

COMPUTERIZATION OF A STOCKBROKING LEDGER

(A CASE STUDY OF EXPRESS PORTFOLIO SERVICE LTD KADUNA)

BY

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APPROVAL PAGE

This project has been read through and approved as meeting the requirement of the department of Mathematics and Computer science, for the award of post graduate diploma in computer science of the Federal university of Technology, Minna.

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DEDICATION

This work is dedicated to God almighty and my "earthly lord" Mr Solomon Boro.

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ABSTRACT

Stockbroking ledger in a Stockbroking Company contains all information and business transactions carried out on behalf of their prospective Clients.

The collapse of the Money Market (short term investment) in 1993/94 has led to a shift from Money Market Investment to Capital Market Investment (long term investment). Hence, the need for proper storage and documentation of information in respect of the clients of stockbroking Companies and transactions done on their behalf. Therefore, considering the importance of information to a stockbroking Company, there is the need for conversion from the manual mode of operation to computerization which provides faster, effective, accurate and reliable information.

The aim of this project which is computerization of the stockbroking ledger, A case study of Express Portfolio Services Limited, is to design a software which will bring a change in the present mode of operation to computerized system of operation. The project also dealt with the various categories of shares, the origin, development and function of the supervisory and monitoring organs of the capital market i.e. Nigeria stock exchange commission and securities and exchange commission. The software designed if implemented by stockbroking Companies will help in achieving a reliable, accurate and faster response on producing comprehensive information, updating portfolio and determining current value of clients' investment instantaneously on demand and enhance quick decision making.

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CHAPTER ONE

1.1 INTRODUCTION

Computer revolution has been in an increasing momentum for more than a quarter of a century. The growing presence of Computer has helped to broaden the potential of human being and also makes the power of infinite intelligence available, hence its area of application has become unlimited. It is now used as an aid in almost every human endeavour and there is still the prospect that its usage will continue to grow.

Computer, according to Ayo in his book titled Computer Literacy (1994) "It is an electronic device which accepts and processes data by following a set of instructions (Program) to produce an accurate and efficient result (information)". It is also defined as a machine which accepts data from an input device, perform arithmetics and logical operation in accordance with a pre-defined program and finally transfer the processed data to an output device either for further processing or store it in its storage medium as may be required by the operator.

Therefore from the above definition the significance of Computerization (i.e conversion of manual mode of operation to computer) of stockbroking ledger to a stockbroking firm cannot be over emphasised.

1.2 SIGNIFICANCE OF COMPUTERIZATION

The ultimate aim of a Computerization is to produce needed information, hence its value lie solely on its high speed, ability to store large amount of data, the unfailing accuracy and precision, this account for its supremacy over manual Computation.

Computerization of the stockbroking ledger has the following merits over the manual operation:

1. It increases the speed of operation
2. Operations are systematically carried out with little manual assistance.

3. It checks and reduce errors (if any) to its bearest limit.
4. It helps in generating report within short time
5. It eliminates many of the repetitive tasks of filling and book keeping.
6. It makes data update easy and automatic.
7. It performs all the mathematical computation.

1.3 BRIEF HISTORY AND SERVICES OF EXPRESS PORTFOLIO SERVICES LIMITED

Express Portfolio Services Limited was incorporated as a stockbroking firm in 1996. It is a registered member of The Nigerian Stock Exchange with its head office at NIDB House Kaduna and a branch at Lagos. It is a licenced stockbroking firm authorised to buy and sell shares on behalf of their Clients on The Nigerian Stock Exchange trading floor. It acts as a broker to any Company wishing to source money from the Capital Market. The Company also renders portfolio management services and offers investment advisory services to a prospective investors.

1.4 STOCKS AND BONDS

Stocks is the Capital of a Business. It originally means the merchandise a merchant carried in his store, hence it is the merchandise the Company sells, the money invested in the Company and all the Company's assets. To own a share of stock, therefore is to own a share of a Business, that is being part of the owner of a company.

BONDS: A bond represents the money an investor has lent to a business or to a government. It is an I.O.U or promissory note, stating that the money lent will be repaid with interest at a stipulated time.

1.5 CLASSES OF SHARES (Categories of shareholders)

A Company seeking funds from the Capital Market is not bound to issue all its shares with the same rights, hence it may confer different rights on its shareholders. These rights are usually spelt out in the Company's Memorandum and Articles of Association. According to Ibitoye, A Company can use many types of shares to raise its Capital. The name by which a class of share is called gives only an indication of the rights attached to it in any particular Company.

The most common types are Ordinary shares (Equity) Preference shares (preferred stock) and Debentures stocks.

(A) ORDINARY SHARES (EQUITY)

Ordinary shareholders are the owners of the Company who carry the residual risk of the Company. An ordinary share bears no fixed interest, since it exists during the entire life of the Company until the holder decides to sell or the Company goes into liquidation. In case of liquidation he gets nothing until the creditors and other classes of preference shareholders have been fully paid when the Company makes profit, he is paid dividend after satisfying all prior claims.

(B) PREFERENCE SHARES

These are issues usually authorised by the memorandum or the articles of association and which are entitled to some priorities over other shares in the Company. They enjoy certain preference relative to ordinary shareholders. They usually carry a right to preference in the payment of dividend at a fixed rate. If the Company cannot make profits, their dividends may be carried over to the next year except otherwise stipulated in the issue term. Such preference share with carry over dividend right is called cumulative preference shares.

Another class of preference share is the convertible preference share. This means that the holder of the shares may convert them to ordinary shares on a given date at a predetermined price. This carries the right of preference in the repayment of Capital in the event of winding up. It is a safer investment but may not benefit from the surplus profits of the Company. The holders are regarded as temporary members of the Company whose rights are limited by preference they enjoy.

(C) DEBENTURE STOCKS

It is a long term promissory note given by Company under seal. Debentures are loans in which the Borrowed promises to pay on designated dates at a specified percentage of interest rate with the principal at maturity.

The term "Debenture" is usually used to refer to borrowings without collaterals. Such borrowings are usually based on the general credit worthiness of the issuing Company.

1.6 WHO IS A SHAREHOLDER

Registered Companies are classified as public or private Companies. The division into public or private is based on economic criteria, that is a minimum Capital requirement. The Companies act envisages that public Companies are those which intend to seek finance from the investing public while private Companies are forbidden from raising Capital in that way.

Share, according to Company law is the interest of a shareholder in the Company measured by a sum of money for the purpose of liability and of interest, also consisting of covenants entered into by all the shareholders. Share is measured by a sum of a money, namely the nominal amount of the share and also by rights and obligations belonging to it as defined by the Companies acts, memorandum and articles of the Company.

A shareholder therefore, is one who accepts the invitation of a Company by subscribing to its memorandum and articles of association through payment for the shares directly from the Company or purchased from an existing member or succeed to share on the death or bankruptcy of a member and whose name is registered on the register of the Company share members. Such rights ceases to exist when the person sells off or transfers his holding to another person.

1.7 HOW TO BECOME A SHAREHOLDER

Investment in Capital Market is one of the fertile areas yet to be tapped by most Nigerians. Investment in shares could be done through two main ways: Primary issue and secondary market.

(A) PRIMARY ISSUES:

This is the issuing of new securities and large scale of shares already held by a party. The shares are usually advertised to the public to subscribe for it directly or indirectly. There are standard forms for all application which is completed by the issuing house stating the securities for which the application is being made and how it propose to issue the securities.

The application comes in a package with copies of the articles and memorandum of association of the Company and a trust deed if it is a loan. The application normally includes comprehensive information about the Company such as the history and business of the Company, Board of directors, Capital structure since incorporated, shareholding positions, proposed issue, purpose of the issue, method of the issue, financial summary projection, parties to the issues, minimum units to be subscribed for, price per unit of share, column for your identities. Therefore, to apply you collect the application form usually available in banks and stockbroking firms, fill in your particulars and pay the amount for the units applied for to the stockbroking firm who then sends it to the issuing house for processing. Primary issues could be offer for subscription, offer for sale or private placement depending on the source or the Company.

