 2'

@ 10,52 SAY' 3'

@ 12,52 SAY' 4

@ 14,52 SAY' 5

@ 16,52 SAY' Q

SET COLOR TO

@ 20,1

SET COLOR TO W/B+

WAIT' SELECT HIGHLIGHT?

TO ACTION

SET COLOR TO

CLEAR

SET CURS ON

STORE ' ' TO ERRMSG

DO CASE

CASE ACTION – '1'. And. CAS – 'ADD'

Do adding

Case action – '1'. AND. CAS – CHANGE'

Do edits

CASE ACTION – '1'. AND. CAS = 'DELETE'

Do deletes

Case action = '2'. AND. = 'ADD'

Do adding

CASE ACTION = '2'. AND. CAS = 'CHANGE'

Do edits

CASE ACTION =. AND. CAS = 'DELETE'

Do deletes

CASE ACTION = '3'. AND. CAS = 'ADD'

Do adding

CASE ACTION = '3'. AND. CAS = 'CHANGE'

Do edits

CASE ACTION = '3'. AND. CAS =; DELETE'

Do deletes

CASE ACTION = '4'. AND. CAS = 'CHANGE'

Do edits

CASE ACTION = '4'. AND. CAS = 'DELETE'

Do deletes

CASE ACTION = '5'. AND. CAS = 'ADD'

Do adding

CASE ACTION = '5'. AND. CAS = 'CHANGE'

Do edits

CASE ACTION = '5'. AND. CAS = 'DELETE'

Do deletes

CASE UPPER 9ACTION0 = 'Q'

SET CURE ON

Clear

RETURN TO MENUS

Exit

*Replace last login with date ()

*Quit

*End case

OTHERWISE

SET COLO TO R/N

STORE 'INVALID! RE-ENTER, OR PRESS < Q > TO EXIT'' TO ERRMSG

? CHR (7)

@24,`15 SAY ERRMSG

End case

Enddo

SET COLO TO

SET CURE ON

RETURN TO MENUS

****

UPDATING PROGRAM

****

Procedure adding

Clear

Do gets

Procedure gets

Store spare (20) to addrl, addr2

Store space (10) to sname, sho, supname, states, cusname

Store space (6) to rlevel

Store space (5) to Unum, suonm, bilno

Store space (7) to ph, sqty, oqty, slqty, locathm ond, iqty, pqty

Store ctod ("/ /") to sldate, sdate, odate, ddate

```
Store space (4) to lyl, me, tot
Store space (2) to stype, pterm
Store U to sprice, tprice
Store ' ' to opt
Store space (1) to optn, ns, cho
'@ 2, 5 say "enter option" get optn
'lead
'Return
Do case
Case action = '1'
Do sales add
Case action = '2'
Use master
Do mas add
Case action = '3'
Use receipt
Do receipt add
Case action = '4'
Use orders
Do order add
Case action = '5'
Use vendor
Do ven add
End case
Set colo to
```

Clear

'Return

Procedure mass add

@ 2, 10 say 'ENTRY FORM FOR A NEW STOCK' COLO R'

Looping = .t.

Do while looping

Set colo to g

@ 3,1 to 20,45 double

Set colo to

@ 4,7 say "stock number' get sno pict '@!,

@ 6,7 say 'Stock name" get sname pict '@!,

@ 6,30 say "Stock type get stype pict '@!,

@ 8,7 say "stock location" get location Pict '@!'

@ 10,7 say "Quantity" get iqty Pict '@!'

@ 12,7 say "Re-order level" get rlevel Pict '@!'

@ 14,7 say "On order" get ond pict '@!'

@ 16,7 say "Stock price" get price pict '99999.99'

'read

Do sscr

Clear, gets

Enddo

*Return

Procedure ven add

@ 2, 10 say 'ENTRY FORM FOR VENDORS' colo r*

Looping = .t.

Do while looping

Set colo to g

@ 3,1` to 20,48 doubl

Set colo to

@ 4,7 say "Customer number" get cusno piuct '@!'

@ 6,7 say "Customer name" get cusname Pict '@!'

@ 8,7 say "Address 1" get addrl Pict '@!'

@ 10, 7 say "Address 2" get addr2 Pict '@!'

@ 12, 7 say "State" get states Pict '@!'

@ 12,25 say "Phone number" get ph pict '@!'

@ 14,7 say "Registration year" get ryr Pict '@!'

Read

Do sscr

Enddo

*Return .

Procedure receipt add

@ 2, 10 say 'ENTRY FORM FOR ITEM RECEIVED' Colo r*

Looping = .t.

Do while looping

Set colo to g

@ 3,1 to 20,45 double

Set colo to

@ 4,7 say "Customer number" get cusno pict '@!;

@ 4,25 say "Order number" get onum Pict '@!'

@ 6,7 say, "Stock number" get sno Pict '@!'

@ 8,7 say "Stock name" get sname Pict '@!'

@ 10,7 say "Supplier name" get supnm Pict '@!'

@ 12,7 say "Bill number" get bilno Pict '@!'

@ 14,7 say "Supplied quantity" get sqty Pict '@!'

@ 16,7 say "Supply date" get sdate Pict '@!'

Read

Do sscr

Enddo

*Return

Procedure sales add

@ 2,10 say 'ENTRY FORM FOR DAILY SALES' Colo R*

Looping = .t.

Do while looping

Set colo to g

@ 3, 1 to 15,45 double

set colo to

Store 0 to sprice

Sprice = s price

@ 4,7 say, "Stock number" get sname pict '@!'

@ 7,7 say "Quantity sold" get slqty Pict '@!'

@ 13,7 say "Date of sales" get sdate Pict '@!'

