STOCK MONITORING SYSTEM

A CASE STUDY OF WEST COAST SYSTEM NIGERIA LIMITED, ABUJA

By

EZENMA, Cosmas Ikechukwu

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CERTIFICATION

This is to certify that this project was carried out by EZENMA COSMAS IKECHUKWU, of mathematics and computer science Department, Federal University Of Technology, Minna, Niger State. Under the supervision of

....

MR.. A. NDANUSA. DATE
(PROJECT SUPERVISOR)

....

DR. ABUBAKAR U.Y DATE
(HEAD OF DEPARTMENT)

....

EXTERNAL EXAMINER DATE

DEDICATION

This project is dedicated to my late parents Mr. Edward Ezenma and Mrs. Victoria Ezenma and to God who provided all the strength, health and above all the spirit to carry on when all seemed to have reached the dead end.

ACKNOWLEDGEMENT

This project report marks the successful termination of my long and tortuous journey towards self-realization in the course of the journey, several person-relations friends and well wishers, made various categories of construction- financial and moral towards the achievement of my goal.

In the light of this, I would like to acknowledge the contribution of the under mentioned person (s)

Firstly my amiable HOD **DR ABUBAKAR A.Y** whose lecture notes formed the bed rock of this project.

My able project supervisor, whose close supervision, and his intellectual guidance, contributions, critisms and encouragement provided the necessary motivation to complete this project.

To end it all, my special gratitude goes to my elder brother Engr. Emma Felix Ezenma of federal ministry of water resource Abuja.

STOCK MONITORING SYSTEM (SMS)

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ABSTRACT

This project focuses on the general overview of the manual stock control system and the design of a computerized stock control for west coast systems limited.

1.0 INTRODUCTION

Stock control is a large and important subject calling for much more attention than it has hitherto been given. It has been an unwanted child of commerce and industry for far too long. The many views of this activity vary between those who think that it is an unnecessary activity which is costly and those who think that it is vital need and employed the most sophisticated methods to control every facet of a very small enterprise.

Goods are always kept by manufactures and retailers. Therefore, stock should be managed in a condition that will keep it quantity constant especially goods that get obsolete with time such as computers and its accessories. Since goods should be well managed and preserved to meet the demand from customers as a result, stock control involved expenditure to manage goods. Stock has been one of the major assets of any company. Most at times, some companies suffer a great loss as a result of stock mismanagement. The stock constitutes the major capital of any company and therefore it should be well monitored so as to generate high profit for the company, which is any company's optimal goal. However, it should be noted that the availability of enough stock does not in the actual sense determine the success of any company; rather the way in which that stock is being managed will determine the profit of the company. Nevertheless, stock cannot be over emphasized, instead the method of controlling it should be pronounced while industries are functioning differently; so is the way of monitoring or controlling their assets especially stock.

Stock control entails a number of factors which are considered in the various chapter of this project. Among the factors included are the economic way of stock monitoring and how best industries handle or manages their stock by computer instead of the manual way.

1.1 TOPIC ANALYSIS

Stock monitoring system is an accounting system that will keep track of stock inventories to and from company stores, and also keeps customer's record. Since inventory control is the area in which the firm must decide what levels of inventory can be economically maintained. Hence, the firm must determine the most economical inventory level for each purchased and manufactured item and then maintain the inventory at this level.

Computers can be used in monitoring stock effectively in terms of efficiency, records, and storing items. Stock monitoring system will produce the desired information at the right time in the right amount with an acceptable level of accuracy and in the form required at an economical cost.

The system will keep track of all company stock of goods, that is, the issuance and receipt into the stock, maintain a ledger for all stock items and history of each stock item and the system will be used to monitoring internal consumable if desired.

1.2 HISTORICAL BACKGROUND OF THE COMPANY

Westcoast systems Nigeria limited was incorporated in 1990. It is a computer company with competent computer and communication experts with extensive knowledge and experience in a variety of inter-related computer services. It is in the rank of companies like Inlaks computers, DPMS, Charms, system specs, and Data flex in term of markets and services rendered. The company is corporate member of the Computer Association of Nigeria (COAN) and the computer Vendors Association of Nigeria (COVAN).

The aim of the company is to provide a hard-to-match technical and support service in the areas of hardware supply and configuration, communication, systems development and support to various sectors of the economy.

Towards achieving these objectives the company recruits a high caliber technical personnel and consultants locally and internationally for its various operations. The company also invests highly on local and overseas training of its professional employees because it looks on its employees to because it looks on its employees to achieving goals and objectives.