(B) SECONDARY MARKET

This is exclusively the market for trading existing securities already issued by the Company and held by an investor. The primary issues are accessed only occasionally by a Company while the securities of a Company once listed in an organised stock market are available for sale and acquisition on a daily basis. The place where the daily buying and selling is done is called "The Nigerian Stock Exchange Trading Floor" which is not accessible by all interested investors. Hence the need for a Stockbroker, that is one who is certified to trade on the floor on behalf of his Clients. Therefore investment through this market involves you looking for a Stockbroker who will give you all the requirements and when fulfilled then goes to the trading floor and transact the agreed deal on your behalf.

CHAPTER TWO

LITERATURE REVIEW

Capital market operations involve various types of institutions such as Stock Exchange, Issuing Houses, Stockbrokers, Company Registrars, Share distribution Agents, Underwriters and Institutional Investors. Each of these Institutions plays one role or the other in the Capital formation or transferring funds. Hence the needs for supervisory and monitoring organs so as to prevent shoddy deals on the part of those involved in the process. These organs are The Nigerian Stock Exchange and Securities and Exchange Commission.

2.1 THE ORIGIN OF STOCK EXCHANGE

Stock Exchange is a place where securities of varying types are traded openly and where one can purchase or sell any of such securities easily. Securities are documentary evidence of ownership or entitlement claim upon the assets of the issuing organisation which may be a Business Firm, Government or quasi - Government institution. These documentary evidence usually have no fixed price but one traded on the stock exchange at prices which are influenced by demand and supply and other factors.

Stock exchange is strictly a market for existing, rather than new securities. It is a place where the enormous Capital which is required to operate the huge industrial and commercial corporations of today can be raised. It bestows ready marketability feature upon listed securities which helps to minimize or eliminate any inhibitions which investor might have had in investing or deinvesting.

Records had it that practice which have gradually metamorphosed into the stock exchange took their roots from the burgeoning trade in Agriculture and other commodities in major European centre during the middle ages. The practice entails traders gathering at a place on appointed days to strike bargains in the commodities.

The trade was usually conducted on credit terms, later bills of exchange and notes were used. Further development made it possible for these documents to be traded also or discounted through a process of endorsement and negotiation.

Traders in credit instruments in Paris dated back to 12th and 13th centuries and there is evidence of the development of the profession of "Courratier de change" (the modern courier de change meaning broker) in France. Similar development was taking place also in Brugos (now Belgium)

The pattern of development from trade in commodities to trade in securities was roughly the same for most of the early stock exchanges which sprang up in many European Centres. Formal stock exchange dated back to 16th century in Amsterdam, before 1773 in Great Britain, Berlin, Zurich and New York.

2.2 DEVELOPMENT OF STOCK EXCHANGE IN NIGERIA

The background to the establishment of Nigerian Stock Exchange market formally called Lagos Stock was in 1946 when the Ten year plan local loan ordinance was promulgated. The ordinance provided for the floatation of E300,000 (N600,000) local loan stock bearing interest of 3 1/4% and had a maturity of 10 to 15 years.

Another attempt at Capital accumulation in the public sector was made in 1951, with the aim of using the loan to finance some public utilities. This Ten years development plan, 1946-1955 constituted the first significant attempts made under the British colonial Administration to give investment opportunities to Nigerians. This mark the beginning of Capital market development in Nigeria.

The later 1950 witnessed an upsurge of private industrial investments through the diversion of some profits earned from trading activities and this led to the various actions by the then Government towards enhancing the stock exchange market in Nigeria.

Such actions are - The setting up of professor Barback committee in may 1958 who were delegated to consider the ways and means of fostering shares market in Nigeria. Also in 1959 the Central Bank of Nigeria floated the first federation of Nigeria development loan of N4 million on behalf of the Government. The favourable report of the committee led to the registration of a business name "The Lagos Stock Exchange" in March 1960 and was incorporated under section 2, Cop 37 on 15th September 1960.

The Lagos Stock Exchange commenced operation on 5th June 1961. As a private self regulated body. The Exchange did not lack a Stock or Securities with which to commence trading at its inception. The initial list consist of the two federation of Nigeria Development Stocks, few industrial securities e.g John Holt, Nigercem, Tobacco Company and seven (7) stocks of some British Companies quoted on the London Stock Exchange.

The Nigerian Stock Exchange which was formally called Lagos Stock Exchange was as a result of the dissatisfaction expressed by the vocal section of the enlightened citizenry by the middle 1970 s with regards to the low rate of Capital formation, rather than large chunk of currency in circulation. This led to the formation of a commission in 1976 by the Federal Government to study the structure and operation of the financial system and make recommendation for improvement. The commission recommended the decentralization of the stock exchange which was approved and then led to the transformation of Lagos Stock Exchange to The Nigerian Stock Exchange in 1977 with initial branches at Lagos, Kaduna and Port Harcourt. These have since been increased to include Kano, Onisha and Ibadan and there is a plan of opening another branch at Abuja.

2.3 FUNCTION OF THE STOCK EXCHANGE

The Stock Exchange's aim which is the creation of wealth in free enterprise economies initiated in Europe has throughout the succeeding Centuries continued to justify its existence uptill date.

The role / functions of the stock exchange in the Nigerian Capital market are thus:

1. It assist in the transfer of funds from the "excess" (Saver) to the "deficit" units (investment decision makers) i.e mobilization of fund from public to the prospective investors.
2. Public Quotation: It protects the investing public from shoddy or unstable outfits by scrutinizing Company seeking public quotation.
3. Transfer of shares: It provides a secondary market for investors to buy and sell securities.
4. Promotion of small Enterprises: It helps through the introduction of Second-Tier securities market which is aimed at helping the indigenous enterprises to grow and continue to exist after the death of the founder.
5. Public Enlightenment: It enlightens the public on fund management through provision of financial information, organising Seminars, workshop and providing weekly report on stockmarket to the general public.

In summary the stock exchange plays intermediary and facilitator roles.

2.4 NIGERIAN SECURITIES AND EXCHANGE COMMISSION (ORIGIN)

The development of the Nigerian Stock Market gave birth to the respective regulatory organ of the market. This organ which came into being since 1962 has under gone various changes in forms and name to its present name i.e Securities and Exchange Commission.

Control of the operation was considered necessary as early as 1962, just a year after the promulgation of Lagos Stock Exchange Act. The Capital Issues Committe, as it was called then the organ charged with the responsibilities of controlling the operation (1962-1973). It was mainly consultative and advisory to the Central Bank, Council of Stock Exchange and Ministry of Finance.

The Capital Issues Committee was replaced by a more formal arrangement called the Capital Issues Commission on 13th April 1973. This was prompted by the 1972 Federal Government Commencement on a systematic programme of indigenising the Nigerian economy. The Commission had in addition to the monitoring of the indigenisation process power to determining the price at which shares is to be sold to the public and approving such sale or transfer. The present name (Securities and Exchange Commission) was the brain child of DR PIUS OKIGBO committee set up by the Government to review the Nigerian financial system. The committee presented its report to the government in 1976.

The committee considered as unsatisfactory the situation prevailing in the capital market operational system by 1976. Hence recommended in its report the establishment of the new commission which would among other things register all securities proposed for offer or sale to the public or private offer, register stock exchanges and securities dealers and their agents.

2.5 FUNCTIONS OF SECURITIES AND EXCHANGE COMMISSION (SEC)

Securities and Exchange Commission is the apex regulatory organ of the Capital market of all specialized financial organs that in various ways bring together suppliers and users of Capital.

The Decree establishing the Commission (SEC) stipulated its functions as follows:

1. Determining the amount of and time at which securities of a Company are to be sold to the public either through offer for sale or subscription.
2. Registering all securities proposed to be offered for sale or for subscription to the public or offered privately.
3. Registering stock exchange or branches, registrars, investment advisers, securities dealers and their agents, and controlling and supervising their activities.
4. Protecting the integrity of the securities market against any abuses.

5. Maintaining surveillance over securities market to ensure orderly, fair and equitable dealing in securities.
6. Acting as regulatory apex organisation for the Nigerian stock exchange commission and its branches.
7. Creating the necessary atmosphere for the orderly growth and development of the Capital market. Undertaking such other activities that concern stockbroking in Nigeria as are necessary.

Conclusively, Alile and Anao (1986) indicated that the functions of securities and exchange commission can be categorised into three broad but interrelated groups or areas which are price determination, stock market regulation and capital market development.