Read

Do sscr

Enddo

```
*return

Procedure order add

@ 2,10 say 'ENTRY FORM FOR ITEM RECEIVED' colo r*

Looping = .t.

Do while looping

Set colo to g

@ 3,1 to 20,45 double

Set colo to

@ 4,7 say "Order number" get onum Pict '@!'

@ 6,7 say "Customer number" get sno Pict '@!'

@ 8,7 say "Order date" get odate Pict '@!'

@ 10,7 say "Delivery date" get ddate Pict '@!'

@ 12,7 say "Payment term" get pterm Pict '@!'

@14,7 say "Order amount" get oqty Pict '@!'

read

do sscr

enddo

*return

Procedure sscr

@19,10 say "SAVE<S>, REPEAT<R>, EXIT<X>," get ns pict '@!' color r

read

do case

Case uppel (ns) = upper ('s')

Do saving

Looping = .f.

Case upper (ns) = 'R'

Clear gets
```

```
Clea
Do gets
Return
Case upper (ns) = 'X'
Close databases
Clear
Looping = .f.
End case
@ 20,10 to 24,75 double
@ 22,23 say "Do you want to add more records (Y/N)" get cho pict '@!'
read
if upper (cho) = 'n'
close databases
Set colo to
Clear
Return
*Exit
Else
If upper (cho) = 'Y'
Set colo to
Clear
Looping = .t.
Endif
Endif
Enddo
Return
Procedure saving
```

```
Do case
Case action = '1'
Do save sales
Case action = '2'
Do save mas
Case action = '3'
Do save recpt
Case action = '4'
Do save order
Case action = '5'
Do save ven
End case
Return
Procedure sav mas
Clear
@ 1,3 say "Wait.... saving"
*Use bas lit
Append blank
Replace stock no with sno, stock name with sname, shefloc with locate
Replace I qty with iqty, p qty with (iqty-slqty), r level with rlevel
Replace s type with stype, on order with ond, s price with sprice
Close all
Set colo to clear
return
Procedure sav ven
Clear
@ 1,3 say "Wait...saving"
```

Append blank

Replace custno with cusno, custname with cusname, addl with addrl, add2 with addr2

Replace state with states, phone with ph, r year with ryr

Close all

Set color to

Clear

Return

Procedure sav recpt

Clear

@ 1,3 say "Wait.... saving"

Use receipt

Append blank

Replace custno with cusno, orderno with onum, stock no with sno, stock name with sname

Replace sup name with supnm, bilno with bilno,s-qty with sqty,s-date with sdate

Close all

Set colo to

Clear

Return

Procedure sav-sales

Clear

@1,3 say "Wait.... saving"

Use sales

do while .not. Eot ()

Locate for stock no = sno

If .not. Found ()

Set colo to

Clear

@ 2,4 say "Such stock does not exist"

Return

Else

Append blank

Replace stock no with sno, sl qty with sqty,s price with s price

Replace t price (sprice slqty), sl date with sldate

Close all

Endif

Enddo

Set colo to clear return

Set colo to

Clear

Return

Procedure sav order

Clear

@ 1,3 say "Wait.... saving"

Use orders

Locate for orderno = onum. And. custno = cusno

If .hot. Found ()

Set colo to

Clear

@ 2,4 say "Such customer does not exist"

@ 4,4 say "Wish to add new customer Y/n?" get opt pict '@!'

If upper (opt) = 'N'

Set colo to

Clear

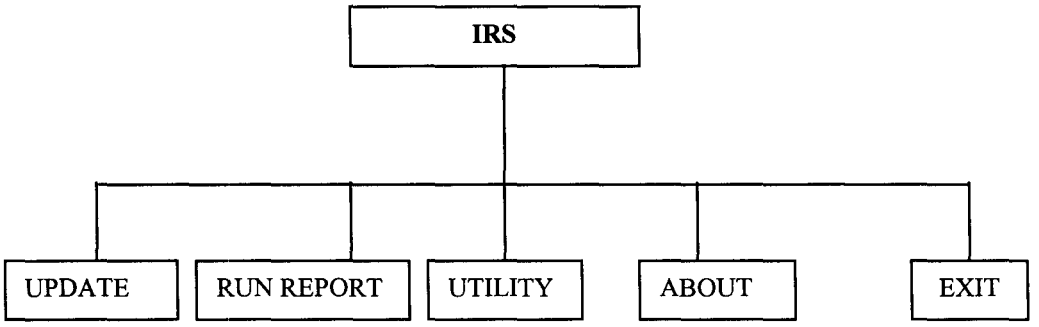


FIG. 4.1 MODULAR STRUCTURE OF THE WHOLE PROGRAMME

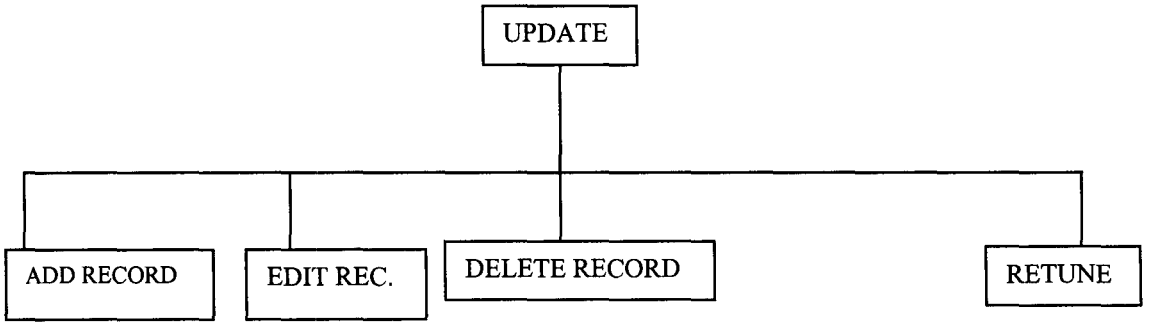


FIG. 4.2 MODULAR STRUCTURE OF UPDATE MODULE.