Westcoast priority is striving toward excellence to be better than the best, and in achieving this position, the company has established relationship with a number of overseas consulting, communication, software, Vendors and data base development outfits to provide it with.

Product support and enhanced skill base. It has a strategic relationship with Microsoft, compact, Dialogic, Micron, Novell, Oracle, and Draffix.

The company has a chairman and board of directors with a professional staff strength of 36 and has offices in Lagos, New York City, Abuja, Kaduna and port Harcourt.

The clients of the company includes:

- Mobil producing Nigeria
- FSB international Bank (FSB)
- African international Bank (AIB)
- CITIBANK Nigeria (CBN)
- Petroleum (special) trust fund (PTF)
- Guaranty trust bank (GTB)

.4 STOCK CONTROL

n some business, the work of stock control has been put under the care of the accountant: in this case it could e seen through the eyes of an administrator who tacks it on to the end of his other responsibilities. Sometimes t is put under indifferent works managers, where, as the boss of his department, it is not given the same ttention as the other production processes. In the distributive industries, however, warehousing or stock-eeping has not been able to attract to its ranks the type of person who can see its function as being similar to, nd as important as, a manufacturing unit.

t is gradually being realized that within this kind of operation very large savings can be made. To do this, the dministrative machinery has to be overhauled as well as the operating process. Measurements are needed and ystems must be instituted which will show exactly what is going wrong. In the stores department, then, the nain source of information will be the stock control.

nventory control, justifies a great deal of consideration and thought. The issues are enormous for, in very many ompanies, the majority of the working capital is locked up in stock. In fact, up to one to one third of the total nvestment of some concerns can be represented by stock.

We need to think of the space which the store occupies.
Space consumes money. Personnel are needed to move goods and materials about; fittings and equipments are o house it; clerks and machines are required to account for it; buyers are involved in negotiating of it and, in ome cases, salesmen are needed to sell the stock.

Those who are in charge of company policy should devise ways whereby they are always aware of what is happening to this part of their working capital. When you work into a store of any kind you should cultivate the habit of looking for negotiable currency, say one pound notes or Naira bills or-if you like-gold ingots! This should enable you to place the value of the items which are before you in their proper perspective.

It should not be necessary to stress further, because it readily becomes apparent that we are now talking about the life blood of any business concern. It is vital to any business; indeed, inventory or stock control is essential for any business which hopes to survive under highly competitive conditions.

1.5 STOCK HOLDING POLICY

It is best to break down the tangle of issues which surround the need for control and expose especially those important ones which are hidden. The purposes for which controls are to be made should be looked at so that they can be designed to give a stock-holding and stock-keeping policy which will avoid waste.

Some issues seem to be in direct conflict with each other. For example, when tempted to buy items in order to gain the benefits of quality terms we can find ourselves in danger of overstocking. We need to have a sufficient stock to cope with the ebb and flow of demand and yet at the same time to keep stock as low as possible. There are some other issues which are just as conflicting. A good policy supported by a good control system will enable us more easily to choose between the conflicting points.

We want controls which are going to enable us keep the total stock within a fairly budgeted maximum limit, fluctuating according to seasonal or production needs, but which is adequate for most, if not all, of our business requirements. Here there is another conflict. There are great pressures always to have full stock to cater for every possible eventually. We have to decide whether the cost in terms of space and capital is justified. Is this

really what is required? Or should we operate to have 90 per cent stock with the possible saving in space of 25 per cent, or of capital of 25 per cent ?

We want controls which enable us to have s sufficiency of right materials or goods for NORMAL DEMANDS. 'Emergency' items are stocked only if an out-of-stock position would incur great expense. For example, we should not stock the odd items which is wanted once a year and can be obtained very quickly. This means that we must have a system to enable us keep in touch with the variations in demand of different items.

1.6 STOCK LEVEL

Judgment of the correct balance between the service level and the level of stock is the real art of efficient stock-keeping. It may require courage to control the stock at a very low level and the controller who does this will be subject to enormous pressures from departments which have a vested interest in a full stock position.

With correct control and careful measurement, it should be possible to maintain a good service with relatively low stock levels.

A crude yardstick for a stock level is to hold 75 per cent of average consumption in stock throughout the year and to keep ordering level so that it fluctuates either side of this figure.

Stock levels are maintained at a point calculated to make the most profitable use of the firm's working capital.