2.6 CENTRAL SECURITIES CLEARING SYSTEM (CSCS)

Central Securities Clearing System is a new operational method introduced early this year in the stock market transaction in the country. It is the Computerization of the daily stock market transaction in the Nigerian stock trading floor.

The system is aimed at centralizing the whole transactions regarding buying and selling of shares in the country. Central Securities Clearing System (CSCS) is a subsidiary Company of the Nigerian stock exchange. It was incorporated on June 1, 1992 to provide automated clearing and settlement of transaction for the Nigerian stock exchange. The Central Securities Clearing System commences operation on 14th of April 1997.

Central Securities Clearing System (CSCS) would eliminate the cumbersome processes associated with the previous manual method of transactions. Also it would enhanced prompt settlement and reduce the time lapse it takes to conclude a deal.

The system is still in its embryonic stage, hence much can not be said about it now but it is hoped that when it is fully operational, its benefits shall be of a great important to the growth of Capital market in Nigeria.

Some Benefits of Central Securities Clearing as enumerated by the consultants are as follows:

TO THE INVESTORS:

1. Elimination of lost or stolen certificates through the eradication of certificates which are associated with the previous method.
2. Leads to faster deals
3. Transfer of ownership made faster than the previous system.

TO THE QUOTED COMPANIES:

1. Reduce cost associated with production of share certificates and making transfers by registrars.
2. Saves times wasted in signing certificates
3. Increased in the volume of Companies traded
4. Increased in market Capitalization and net worth of Companies.

TO THE CAPITAL MARKET:

1. Leads to market transperence.
2. Creates confidence.
3. Leads to higher turnover.
4. Attracts more foreign investment / investors.
5. It will increase market liquidity and makes it more vibrant (But not yet anyway).

TO THE STOCKBROKING FIRMS:

1. Prompt inter-member money and stock settlements
2. Elimination of problems associated with delivery of certificates.
3. Increases efficiency and profit
4. Reduction in operational cost

CHAPTER THREE

SYSTEM STUDY AND ANALYSIS

System study and analysis entail detailed study of the existing system to enable one analyse and make recommendations. It is a process of collecting and analysing data collected in respect of the existing operations and procedures in order to obtain a full appreciation of the situation prevailing so that an effective computerized procedure which will be of more benefits than the existing operational system can be developed.

3.1 METHODS OF INVESTIGATION

This refers to the methods used for collecting data about the existing mode of operation which are used for system analysis and recommendation. In the course of this study the following methods which are more appropriate to the situation under consideration were used.

A. RECORD SEARCHING

This method is to help establish qualitative and quantitative information, determine whether the objectives are being achieved, whether information needed for decision making is available when required and establish how much reliance can be put on the result of the existing operational system.

The existing system was studied to throw light on the activities that should be taking place in the current system and its requirement. This method served as a basis for comparing the existing procedure with what is expected to be in the proposed computerization.

B. INTERVIEW

This method provided opportunity of having direct contact with those concerned with operation of the prevailing system. It offered face to face interrogation of the staff which provided information about the objectives, constraints, problems and weakness of the existing system. This method was used to gather information from the personnel using the existing system and other individuals.

The actual description of the manual operation of the Company ledger was obtained and opinion were gathered on how the problem with the system could be improved.

C. OBSERVATION

This method involves watching an operation for a period to see for oneself exactly what happens. It provided first hand information about how activities are carried out. This includes observation of how clients' records are opened, what are required of the clients, how it is processed, filed, retrieved, updated, how fast and all the steps followed. It served as a means for comparison with the information obtained from the interview and record searching techniques.

3.2 OPERATION OF THE EXISTING STOCKBROKING LEDGER SYSTEM

Ledger according to the Oxford Advanced learner's dictionary "is a book in which a business firms accounts are kept" It is also defined as a loose - leaf book, file or other records containing all the separate accounts in a business.

In the past years, the deposit of Clients for the purchase of shares by a stockbroking firm are recorded into a book called ledger. The book is divided into columns with sub-headings as shown below:

Posted Date	Deal Date	Securities	Quantity	Price Per Unit	Amount		Balance
					Credit	Debit	

The posted date column contains the date a clients deposited money for shares while the deal date column contains the date securities are bought for the client. The securities column indicates what have been bought, the quantity column contains the number of units bought and price per unit show the selling price as at the day the securities were bought.

The amount column which is sub-divided into credit and debit column contains the total amount deposited and the total cost of the securities purchased for their client. When a client deposited money it is entered into the credit column and when something has been purchased for him the total cost is entered into the debit column. The difference between the credit and debit give the balance which shows the balance of a client account with the Company.

3.3 FUNCTIONS OF THE STOCKBROKING LEDGER

The ledger serves diverse purpose to every stockbroking firm.

1. It serves as the accounting book to the firm
2. It serves as a reference book
3. It is the intermediary between the Company and its Clients because it contains information regarding the address, deposit, what have been bought, at what price, total cost, date and balance of every clients of the Company.

In summary the ledger is the information house of every stockbroking Company. Hence destruction of the ledger means destruction of the source of data regarding the clients and deal done for clients.

3.4 PROBLEM DEFINITION: The operation of the existing system were done manually and based on the information collected from the staff, it is inherent with problems which if eliminated will help to enhance their effectiveness. The following problems were identified:

1. The process is time consuming
2. Finding out and retrieving any required information take long time and usually prove difficult
3. It lacks accuracy and reliability

4. There were problems of inefficiency in storing, filing and processing of data and information.
5. The manual system is more strenuous and cumbersome
6. The operation of the existing system is very expensive to maintain.

3.5 PROPOSED COMPUTERIZATION

Proposed computerization of stockbroking ledger is the conversion of existing system of operation which is inherent with various problems as enumerated above.

Computerization in our present generation has proved itself as capable of not only broadening our reach in carrying out our daily task in a faster, accurate and reliable way, but has also shown the potential of bringing a radical transformation of our society. The computerization which consists of essentially three major stages, that is inputting data, processing the inputted data and producing output or stored in its memory depending on the wish of the operator would help to increase the efficiency and potentials of the stockbroking firms in performing their task.

Analysis of the data collected from the personnel operating the existing system has shown that the benefits to be derived from the computerization would surpass that of the existing system.

3.6 BENEFITS OF THE PROPOSED SYSTEM

The benefits of the proposed system are as follows:

1. **SPEED:** The proposed system will enable them perform the same task faster than before.
2. **ACCURACY:** The problem of human error usually associated with tiredness and inconsistency shall be eliminated with the new system.
3. **RELIABILITY:** Following the ability of Computer to detect errors and eliminate it, the result generated from the system would be free of errors, hence the result could be said to be reliable.

4. RETENTION AND STORAGE: Computer which have the potential of retaining and storing information will help to eliminate the use of loose - leaf books as storage means which can easily be destroyed and also computer helps provide automatic back storage.
5. WIDE APPLICABILITY: Computer which have diverse potential can be used to solve other problems like typing, calculating e.t.c thereby enhancing the total performance of the Company.
6. HARD COPIES (PRINTING): Computerization will make printing of the processed information easier and faster.
7. SECURITY: Computerization provides automatic security because all the information inputted can not be accessed by any body except one who has the know how.

CHAPTER FOUR

SYSTEM DESIGN

4.1 SOFTWARE DEVELOPMENT AND IMPLEMENTATION

This refers to a creative task with the aims and objectives of implementing a system whose benefits and improvement are superior to those achieved by the existing mode of operation in an organisation.

The designed system therefore must be able to produce results more effectively at a lesser time and in accordance with the needs of the organisation. For effective design to be accomplished, some basic consideration such as the followings must be taken

1. Production of desired information at the right time with acceptable level of accuracy.
2. The need to minimise cost and time spent on data preparation.
3. Minimise cost and time spent on processing data
4. Effective safeguard for prevention of frauds
5. Effective security measure in order to avoid loss of data stored
6. Effective design of documents and reports.

4.2 INPUT SPECIFICATION: Input specification describe the various data which are expected to be entered into the Computer for processing. This is determined largely by the output. If the inputted data are not comprehensive, the expected output will not be achieved thereby making the whole system ineffective and the objective of the computerization unachieved.