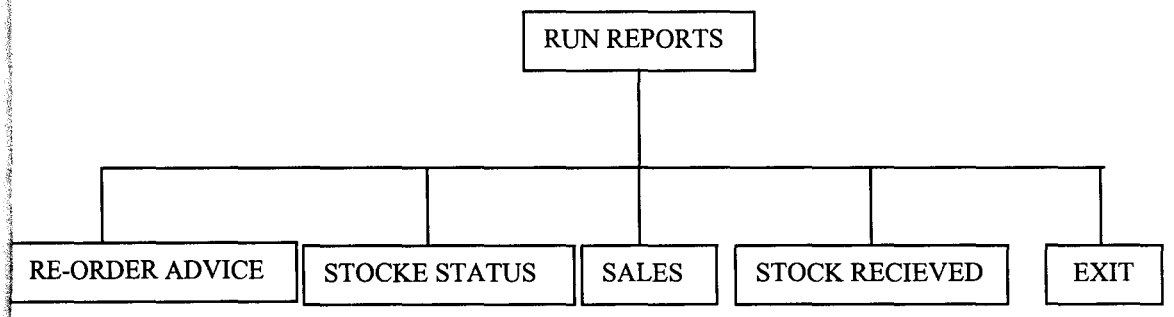


FIG. 4.3 MODULAR STRUCTURE OF REPORTS MODULE.

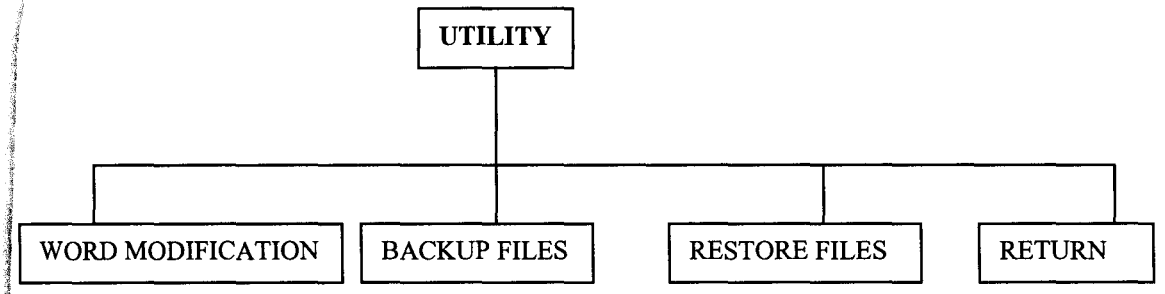


FIG. 4.4 MODULAR PROGRAMME STRUCTURE FOR UTILITY.

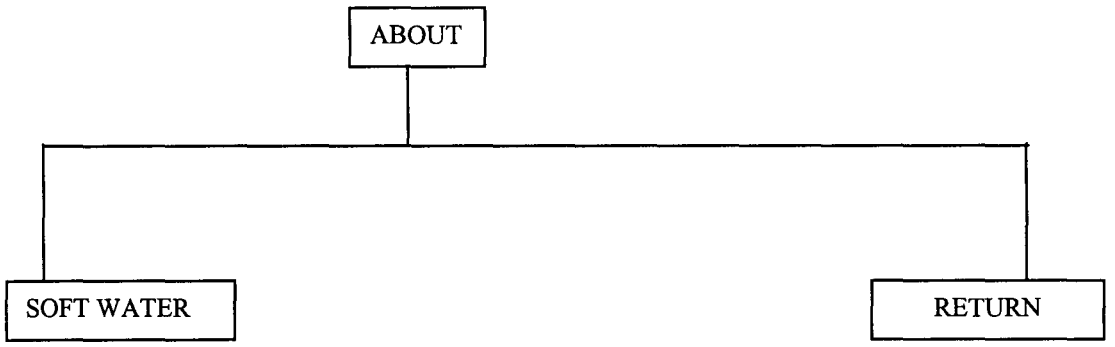


FIG. 4.5 MODULAR STRUCTURE OF ABOUT MODULE.