1.7 STOCK-TAKING

Stock-taking is one of the chores of warehouse or store work. It is the couple process of verifying the quantity balance for the entire range of items held in stock-taking may also be defined as the valuation of stock held by firm. Stock-taking is undertaken either monthly, half a year or even annually. Stock-taking is meant to provide the information about the quantity of stock available after the company's year and the value of that remaining stock. Usually, companies value their stock according to the current market price. The information collected after stock taking is reflected in the company's financial record. Stock taking is vital for any firm because it determines the values of the firm's stock at the end of the year. Apart from the company evaluating its stock through stock taking, there is virtually no way for firm to calculate the value of their stock for any current year.

There are two methods of stock taking:

1. Fixed stock-taking: this is when the stock is counted and verified at fixed periods, for example annually or every two years.
2. Current stock-taking: this is a system whereby the stock is divided up say into twelve, which means that the stock can be counted and verified on a monthly basis, one-twelfth at a time.

ADVANTAGES OF STOCK-TAKING

1. It provides the values of the company stock.
2. It makes it easier for the firm to plan their budget
3. The process makes it possible for a firm to discover the items with defects and to find out if there are any packages missing due to stealing or otherwise.
4. It also enables company to monitor its progress.

DISADVANTAGE OF STOCK-TAKING

1. It is not always accurate about the total value of stock.
2. It delays production especially when conducted more than once a year.
3. Stock taking incurs, expenses, especially when the industry is large and some extra hands are to be hired for the process.

ECONOMIC ORDER QUANTITY AND STOCK VALUATION

Inventory may be defined as all goods held for sale to customers or held for the manufacture of good for sale to customers. Accounting for the inventory of a business firms includes the procedures for the valuation of inventory based on cost, department from cost (other valuation methods) and estimations of inventory.

Inventory is the term used in the United States of America to describe the assets of a company that are intended for sale in the ordinary course of business, are in the process of being produced for sale, or are to be used currently in producing goods to be sold. (in many other countries the term stock is used instead of inventory). What constitutes inventory for a particular company depends on the normal operating activities of the company.

The term inventories is used to designate (1) merchandise held for sale in the normal course of business. (2) materials in the process of production or held for such use.

LITERATURE REVIEW
2.0 COST ASSOCIATED WITH INVENTORY

When managing goods for sale in a retail organization, five cost categories are important:

1. **Purchasing costs:**

These are usually the largest single category. They can be affected by discounts available for different purchase-order sizes and be credit terms offered by the supplier.

2. **ordinary costs:**

These consist of the clerical costs of preparing order and the special processing and receiving costs related to the number of orders processed.

3. **Carrying costs:**

These costs arise when stocks of goods for sale are held. They consist of the opportunity cost of the investment tied up in inventory and the costs associated with storage, such as space rental and insurance.

4. **stock out costs:**

\ stock out arises when a unit of stock is demanded but is not readily available to the customers. A firm may respond to the shortfall by expediting an order from an outside supplier. Expediting costs include the additional ordering costs plus any special associated transport costs. Alternatively, the firm may lose a sale due to the stock out. In this case, stock out costs includes the lost contribution margin on the sale plus any customer ill will generated by stock out.

5. **Quality costs:**

The quality of a product or service is its conformance with pre-specified (sometimes preannounce) standard. Quality cost are of two kinds: (1) costs incurred to increase the probability that a delivered product is in conformance with its specifications and (2) costs incurred when a delivered product is not in conformance with its specification. Inspection costs are example of (1). The cost of a replacement product is an example of (2).

2.1 THE ECONOMIC ORDER QUANTITY (EOQ) MODEL

Economic order quantity is the minimum point on the total cost curve, the summation of the two other cost curves. But other costs are involved as well. With large orders in addition to higher storage costs, more capital is tied up in inventory investment, higher taxes result and insurance costs are higher. More over, there is increased likelihood of damage, deterioration of goods and obsolescence. At the same time, small orders bring increased handling costs, less opportunity for quality discounts and greater likelihood of ***stock out,*** or situation in which a desired product is not immediately available.
Despite the complexity of inventory management, it is one area of marketing that has not been subjected to a great deal of mathematical analysis. The economic order quantity has been reduced to this classic formula:

$$EOQ = \sqrt{\frac{2DS}{I}}$$

Where

D= the annual volume of sales in units
S= the cost of placing an order
I= the cost of storing an items for a year.