For a stockbroking ledger, the expected input data are gotten from source documents gathered from Clients which include Name and address, amount of money deposited by the Client, date of depository, date of purchase of securities, type of securities purchased, quantity, price per unit and total cost for the deal done on behalf of each client.

4.3 OUTPUT SPECIFICATION

This is an important aspect and the end result of every designed information system embarked upon by an organisation. The right output must be developed and must be designed in such that those who receive the end result will find the output easy to understand and use effectively.

Output may be a report or a message, it may be displayed or printed and its contents may originate from the following sources: Retrieved from stored data, transmission from a process or system activity and directly from an input source.

In stockbroking both the Company and Client need report. The customer is interested in knowing what securities have been bought, at what price and his balance while the Company wants to know the total amount deposited, what was bought for a Client, at what price, date of the deal, what its commission is and the Clients balance.

The system is expected to be able to generate report that will meet the information need of the Clients and the Company.

4.4 HARDWARE / SOFTWARE REQUIREMENT:

Hardware are the physical components and devices which makes up the Computer system. They are components that can be seen and touched when one enters the Computer room. It is also referred to as the electronics and electromechanical devices which are connected by cables.

Software on the other hand are basically programs i.e sequence of instructions designed to guide the Computer into accomplishing a task. It enables the hardware to be put into use. The proposed Computerization of the stockbroking ledger is a process which involves a data base management application system run on a local area network.

Therefore for the successful implementation of the proposed system, the organisation requires to have the following in place.

- (i) An IBM Micro Computer or its compatible with an average size storage capacity.
- (ii) Laserjet Printer
- (iii) Floppy diskette
- (iv) Application software

4.5 ALGORITHM

It is a step by step method or rules for solving a problem in a finite sequence of steps.

According to Reju, lecturer note 1997, "It is a finite set of instructions for carrying out a specific procedural task". Dictionary (OAL) defined it as "set of rules or procedures that must be followed in solving a problem".

Having defined and analysed a problem the next stage is to formulate an algorithm which is describing in literal forms the steps to be taken to solve a given problem. It is usually expressed in pseudo codes (logical representation using english language style) but it can not be executed by computer.

A valid algorithm must be precise, without assumption or vagueness, must be effective and efficient, has finite set of instruction, has termination point and output.

The algorithms for the proposed system is :

ALGORITHM: Investment

Computing investment on shares.

DECLARE: Deposit, credit, debit, commission, secfee,
contract stamp, balance:Real

EXECUTE: Output Name

Input Name

Output Contact Address

Input Contact Address

Output Account Number

Input Number

Output Date

Input Date

Output Securities

Input Securities

Output Quantity

Input Quantity

Output Price Per Unit

Input Price

Output Commission in %

Input Commission

Output SEC fee in %

Input SEC fee

Output Contract Stamp in %

Input C stamp

Output Credit

Input Deposit

Consideration <----- Quantity * Price Per Unit

Comm <----- Commission * Consideration

Sfee <----- Sec Fee * Consideration

CS <----- C stamp * Cost

Debit <----- Consideration + Comm + Sfee + CS

Balance <----- Deposit - Debit

Output Balance

End Investment.

4.6 PROGRAMING LANGUAGE USED

The program was designed using Dbase IV language which is an advance version of dbase. This language provides numerous improved facilities such as full relational database environment, increase number of field in each record, interrelation of two or more database and flexibility of the control centre from which you can design databases, manipulate and edit records and files, generate reports and perform database query.

4.7 SYSTEM CONVERSION

This is the process of changing from the existing mode of operation to the proposed (new) system. It also includes the transfer of the old files data into the form required by the new system. In order to achieve the set goal, management must ensure that the system has been proved to their satisfaction, all implementation activities completed and required staff trained. There are various ways of change over e.g direct, parallel running, pilot running, and staged change over. Each of the mentioned system has its positive and negative sides. Therefore in the case of the proposal stockbroking ledger conversion. Direct change over method which is the complete replacement of the old system with the new one in one move is recommended. Though one major disadvantage of this method is that it could be too risky and disastrous in case of major system failure. To avoid this, the new system must be well tested with various previous data in which result have been achieved and staff training should be comprehensive.

4.8 PROGRAMS: BRIEF INFORMATION

The programs consists of two database file structure that is Clients. DBF for recording new Clients and trans. DBF for updating record, Client enquiry and report production.

FILE STRUCTURE: C:\BROKER \ CLIENT. DBF

FIELD	FIELD NAME	TYPE	WIDTH	DEC	INDEX
1	DATE	DATE	8	-	N
2	ACC NO	CHARACTER	4	-	N
3	NAME	CHARACTER	40	-	N
4	ADDR	CHARACTER	50	-	N
5	BAL	NUMERIC	13	2	N

C:\BROKER \ TRANS . DBF

FIELD	FIELD NAME	TYPE	WIDTH	DEC	INDEX
1	DATE	DATE	8	-	N
2	ACC NO	CHARACTER	4	-	N
3	SEC	CHARACTER	20	-	N
4	PRICE	NUMERIC	5	2	N
5	QTY	NUMERIC	9	-	N
6	CREDIT	NUMERIC	13	2	N
7	DEBIT	NUMERIC	13	2	N
8	BAL	NUMERIC	13	2	N

The program allows for the choice of operation one wish to perform, it could be registering of new Client, updating Client record, Enquiry about Client record or report production. Any of these is achieved by pressing the code provided, that is A.B.C.D.E It also provides opportunity for exit.

To access the program from dbase environment, you type "Do BROKER", this is followed by asking for the password. When this is done you have access to the main menu from which you make your option by pressing any of the code.

If code "A" is pressed it takes you to another subprogram from which option could be made depending on what you want to do, either to add Client record, Edit Client record, View Client record, Erase Client record or Exit from the subprogram.

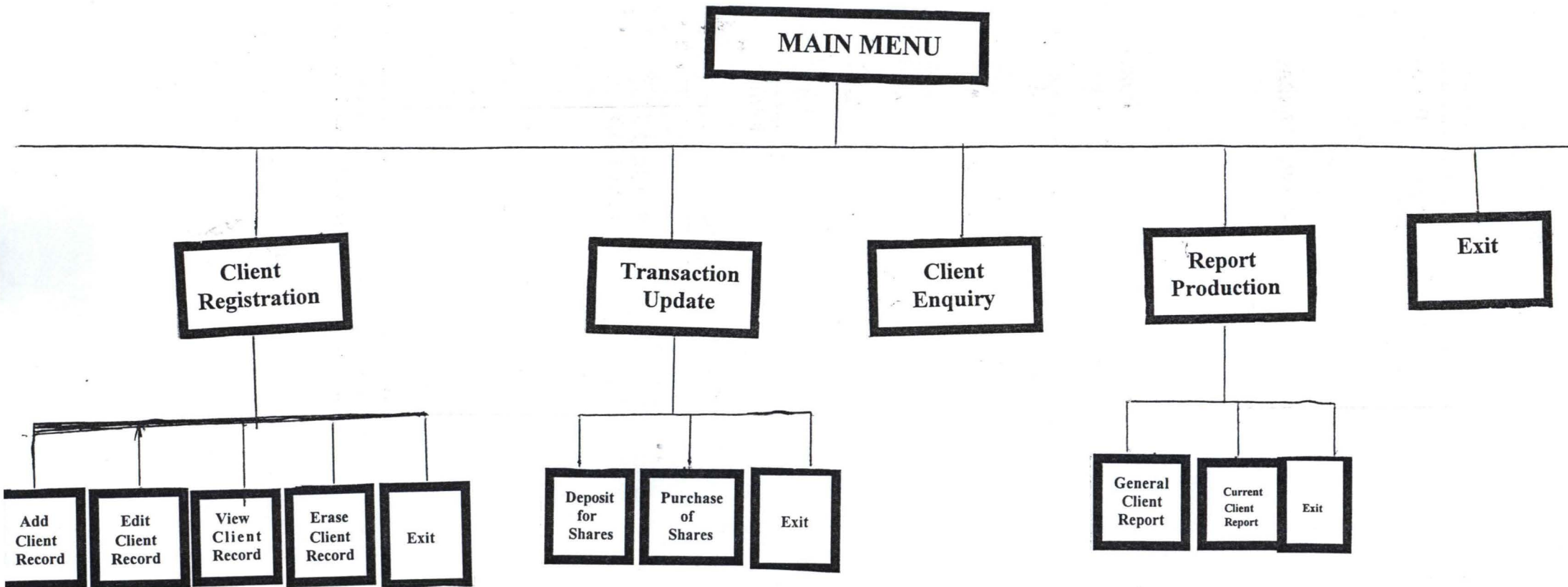
Code "B" allows option of recording client deposit and purchase of shares.