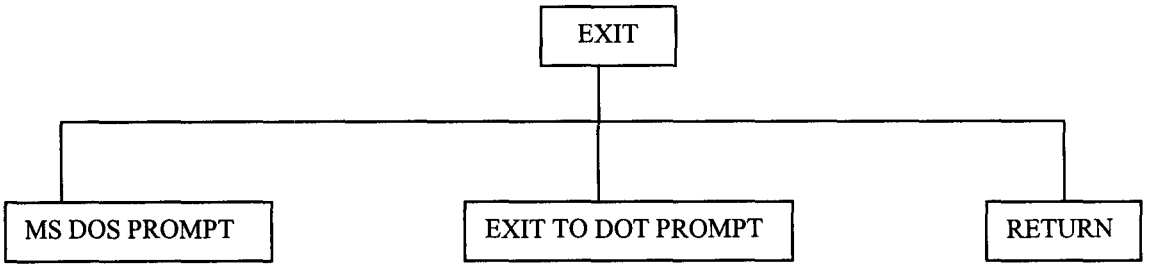
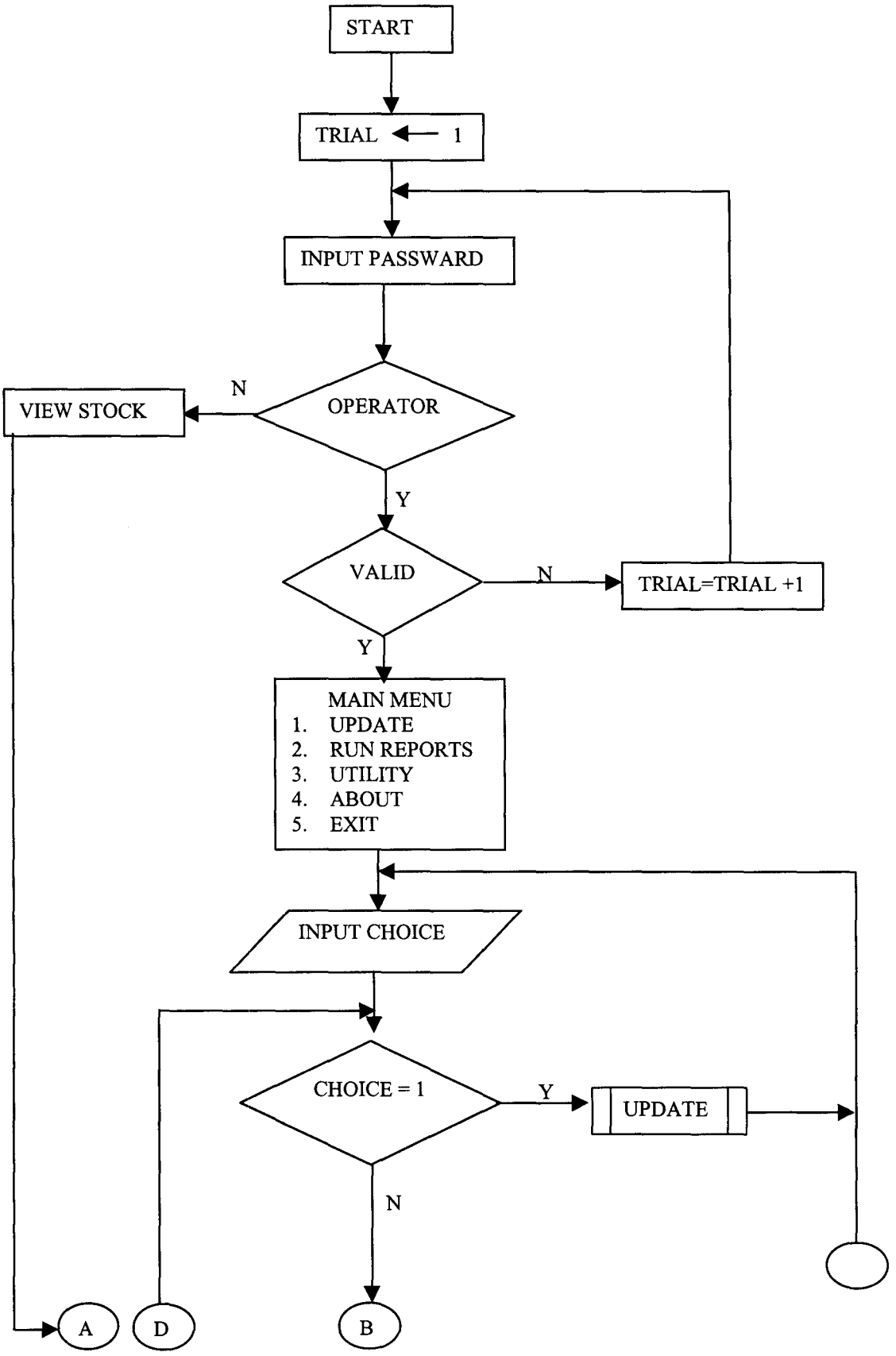


FIG. 4.6 MODULAR PROGRAMME STRUCTURE FOR EXIT.


START
TRIAL ← 1
INPUT PASSWARD
OPERATOR
N
VIEW STOCK
Y
VALID
N
TRIAL=TRIAL +1
Y
MAIN MENU
1. UPDATE
2. RUN REPORTS
3. UTILITY
4. ABOUT
5. EXIT
INPUT CHOICE
CHOICE = 1
Y
UPDATE
N
A
D
B