The economic order quantity (EOQ) decision model focuses on the trade-off between ordering costs and carrying costs. Assumptions made when using this model includes the following:

1. The same fixed quantity (E) is ordered at each point.
2. The demand for the goods for sale is known with certainly. There is also certainly about the purchase order lead time. The time between the placement of an order and it delivery.
3. Purchasing cost per unit is unaffected by the quantity ordered. This makes purchasing cost irrelevant to determining the optimal EOQ size.
4. The cost of stock out is so prohibitively high that inventory is always replenished before a stock out occurs.
5. Costs of quality are recognized in purchase-order size decision only the extent that they can be included as a component of ordering costs or carrying cost.

Given these assumption, we have:

Total relevant costs= Total ordering costs + Total costs.

A retailer, mesh computers Ltd, purchases computer diskettes from an outside supplier at ₦4 per diskette. Annual demand is 5,000 diskettes at the rate of 20 per working day. The lead time for diskette purchases is two weeks. The following cost data are available:

Desired annual return on investment,	=	10% * ₦4 = ₦0.40
Relevant insurance, taxes, breakages per unit per year	=	₦0.10
Carrying cost per unit per year	=	₦0.50

Costs per purchases order:

Clerical cost, stationery, postage, telephone etc ₦10.00

What is the economic order quantity for diskettes?

SOLUTION:

The formula for the EOQ model is:

$$\sqrt{\frac{8}{}}$$

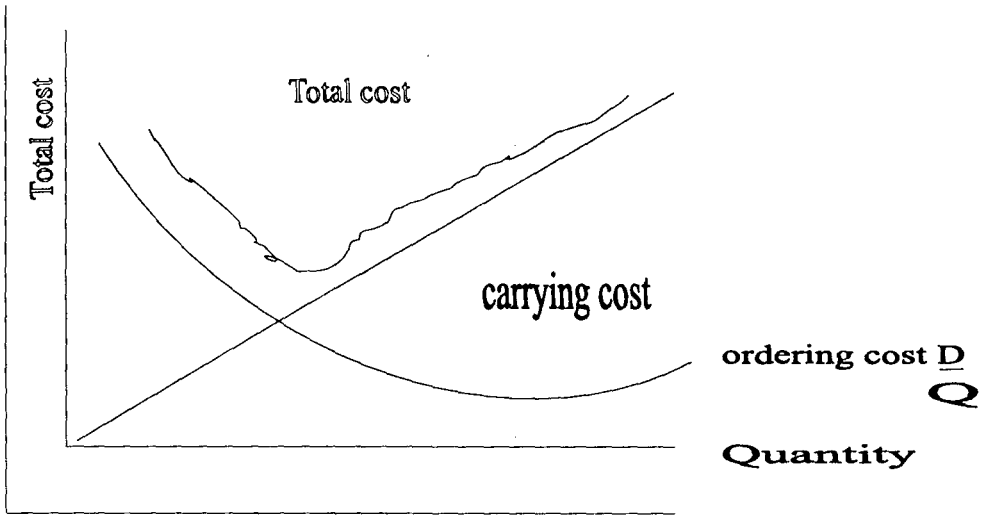
$$EOQ = \frac{2DS}{I}$$

$$= \sqrt{\frac{2(5{,}000)\ (₦\ 10)}{₦0.50}}$$

$$= \sqrt{200{,}000}$$

= 447.21
= 447 units

Graphical analysis of Economic order quantity for Mesh computer limited is shown below:



2.2 PRODUCT MODEL

The economic order quantity model derived earlier can be amended for a situation where an organization does not order items but manufactures them within the organization, that is the organization both produces and stocks the product in such a case, our model formula is modified as:

$$EOQ_P = \sqrt{\frac{2DC_O}{(C_C(1-D/r))}}$$

Where

D= Annual demand in units
C_o= cost of ordering or set up cost
Cc= carrying cost of inventory or Holding cost
R= annual rate of production

A computer company has steady demand for one of his product of 100 Unit per week. The product can be produced at the rate of 400 Unit per week. The production cost per unit is ₦ 25. The company's cost of capital is 20%, other stock holding cost components can be taken for granted. Calculate the economic order quantity, assuming 50 working weeks per year.
Required
Solution:

$$EOQ_P = \sqrt{\frac{2DC_O}{(C_C(1-D/r))}}$$

C_O = 400, D = (100*50) = 5,000,
R= 400*50=20,000,
C_C = 20% OF 25 = 5
= 1032.79
= 1033 Units

2.3 PROBABILITY MODELS

Probability model takes care of situation of uncertain demand or usage under an uncertain situation; usage or demand during the lead time may be expected, at times shortage might be experienced while occasionally excess demand may be experienced. To break even therefore we need to the trade off between cost of stock out and holding cost associated with excess inventory.