Code "C" allows general viewing of Client records.

Code "D" provide opportunity for generating Client report. The report could be general details which shows comprehensive report of Client investment and every information concerning such Client or current Client purchase which shows the latest deal done on behalf of the Client.

Lastly Code "E" allows for exit from the main program.

MODULAR STRUCTURE OF THE PROGRAM



CHAPTER FIVE

5.1 CONCLUSION

It is a known fact that we are living in the age of information technology where emphasis is on accuracy, speed, reliability, validity and effective storage medium.

This has made it imperative for system modification and design which will enhance the achievement of such demand. This prompted the embarking on designing a system which will enable stockbroking firms perform their operation in faster and better ways.

This system was developed to help alleviate the inherent problems associated with manual mode of operation and record keeping system. The new system allows for efficiency and accuracy on the part of the staff concerned provide, for storing large volume of data and information which can be properly saved and quickly accessed when required. Also speedy operation is enhanced, report generation is made faster, more accurate and comprehensive within the shortest possible time. Free accessibility by every person is also checked through the need to know the password.

In the course of this work, a panel set up to review the capital market operation in Nigeria (Odifie Panel) came up with some recommendations which this study could not cover because it has not been implemented. It is my hope that subsequent study on capital market will be able to deal with it.

5.2 RECOMMENDATIONS

It is a known fact that there is nothing permanent in this world except change itself. Policies change and there are constant innovations of mode of doing things, hence this system is subject to modification in the course of time. But, it is my belief that this study will serve as a guide leading to better operational mode of stockbroking Companies in future.

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APPENDIX 1 - PROGRAMME

```

set talk off
set stat off
set scor off
set safe off
set date brit
set proc to broker
times=0
do while .t.
  clea
  times=times+1
  pword='
  @ 10,20 to 14,59
  @ 12,25 say 'ENTER THE PASSWORD:'
  set inte off
  set colo to n/n
  @ 12,45 get pword pict '@!'
  read
  set colo to w+/b
  set inte on
  if pword='GABRIEL'
    exit
  endi
  if times=3
    @ 16,21 say 'WRONG PASSWORD, PRESS ANY KEY TO EXIT'
    set cons off
    wait
    set cons on
    clea
    retu
  endi
  @ 16,19 say 'WRONG PASSWORD, PRESS ANY KEY TO TRY AGAIN'
  set cons off
  wait
  set cons on
endd
do while .t.
  clea
  @ 0,15 to 24,64 doub
  @ 1,23 to 3,56 doub
  @ 2,24 say 'COMPUTERISED STOCKBROKING LEDGER'
  @ 4,20 to 6,59 doub
  @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 8,35 say 'MAIN MENU'
  @ 9,16 to 9,63 doub
  @ 10,26 say 'CODE'+spac(10)+'TASK'
  @ 11,26 say '----'+spac(10)+'----'
  @ 12,27 say 'A .... CLIENT REGISTRATION'
  @ 14,27 say 'B .... TRANSACTION UPDATE'
  @ 16,27 say 'C .... CLIENT ENQUIRY'
  @ 18,27 say 'D .... REPORT PRODUCTION'
  @ 20,27 say 'E .... EXIT'
  @ 22,16 to 22,63 doub
  @ 23,27 say 'Press CODE for choice:'
  do while .t.
    ans=' '
    @ 23,50 get ans pict '!'
    read
    if ans $ 'ABCDE'
      exit
    endi
  endd
do case
  case ans='A'

```



```
do reg
case ans='B'
do trans
case ans='C'
do enq
case ans='D'
do rep
othe
exit
endc
endd
clea
retu
```

PROC REG

```
do while .t.
clea
@ 0,15 to 24,64 doub
@ 1,23 to 3,56 doub
@ 2,24 say 'COMPUTERISED STOCKBROKING LEDGER'
@ 4,20 to 6,59 doub
@ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
@ 8,28 say 'CLIENT REGISTRATION MENU'
@ 9,16 to 9,63 doub
@ 10,26 say 'CODE'+spac(10)+'TASK'
@ 11,26 say '----'+spac(10)+'----'
@ 12,27 say 'A .... ADD CLIENT RECORD'
@ 14,27 say 'B .... EDIT CLIENT RECORD'
@ 16,27 say 'C .... VIEW CLIENT RECORD'
@ 18,27 say 'D .... ERASE CLIENT RECORD'
@ 20,27 say 'E .... EXIT'
@ 22,16 to 22,63 doub
@ 23,27 say 'Press CODE for choice:'
do while .t.
ans=' '
@ 23,50 get ans pict '!'
read
if ans $ 'ABCDE'
exit
endi
endd
do case
case ans='A'
do new
case ans='B'
do edit
case ans='C'
do view
case ans='D'
do erase
othe
exit
endc
endd
clea
retu
```

PROC DEP

```
sele 1
```

```
use client
sele 2
use trans
do while .t.
  clea
  @ 3,15 to 21,64 doub
  @ 4,20 to 6,59 doub
  @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 8,28 say 'DEPOSIT FOR SHARES FORM'
  @ 9,28 to 9,50 doub
  @ 19,16 to 19,63 doub
  maccno=spac(4)
  @ 11,17 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@
  read
  if maccno='XXXX'
    exit
  endi
  sele 1
  go top
  loca for accno=maccno
  if .not. foun()
    @ 19,19 say 'ACCOUNT NUMBER NOT EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
  endi
  mbal=bal
  mcscs=cscs
  mdate=ctod(' / / ')
  amt=0
  @ 13,17 say 'CSCS NUMBER:' get mcscs
  clea gets
  @ 15,17 say 'DATE OF DEPOSIT:' get mdate
  @ 17,17 say 'AMOUNT OF DEPOSIT :#' get amt pict '9,999,999,999.99'
  read
  mbal=mbal+amt
  @ 20,21 say 'Press "S" to SAVE or "A" to ABANDON:'
  do while .t.
    ans=' '
    @ 20,58 get ans pict '!'
    read
    if ans $ 'AS'
      exit
    endi
  endd
  if ans='S'
    sele 2
    appe blan
    repl date with mdate,accno with maccno,credit with amt,bal with mbal
    repl cscs with mcscs
    sele 1
    repl bal with mbal
  endi
endd
clos all
clea
retu
```

PROC TRANS

do while .t.

```
clea
@ 2,15 to 22,64 doub
@ 3,23 to 5,56 doub
@ 4,24 say 'COMPUTERISED STOCKBROKING LEDGER'
@ 6,20 to 8,59 doub
@ 7,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
@ 10,28 say 'TRANSACTIONS UPDATE MENU'
@ 11,16 to 11,63 doub
@ 12,26 say 'CODE'+spac(10)+'TASK'
@ 13,26 say '-----'+spac(10)+'-----'
@ 14,27 say 'A .... DEPOSIT FOR SHARES'
@ 16,27 say 'B .... PURCHASE OF SHARES'
@ 18,27 say 'E .... EXIT'
@ 20,16 to 20,63 doub
@ 21,27 say 'Press CODE for choice:'
do while .t.
  ans=' '
  @ 21,50 get ans pict '!'
  read
  if ans $ 'ABE'
    exit
  endi
endd
do case
  case ans='A'
    do dep
  case ans='B'
    do buy
  othe
  exit
endc
endd
clea
retu
```