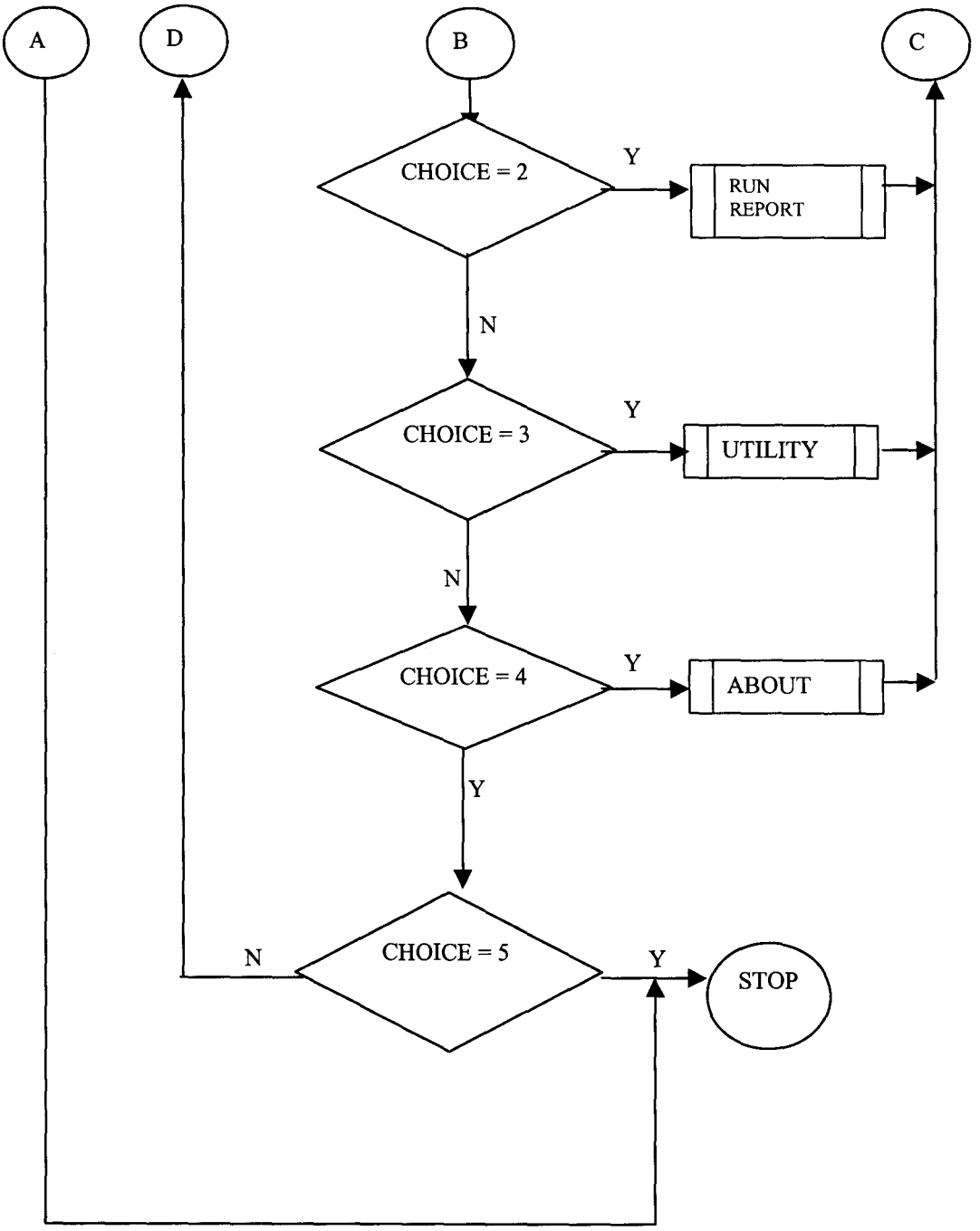


FIG. 3.0 MAIN PROGRAM FLOW CHART

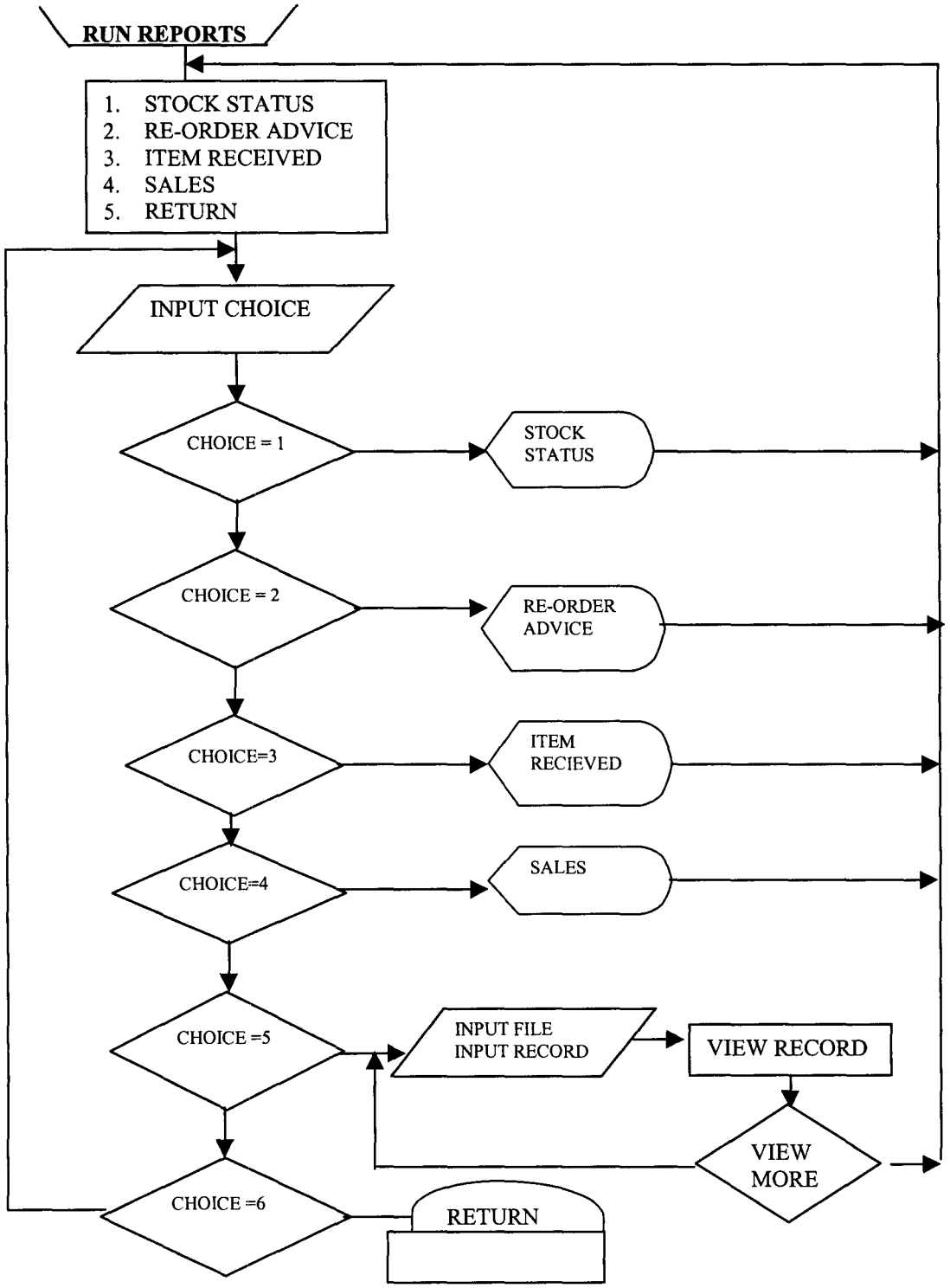


FIG. 3.2 RUN REPORT FLOW CHART.