Example:

The entire lots of purchases materials is delivered to the warehouse at a time ordering are estimated at ₦ 45 per order and carrying cost for the resultant inventory are about ₦ 1.5 per unit per year out of stock cost are estimated to be ₦ 2 for every demand unit but not available.

The procurement time is a constant 2 weeks and the demand schedule for the items is as follows:

Demand/lead time In units	probability of occurrence
800	0.04
900	0.06
1000	0.80
1100	0.06
1200	0.04

Number of order in a year = 52/2 = 26 weeks
Out of stock cost ..... = ₦ 2.00

Annual consumption = expected demand per lead time multiply by number of order per year.

D is the Annual consumption.

D = Expected demand * number of order per year

= 1000*26 = 26000

$$EOQ = \sqrt{\frac{2DC_o}{I}}$$

$$= \sqrt{\frac{2*45*26000}{1.5}}$$

= 1249 Units.

If the company maintains 1000 units (average demand per lead time) and the expected demand is greater than the actual demand, the EOQ will be maintained. Then the demand per year lead time at 800 units 900 units represents excess of 200 units and 100 units respectively 100 units is to be maintained. Stock out started at 1100 units 1200 units of 1000 units is maintained. At 1000 units, expected demand = actual demand.
The management consider the variation in demand to be negligible in the sense that the economic order quantity will be maintained in the event that actual demand exceed that which is expected.

2.4 INVENTORY ACCOUNTING SYSTEMS

In accounting for inventory we need to determine both the amount of inventory on hand at the end of the accounting period, which is reported as a current on the balance sheet, and the cost of inventory sold during the accounting period, which is reported as a deduction from sales on the income statement. The amount of inventory sold can be determined by either the periodic inventory system or the perpetual accounting system.

(a) THE PERIODIC ACCOUNTING SYSTEM

As the name implies, when the periodic accounting system is used, the amount of the inventory on hands is determined only periodic only periodically. All inventory acquired during the accounting periodic is recorded by debiting the purchases account. The amount in purchases account at the end of the accounting period is added to the cost of inventory on hand at the beginning of the period to determine the total cost of goods available for sale. The amount of inventory at the end of the accounting period is determined by counting inventory units. The cost of this ending inventory is deducted from the cost of goods available for sale to determine the cost of goods sold.

Under the periodic systems, the balance in the inventory account is adjusted only when physical count is made. Once the inventory on hand has been determined by physical count at the end of an accounting period, the inventory account is credited for the beginning inventory balance and the purchases account is closed with a credit.

(b). THE PERPETUAL ACCOUTING SYSTEM

When the perpetual accounting system is used, there is a continuous record of changes in inventory. Inventory, rather than purchases, is debited when inventory is acquired. Sales of inventory are recorded by debiting the cost of goods sold account and crediting the inventory account for the cost of merchandise sold. Thus, the perpetual inventory system provides a continuous record of the balance in both inventory account and cost of goods sold account. If a company has a computerized bookkeeping system, it is possible to record additions to and computerized bookkeeping systems have made the perpetual inventory system cost-effective for an increasing number of companies.

Even though a physical count is not required to determine inventory on hand when the perpetual system is used, all inventory items should be counted at least once a year in order to verify the perpetual inventory balance. Since the purpose of this physical count is to verify the perpetual inventory records, the count need not be made at a single point in time and need not occur at or near the end of the accounting period.

2.5 DETERMINING INVENTORY COST

To place proper valuation on inventory, a business must answer the question: what cost should be included in inventory cost? Then, when identical goods are purchases at different costs, which cost should be assigned to the items sold?

The cost of merchandise inventory is made up of the purchases price and all expenditures incurred in acquiring such merchandise, including transportation, custom duties and insurance against losses in transit. The purchases price can be readily determined, as we may some of the other costs. Those that are difficult to associate with specific inventory items may be prorated on some equitable basis. Minor costs that are difficult to allocate may be left out entirely from inventory cost and treated as operating expenses of the period.

If purchases discount are treated as deduction from purchases on the income statements, they should also be deducted from the purchases price of items in the inventory. If it is not possible to determine the exact amount of discount applicable to each inventory items a prorate amount of the total discount for the period may be deducted instead.