PROC VTRANS

```
use trans inde trans
clea
@ 0,1 to 24,78 doub
@ 1,18 say 'LIST AND DETAILS OF THE CURRENT TRANSACTIONS'
@ 2,18 to 2,60 doub
@ 3,2 to 3,77
@ 4,5 say 'DATE'
@ 4,14 say 'ACCOUNT CODE'
@ 4,29 say 'VOUCHER NO'
@ 4,46 say 'DEBIT(#)'
@ 4,64 say 'CREDIT(#)'
@ 5,2 to 5,77
@ 22,2 to 22,77
@ 4,12 to 21,12
@ 4,27 to 21,27
@ 4,40 to 21,40
@ 4,59 to 21,59
ch=0
r=5
do while .not. eof()
  r=r+1
  macode=acode
  mdate=date
  mvno=vno
  mdr=dr
```



```
mcr=cr
mttype=ttype
@ r,3 say mdate
@ r,16 say macode
@ r,32 say mvno
@ r,42 say mdr pict '9,999,999,999.99'
@ r,61 say mcr pict '9,999,999,999.99'
skip
if .not. eof()
  if r=21
    r=5
    @ 23,20 say 'VIEWING TRANSACTIONS - Press any key ...'
    set cons off
    wait
    set cons on
    @ 6,3 clea to 21,12
    @ 6,14 clea to 21,27
    @ 6,29 clea to 21,40
    @ 6,42 clea to 21,58
    @ 6,60 clea to 21,76
    @ 23,15 clea to 23,64
  endi
else
  @ 23,17 say 'IT IS END OF FILE - Press "C" to continue ...'
  resp=0
  do while resp=0
    resp=inkey()
    if uppe(chr(resp))$'C'
      exit
    endi
    resp=0
  endd
endi
endd
clos all
clea
retu
```

PROC NEW

```
use client
do while .t.
  clea
  @ 3,5 to 21,74 doub
  @ 4,20 to 6,59 doub
  @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 8,32 say 'NEW CLIENT FORM'
  @ 9,32 to 9,46 doub
  @ 19,6 to 19,73 doub
  maccno=spac(4)
  @ 11,7 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
  read
  if maccno='XXXX'
    exit
  endi
  go top
  loca for accno=maccno
  if foun()
    @ 20,17 say 'ACCOUNT NUMBER ALREADY EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
```

```
loop
endi
@ 11,21 say spac(35)
@ 11,21 say ':' get maccno
clea gets
mcscs=spac(10)
mdate=ctod(' / / ')
mname=spac(40)
maddr=spac(50)
@ 11,35 say 'CSCS NUMBER:' get mcscs pict '@!'
@ 13,7 say 'DATE OF REGISTRATION:' get mdate
@ 15,7 say 'CLIENT NAME:' get mname pict '@!'
@ 17,7 say 'CLIENT ADDRESS' get maddr pict '@!'
read
@ 20,21 say 'Press "S" to SAVE or "A" to ABANDON:'
do while .t.
    ans=' '
    @ 20,58 get ans pict '!'
    read
    if ans $ 'AS'
        exit
    endi
endd
if ans='S'
    appe blan
    repl date with mdate, accno with maccno, name with mname
    repl addr with maddr, bal with 0, cscs with mcscs
endi
endd
clos all
clea
retu
```

PROC BUY

```
sele 1
    use client
sele 2
    use trans
do while .t.
    clea
    @ 0,5 to 24,74 doub
    @ 1,20 to 3,59 doub
    @ 2,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
    @ 5,28 say 'PURCHASE OF SHARES FORM'
    @ 6,28 to 6,50 doub
    @ 22,6 to 22,73 doub
    maccno=spac(4)
    @ 8,7 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
    read
    if maccno='XXXX'
        exit
    endi
    sele 1
    go top
    loca for accno=maccno
    if .not. foun()
        @ 23,19 say 'ACCOUNT NUMBER NOT EXIST, PRESS ANY KEY'
        set cons off
        wait
        set cons on
    loop
```

```
endi
clea gets
mbal=bal
mcscs=cscs
msec=spac(30)
mdate=ctod(' / / ')
stor 0 to mprice,mqty,secc,comm,cstamp
@ 10,7 say 'CSCS NUMBER:' get mcscs
clea gets
@ 10,40 say 'DATE OF TRANSACTION:' get mdate
@ 12,7 say 'TYPE OF SECURITIES:' get msec pict '@!'
@ 14,7 say 'PRICE PER SHARE'
@ 14,30 say 'QUANTITIES'
@ 14,52 say 'AMOUNT'
@ 15,11 say '#'
@ 15,12 get mprice pict '999.99'
@ 15,29 get mqty pict '999,999,999'
read
msec=rtri(msec)
amt=mprice*mqty
@ 15,46 say '#'
@ 15,47 get amt pict '999,999,999.99'
clea gets
@ 17,7 say 'SECURITY FEES'
@ 17,31 say 'COMMISSION'
@ 17,51 say 'CONTRACT STAMP'
@ 18,10 get secc pict '99.99'
@ 18,15 say '%'
@ 18,33 get comm pict '99.99'
@ 18,38 say '%'
@ 18,54 get cstamp pict '99.999'
@ 18,60 say '%'
read
tamt=amt+secc*amt/100+comm*amt/100+cstamp*amt/100
mbal=mbal-tamt
@ 20,7 say 'TOTAL AMOUNT: #'
@ 20,22 get tamt pict '9,999,999,999.99'
@ 20,40 say 'CLIENT BALANCE: #'
@ 20,57 get mbal pict '9,999,999,999.99'
clea gets
@ 23,21 say 'Press "S" to SAVE or "A" to ABANDON:'
do while .t.
    ans=' '
    @ 23,58 get ans pict '!'
    read
    if ans $ 'AS'
        exit
    endi
endd
if ans='S'
    sele 2
    appe blan
    repl date with mdate,accno with maccno,debit with tamt,bal with mbal
    repl sec with msec,price with mprice,qty with mqty,cscs with mcscs
    sele 1
    repl bal with mbal
endi
endd
clos all
clea
retu
```


ROC ENQ

```

ele 1
use client
ele 2
use trans
while .t.
  clea
  maccno=spac(4)
  @ 0,0 to 24,79 doub
  @ 22,1 to 22,78 doub
  @ 1,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 2,21 to 2,58 doub
  @ 4,1 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
  read
  if maccno='XXXX'
    exit
  endi
  sele 1
  go top
  loca for accno=maccno
  if .not. foun()
    @ 23,12 say 'ACCOUNT NUMBER DOES NOT EXIST, PRESS ANY KEY TO CONTINUE'
    set cons off
    wait
    set cons on
    loop
  endi
  mname=name
  mcscs=cscs
  sele 2
  go top
  loca for accno=maccno
  if .not. foun()
    @ 23,12 say 'NO TRANSACTION FOR ACCOUNT NO, PRESS ANY KEY TO CONTINUE'
    set cons off
    wait
    set cons on
    loop
  endi
  @ 4,1 clea to 4,45
  @ 3,1 say 'ACCOUNT NUMBER:' get maccno
  @ 4,1 say 'CSCS NUMBER:' get mcscs
  @ 4,31 say 'NAME:' get mname
  clea gets
  @ 5,1 to 5,78 doub
  @ 6,48 say 'AMOUNT'
  @ 7,38 to 7,64
  @ 8,2 say 'DATE'
  @ 8,10 say 'SECURITIES'
  @ 8,21 say 'QUANTITIES'
  @ 8,32 say 'PRICE'
  @ 8,42 say 'DEBIT'
  @ 8,55 say 'CREDIT'
  @ 8,69 say 'BALANCE'
  @ 9,1 to 9,8
  @ 9,10 to 9,19
  @ 9,21 to 9,30
  @ 9,32 to 9,36
  @ 9,38 to 9,50
  @ 9,52 to 9,64
  @ 9,66 to 9,78
  @ 9,79 to 9,80