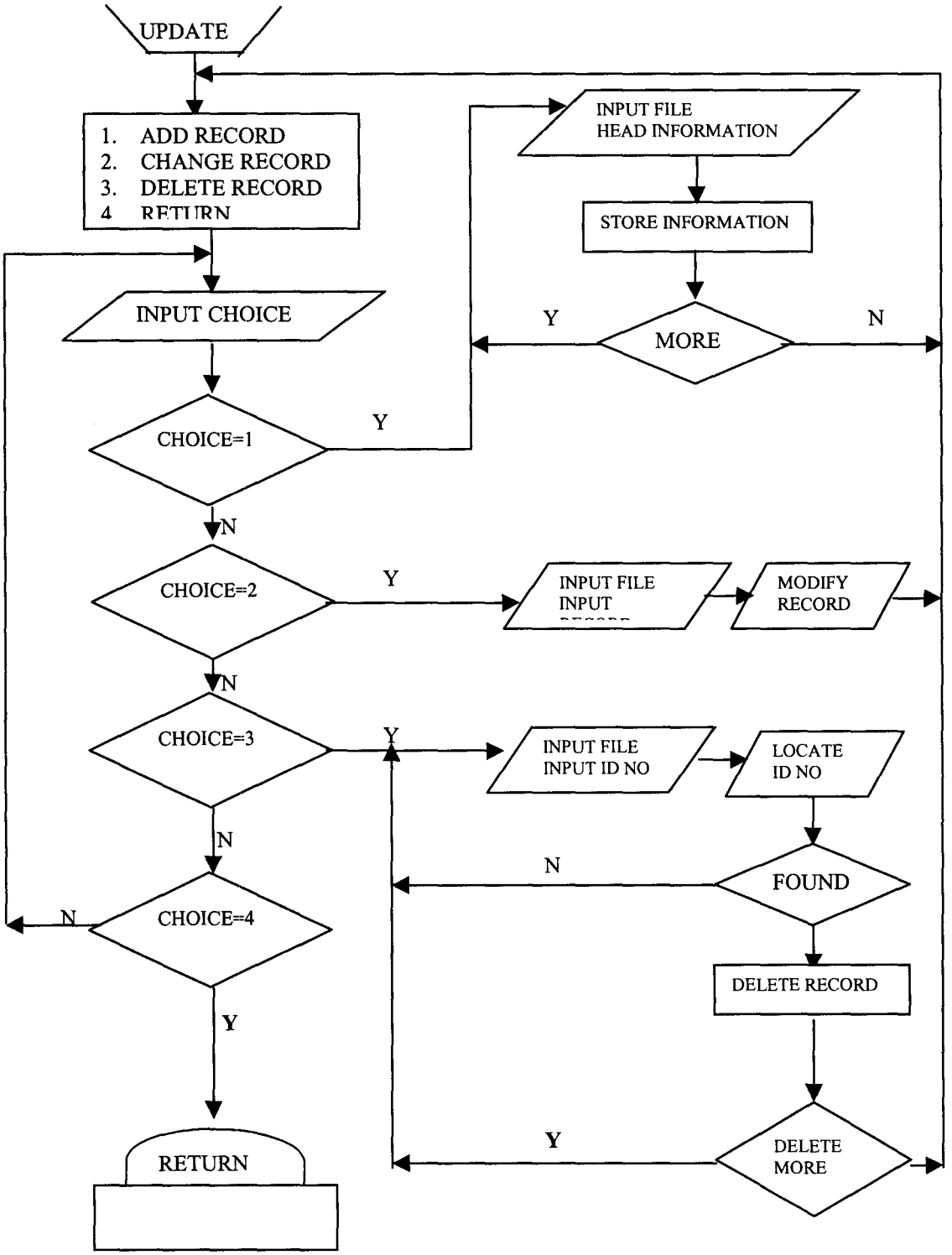


FIG.3.13 UPDATE FLOW CHART

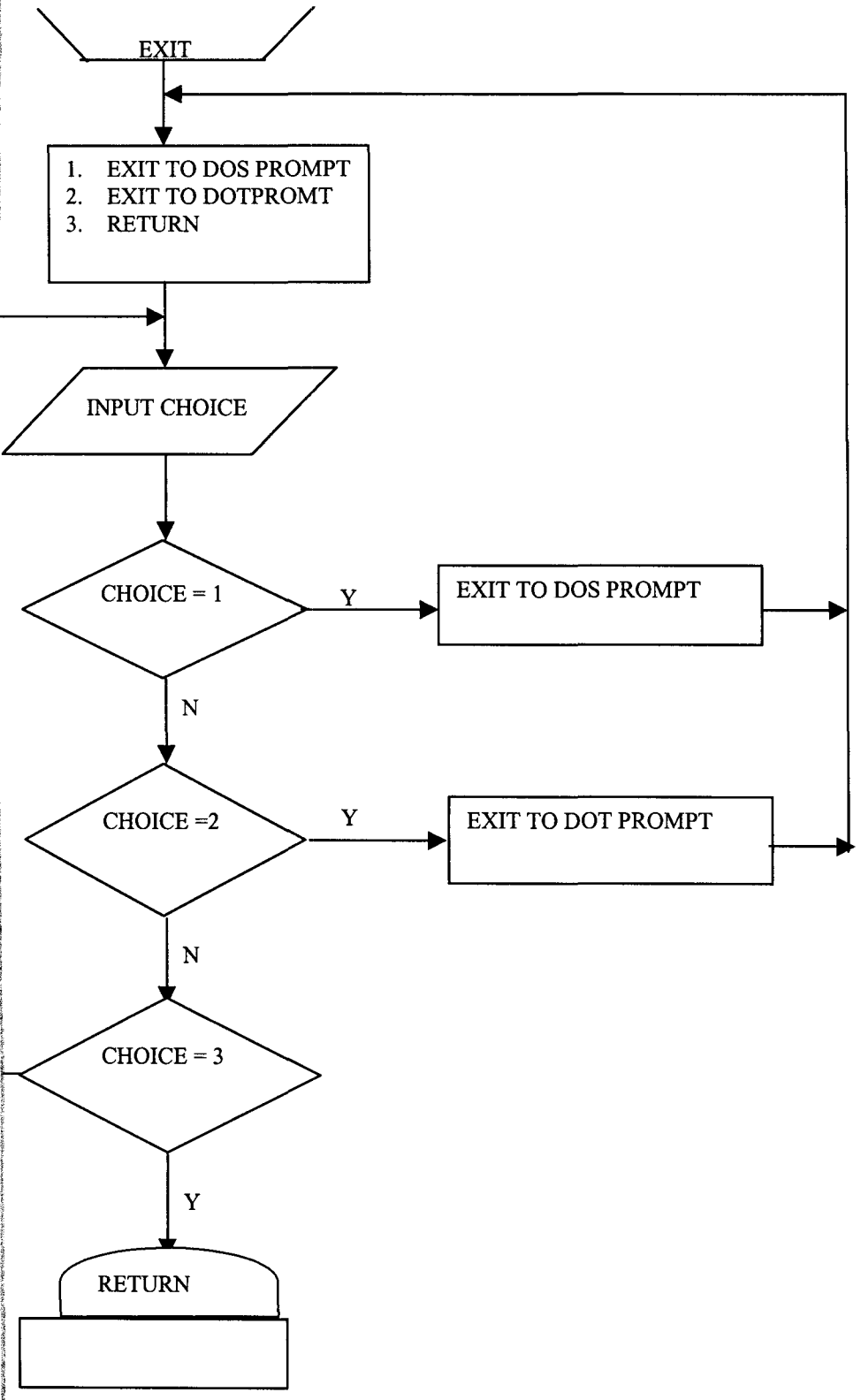


FIG. 3.4 EXIT FLOW CHART

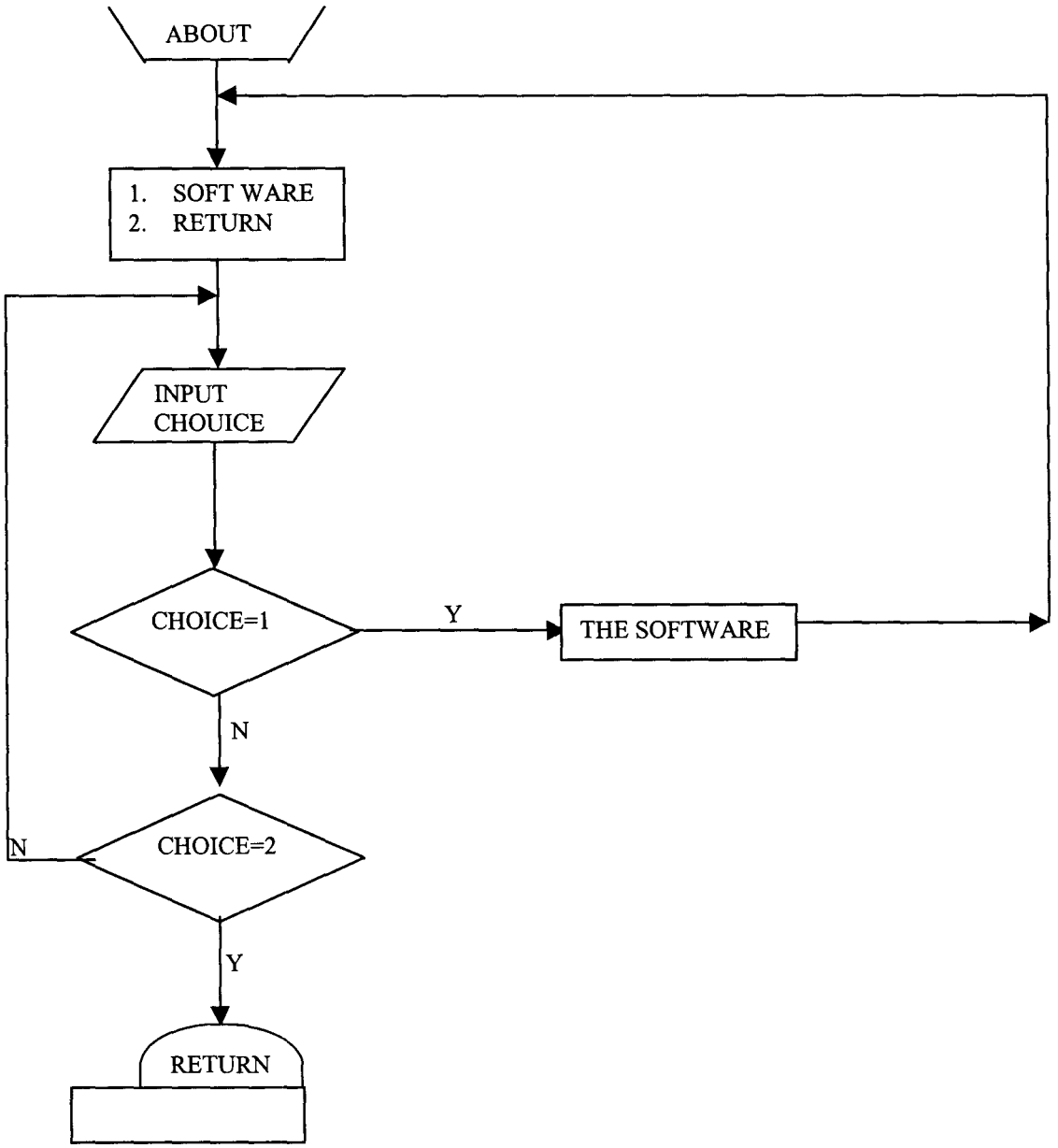