```

```
@ 6,20 to 21,20
@ 6,31 to 21,31
@ 6,37 to 21,37
@ 8,51 to 21,51
@ 6,65 to 21,65
r=9
set filt to accno=maceno
do while .not. eof()
  r=r+1
  mdate=date
  msec=sec
  mqty=qty
  mprice=price
  mdebit=debit
  mcredit=credit
  mbal=bal
  @ r,1 say mdate
  if msec<>spac(20)
    @ r,10 say rtri(msec)
  else
    @ r,14 say '-'
  endi
  if mqty<>0
    @ r,21 say mqty pict '99,999,999'
  else
    @ r,25 say '-'
  endi
  if mprice<>0
    @ r,32 say mprice pict '99.99'
  else
    @ r,34 say '-'
  endi
  if mdebit<>0
    @ r,38 say mdebit pict '99,999,999.99'
  else
    @ r,44 say '-'
  endi
  if mcredit<>0
    @ r,52 say mcredit pict '99,999,999.99'
  else
    @ r,58 say '-'
  endi
  @ r,66 say mbal pict '99,999,999.99'
  skip
  if .not. eof()
    if r=21
      r=9
      @ 23,20 say 'VIEWING TRANSACTIONS - Press any key ...'
      set cons off
      wait
      set cons on
      @ 10,1 clea to 21,8
      @ 10,10 clea to 21,19
      @ 10,21 clea to 21,30
      @ 10,32 clea to 21,36
      @ 10,38 clea to 21,50
      @ 10,52 clea to 21,64
      @ 10,66 clea to 21,78
      @ 23,15 clea to 23,64
    endi
  else
    @ 23,17 say 'IT IS END OF FILE - Press "C" to continue ...'
    resp=0
```

```
do while resp=0
  resp=inkey()
  if uppe(chr(resp))$'C'
    exit
  endi
  resp=0
endd
endi
endd
ndd
los all
lea
etu
```

ROC REP

```
o while .t.
  clea
  @ 2,15 to 22,64 doub
  @ 3,23 to 5,56 doub
  @ 4,24 say 'COMPUTERISED STOCKBROKING LEDGER'
  @ 6,20 to 8,59 doub
  @ 7,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 10,29 say 'REPORT PRODUCTION MENU'
  @ 11,16 to 11,63 doub
  @ 12,24 say 'CODE'+spac(10)+'TASK'
  @ 13,24 say '----'+spac(10)+'----'
  @ 14,25 say 'A .... GENERAL CLIENT DETAILS'
  @ 16,25 say 'B .... CURRENT CLIENT PURCHASE'
  @ 18,25 say 'E .... EXIT'
  @ 20,16 to 20,63 doub
  @ 21,27 say 'Press CODE for choice:'
do while .t.
  ans=' '
  @ 21,50 get ans pict '!'
  read
  if ans $ 'ABE'
    exit
  endi
endd
do case
  case ans='A'
    do gen
  case ans='B'
    do cur
  othe
    exit
  endc
endd
clea
retu
```

PROC GEN

```
sele 1
  use client
sele 2
  use trans
do while .t.
  clea
  maccno=spac(4)
```



```
@ 4,0 to 20,79 doub
@ 18,1 to 18,78 doub
@ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
@ 6,21 to 6,58 doub
@ 8,1 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
read
if maccno='XXXX'
    exit
endi
sele 1
go top
loca for accno=maccno
if .not. foun()
    @ 19,12 say 'ACCOUNT NUMBER DOES NOT EXIST, PRESS ANY KEY TO CONTINUE'
    set cons off
    wait
    set cons on
    loop
endi
mname=name
maddr=addr
mcscs=cscs
sele 2
go top
loca for accno=maccno
if .not. foun()
    @ 19,12 say 'NO TRANSACTION FOR ACCOUNT NO, PRESS ANY KEY TO CONTINUE'
    set cons off
    wait
    set cons on
    loop
endi
@ 12,25 to 16,54
@ 14,30 say 'PRINTING IN PROGRESS'
set devi to prin
@ 2,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
@ 3,21 say repl('=',38)
@ 5,29 say 'DETAILS OF INVESTMENT'
@ 6,29 say repl('=',21)
@ 8,1 say 'ACCOUNT NUMBER: '+maccno
@ 8,35 say 'CSCS NUMBER: '+mcscs
@ 10,1 say 'CLIENT NAME: '+mname
@ 12,1 say 'CLIENT ADDRESS: '+maddr
@ 14,0 say repl('-',80)
@ 15,0 say '| '
@ 15,9 say '| '
@ 15,20 say '| '
@ 15,31 say '| '
@ 15,37 say '| '
@ 15,48 say 'AMOUNT'
@ 15,65 say '| '
@ 15,79 say '| '
@ 16,0 say '| DATE | '
@ 16,10 say 'SECURITIES|QUANTITIES|PRICE| '
@ 16,42 say 'DEBIT'
@ 16,51 say '| '
@ 16,55 say 'CREDIT'
@ 16,69 say 'BALANCE'
@ 16,79 say '| '
@ 17,0 say repl('-',80)
r=17
set filt to accno=maccno
do while .not. eof()
```

```
r=r+1
mdate=date
msec=sec
mqty=qty
mprice=price
mdebit=debit
mcredit=credit
mbal=bal
@ r,0 say '|'
@ r,1 say mdate
@ r,9 say '|'
if msec<>spac(20)
  @ r,10 say rtri(msec)
else
  @ r,14 say '-'
endi
@ r,20 say '|'
if mqty<>0
  @ r,21 say mqty pict '99,999,999'
else
  @ r,25 say '-'
endi
@ r,31 say '|'
if mprice<>0
  @ r,32 say mprice pict '99.99'
else
  @ r,34 say '-'
endi
@ r,37 say '|'
if mdebit<>0
  @ r,38 say mdebit pict '99,999,999.99'
else
  @ r,44 say '-'
endi
@ r,51 say '|'
if mcredit<>0
  @ r,52 say mcredit pict '99,999,999.99'
else
  @ r,58 say '-'
endi
@ r,65 say '|'
@ r,66 say mbal pict '99,999,999.99'
@ r,79 say '|'
r=r+1
@ r,0 say '|'
@ r,9 say '|'
@ r,20 say '|'
@ r,31 say '|'
@ r,37 say '|'
@ r,51 say '|'
@ r,65 say '|'
@ r,79 say '|'
skip
if .not. eof()
  if r>52
    set cons off
    wait
    set cons on
    set devi to scre
    @ 14,30 say spac(20)
    @ 14,30 say 'INSERT ANOTHER PAPER'
    set cons off
    wait
```

```
    set cons on
    @ 14,30 say 'PRINTING IN PROGRESS'
    r=17
    set devi to scre
  endi
endi
endd
set devi to scre
nadd
los all
lea
etu

PROC EDIT

use client
do while .t.
  clea
  @ 3,5 to 21,74 doub
  @ 4,20 to 6,59 doub
  @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
  @ 8,30 say 'EDITING CLIENT FORM'
  @ 9,30 to 9,48 doub
  @ 19,6 to 19,73 doub
  maccno=spac(4)
  @ 11,7 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
  read
  if maccno='XXXX'
    exit
  endi
  go top
  loca for accno=maccno
  if .not. foun()
    @ 20,20 say 'INVALID ACCOUNT NUMBER, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
  endi
  mcscs=cscs
  mdate=date
  mname=name
  maddr=addr
  @ 11,21 say spac(35)
  @ 11,21 say ':' get maccno pict '@!'
  clea gets
  @ 11,35 say 'CSCS NUMBER:' get mcscs
  @ 13,7 say 'DATE OF REGISTRATION:' get mdate
  @ 15,7 say 'CLIENT NAME:' get mname pict '@!'
  @ 17,7 say 'CLIENT ADDRESS' get maddr pict '@!'
  read
  @ 20,21 say 'Press "S" to SAVE or "A" to ABANDON:'
  do while .t.
    ans=' '
    @ 20,58 get ans pict '!'
    read
    if ans $ 'AS'
      exit
    endi
  endd
  if ans='S'
    repl date with mdate, accno with maccno, name with mname
```



```
    repl addr with maddr, cscs with mcscs
endi
add
clos all
clea
retu
```

PROC VIEW

```
use client
do while .t.
    clea
    @ 3,5 to 21,74 doub
    @ 4,20 to 6,59 doub
    @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
    @ 8,30 say 'VIEWING CLIENT FORM'
    @ 9,30 to 9,48 doub
    @ 19,6 to 19,73 doub
    maccno=spac(4)
    @ 11,7 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
    read
    if maccno='XXXX'
        exit
    endi
    go top
    loca for accno=maccno
    if .not. foun()
        @ 20,20 say 'INVALID ACCOUNT NUMBER, PRESS ANY KEY'
        set cons off
        wait
        set cons on
        loop
    endi
    mcscs=cscs
    mdate=date
    mname=name
    maddr=addr
    @ 11,21 say spac(35)
    @ 11,21 say ':' get maccno
    @ 11,35 say 'CSCS NUMBER:' get mcscs
    @ 13,7 say 'DATE OF REGISTRATION:' get mdate
    @ 15,7 say 'CLIENT NAME:' get mname pict '@!'
    @ 17,7 say 'CLIENT ADDRESS' get maddr pict '@!'
    clea gets
    @ 20,20 say "VIEWING CLIENT'S DETAILS, PRESS ANY KEY"
    set cons off
    wait
    set cons on
endd
clos all
clea
retu
```