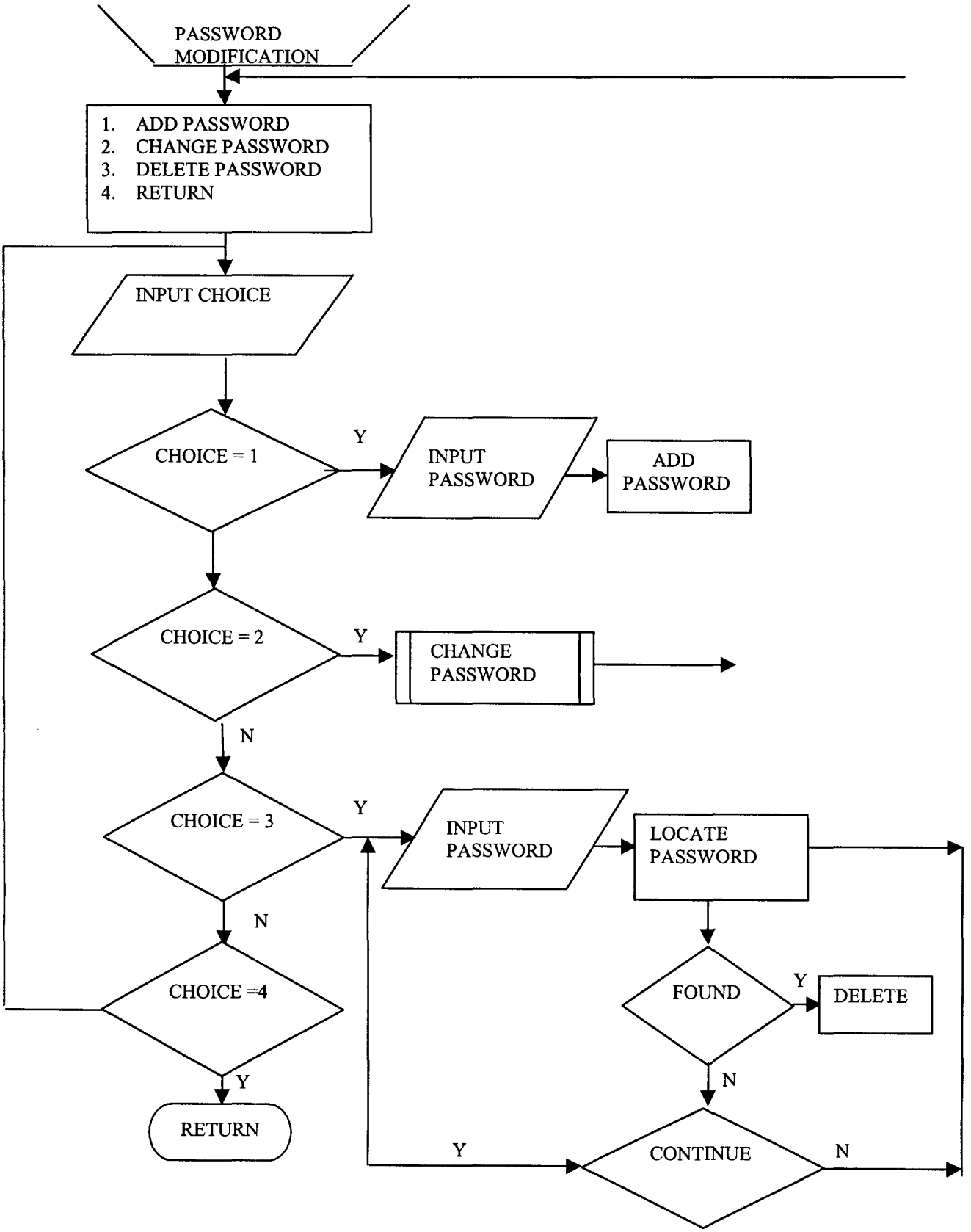


FIG.3.5 PROGRAME FLOW CHART OF ABOUT.


PASSWORD MODIFICATION
1. ADD PASSWORD
2. CHANGE PASSWORD
3. DELETE PASSWORD
4. RETURN
INPUT CHOICE
CHOICE = 1
Y
INPUT PASSWORD
ADD PASSWORD
CHOICE = 2
Y
CHANGE PASSWORD
N
CHOICE = 3
Y
INPUT PASSWORD
LOCATE PASSWORD
N
CHOICE =4
FOUND
Y
DELETE
N
Y
RETURN
Y
CONTINUE
N