PROC ERASE

```
use client
do while .t.
    clea
    @ 3,5 to 21,74 doub
    @ 4,20 to 6,59 doub
    @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
```

```
@ 8,30 say 'ERASING CLIENT FORM'
@ 9,30 to 9,48 doub
@ 19,6 to 19,73 doub
maccno=spac(4)
@ 11,7 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
read
if maccno='XXXX'
    exit
endi
go top
loca for accno=maccno
if .not. foun()
    @ 20,20 say 'INVALID ACCOUNT NUMBER, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
endi
mdate=date
mname=name
maddr=addr
mcscs=cscs
@ 11,21 say spac(35)
@ 11,21 say ':' get maccno
@ 11,35 say 'CSCS NUMBER:' get mcscs
@ 13,7 say 'DATE OF REGISTRATION:' get mdate
@ 15,7 say 'CLIENT NAME:' get mname pict '@!'
@ 17,7 say 'CLIENT ADDRESS' get maddr pict '@!'
clea gets
@ 20,22 say 'IS THIS THE RECORD TO ERASE (Y/N):'
do while .t.
    ans=' '
    @ 20,57 get ans pict '!'
    read
    if ans $ 'YN'
        exit
    endi
endd
@ 20,20 clea to 20,60
if ans='Y'
    dele
    pack
    @ 20,24 say 'RECORD IS ERASED, PRESS ANY KEY'
else
    @ 20,22 say 'RECORD IS NOT ERASED, PRESS ANY KEY'
endi
endd
clos all
clea
retu
```

PROC CUR

```
do while .t.
    clea
    maccno=spac(4)
    @ 4,0 to 20,79 doub
    @ 18,1 to 18,78 doub
    @ 5,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
    @ 6,21 to 6,58 doub
    @ 8,1 say 'ACCOUNT NUMBER (Enter "XXXX" to EXIT):' get maccno pict '@!'
    read
```

```
if maccno='XXXX'
  exit
endi
use client
loca for accno=maccno
if .not. foun()
  @ 19,12 say 'ACCOUNT NUMBER DOES NOT EXIST, PRESS ANY KEY TO CONTINUE'
  set cons off
  wait
  set cons on
  loop
endi
mname=name
maddr=addr
mcscs=cscs
use trans
loca for accno=maccno
if .not. foun()
  @ 19,12 say 'NO TRANSACTION FOR ACCOUNT NO, PRESS ANY KEY TO CONTINUE'
  set cons off
  wait
  set cons on
  loop
endi
use current
if .not. eof()
  zap
endi
sdate=ctod(' / / ')
@ 10,1 say 'ENTER DATE TO START FROM:' get sdate
read
appe from trans.dbf for date>=sdate .and. accno=maccno
go top
if eof()
  @ 14,19 say 'NO TRANSACTION TO PRINT, PRESS ANY KEY ...'
  set cons off
  wait
  set cons on
  set filt to
  loop
endi
@ 12,25 to 16,54
@ 14,30 say 'PRINTING IN PROGRESS'
set devi to prin
@ 2,21 say 'EXPRESS PORTFOLIO SERVICES LTD, KADUNA'
@ 3,21 say repl('=',38)
@ 5,22 say 'DETAILS OF INVESTMENT FROM '+dtoc(sdate)
@ 6,22 say repl('=',35)
@ 8,1 say 'ACCOUNT NUMBER: '+maccno
@ 8,35 say 'CSCS NUMBER: '+mcscs
@ 10,1 say 'CLIENT NAME: '+mname
@ 12,1 say 'CLIENT ADDRESS: '+maddr
@ 14,0 say repl('-',80)
@ 15,0 say '| '
@ 15,9 say '| '
@ 15,20 say '| '
@ 15,31 say '| '
@ 15,37 say '| '
@ 15,48 say 'AMOUNT'
@ 15,65 say '| '
@ 15,79 say '| '
@ 16,0 say '| DATE | '
@ 16,10 say 'SECURITIES|QUANTITIES|PRICE|'
```



```
@ 16,42 say 'DEBIT'
@ 16,51 say '|'
@ 16,55 say 'CREDIT'
@ 16,69 say 'BALANCE'
@ 16,79 say '|'
@ 17,0 say repl('-',80)
r=17
do while .not. eof()
  r=r+1
  mdate=date
  msec=sec
  mqty=qty
  mprice=price
  mdebit=debit
  mcredit=credit
  mbal=bal
  @ r,0 say '|'
  @ r,1 say mdate
  @ r,9 say '|'
  if msec<>spac(20)
    @ r,10 say rtri(msec)
  else
    @ r,14 say '-'
  endi
  @ r,20 say '|'
  if mqty<>0
    @ r,21 say mqty pict '99,999,999'
  else
    @ r,25 say '-'
  endi
  @ r,31 say '|'
  if mprice<>0
    @ r,32 say mprice pict '99.99'
  else
    @ r,34 say '-'
  endi
  @ r,37 say '|'
  if mdebit<>0
    @ r,38 say mdebit pict '99,999,999.99'
  else
    @ r,44 say '-'
  endi
  @ r,51 say '|'
  if mcredit<>0
    @ r,52 say mcredit pict '99,999,999.99'
  else
    @ r,58 say '-'
  endi
  @ r,65 say '|'
  @ r,66 say mbal pict '99,999,999.99'
  @ r,79 say '|'
  r=r+1
  @ r,0 say '|'
  @ r,9 say '|'
  @ r,20 say '|'
  @ r,31 say '|'
  @ r,37 say '|'
  @ r,51 say '|'
  @ r,65 say '|'
  @ r,79 say '|'
  skip
  if .not. eof()
    if r>52
```

```
set cons off
wait
set cons on
set devi to scre
@ 14,30 say spac(20)
@ 14,30 say 'INSERT ANOTHER PAPER'
set cons off
wait
set cons on
@ 14,30 say 'PRINTING IN PROGRESS'
r=17
set devi to scre
endi
endi
enddd
set devi to scre
enddd
clos all
clea
retu
```

APPENDIX II: PRINTED OUTPUT

EXPRESS PORTFOLIO SERVICES LTD, KADUNA

=====

DETAILS OF INVESTMENT

=====

ACCOUNT NUMBER: 1003

CLIENT NAME: STEPHEN O. JOHNSON

CLIENT ADDRESS: BLOCK 4, FLAT 7, MALALI ESTATE, KADUNA

DATE	SECURITIES	QUANTITIES	PRICE	AMOUNT		BALANCE
				DEBIT	CREDIT	
20/04/97	-	-	-	-	2,500,000.00	2,500,000.0
22/04/97	LBN PLC	50,000	20.00	1,040,750.00	-	1,459,250.0
03/05/97	UAC PLC	500	15.00	7,805.63	-	1,451,444.3
12/05/97	FBN PLC	500	12.00	6,244.50	-	1,445,199.8
06/06/97	UBN PLC	5,000	25.00	130,093.75	-	1,315,106.1
11/06/97	UTC PLC	10,000	1.10	11,448.25	-	1,303,657.8
20/06/97	UNIPETROL	10,000	60.00	624,450.00	-	679,207.8

APPENDIX III: PRINTED OUTPUT

EXPRESS PORTFOLIO SERVICES LTD, KADUNA
=====

DETAILS OF INVESTMENT FROM 11/06/97
=====

ACCOUNT NUMBER: 1003

CLIENT NAME: STEPHEN O. JOHNSON

CLIENT ADDRESS: BLOCK 4, FLAT 7, MALALI ESTATE, KADUNA

DATE	SECURITIES	QUANTITIES	PRICE	AMOUNT		BALANCE
				DEBIT	CREDIT	
11/06/97	UTC PLC	10,000	1.10	11,448.25	-	1,303,657.8
20/06/97	UNIPETROL	10,000	60.00	624,450.00	-	679,207.8