One of the most significant problems in determining inventory cost comes about when identical units of a certain commodity have been acquired at different unit prices during the period. When such is the case, it is necessary to determine the unit prices of the items still on hand.

2.6 COST NOT INCLUDED IN INVENTORY COST.

Generally, inventory cost includes all necessary outlays to obtains the goods, get the goods ready to sell and have the goods in the desired location for sale to customers. Thus, inventory cost includes:

1. Cost of insurances on the goods while in transit.
2. Seller's invoice price less purchases discount.
3. transportation charges when borne by buyer.
4. Handling costs, such as the cost of pressing clothes wrinkled during shipment.

2.7 METHODS OF DETERMINING INVENTORY COST

There are three main methods of determining inventory cost at the end of an accounting period. These methods are:

(i) First-in, first-out
(ii) Last-in, first-out
(iii) Weighted average.

(i) **First-in, first-out method.**

The first-in, first-out (FIFO) method of costing inventory is based on the assumption that costs should be charged against revenue in the order in which they were incurred. Hence the remaining is assumed to be made up of the most recent costs. The illustration of the application of this method is based on the following data for a particular commodity:

March 8	inventory .....200 units at ₦ 9	₦ 1,800
April 11	purchases ..... 300 units at 10	₦ 3,000
May 15	purchases .....400 units at 11	₦ 4,400
August 11	purchases ..... 100 units at 12	₦ 1,200

Available for sale during year .... 1,000 .....₦ 10,400

The physical count on December 31 shows that 300 units of the particular commodity are on hand. In accordance with the assumption that the inventory is composed of the most recent costs, the cost of the 300 units is determine as follows:

Most recent costs,	Nov 18 .....100 units at ₦12	₦ 1,200
Next most recent costs,	Sep 21 ..... 200 units at ₦ 11	₦ 2,200
Inventory,	Dec. 31 .....300	₦ 3,400

Deduction of the inventory of N3,400 from the N10,400 of merchandise available yields N7,000 as the cost of merchandise sold, which represents the earlier costs incurred for this commodity.

In most business, there is a tendency to dispose of goods in order of their acquisition. This would be particularly true of perishable merchandise in an enterprise and goods in which styles or model changes are frequent. Thus FIFO method is generally in harmony with the physical movement of merchandise in an enterprise. To the extent that this is the case, the FIFO method approximates the result that would be obtained by the specific identification of costs.

(2) **last-in, first-out method**

the last-in, first-out Method (LIFO) method is based on the assumption that the most recent costs incurred should be charged against revenue. Hence the inventory remaining is assumed to be composed of the earlier costs. Based on the illustrative data above, the cost of the inventory is determined in the following manner:

Earlier cost,	March 8 ..... 200 units at	₦ 9	₦1,800
Next Earlier cost,	April 11 .....100 units at	₦10	₦1,000
Inventory,	Dec 31 300	.....	₦2,800

Deduction of inventory of N2,800 from the ₦10,400 of merchandise available for sales yields ₦7,600 as the cost of merchandise sold, which represents the most cost incurred for the particular commodity.

The use of LIFO method was originally confined to the relatively rare situation which the units are sold were taken from the most recently acquired stock. Its use has greatly increased during the past few decades and it is often now used even when it is not like the physical flow of goods.

(3) weighted average method

the weighted average method is sometime called the average cost method, is based on the assumption that costs should be charged against revenue according to the weighted average unit costs of the goods sold. The same weighted average unit costs are used in determining the cost of merchandise remaining in the inventory. The weighted average unit cost is determined by dividing the total cost of the identical units of each commodity available for sale during the period by the related number of units of that commodity, that is

$$W.A = \frac{\text{Total cost of goods available for sale during the period}}{\text{Total units of goods available during the period.}}$$

Assumption the same cost data as in the preceding illustration, the average cost of 1000 units and the cost of the inventory are as follows:

Average unit cost ..... ₦10,400/1,000 = ₦10,40
Inventory, Dec 31 .....300 units at 10,40 ..... ₦3,120

Yields 7,280 as the cost of merchandise sold, which represents the average of the costs incurred for this commodity.

For business in which various purchases of identical units of a commodity are mingled, the average methods have some relationship to the physical flow of goods.

2.8 WASTAGES

If wastages occurs in the stores through spillage, deterioration, pilferage or obsoleteness, the amount can be shown as separate expense (an overhead) or it can be absorbed into the cost of good materials issued to production.

EXAMPLE:

Assume 2,000 units of material or commodity x are purchased for N3, 500. 1,760 units are issued in production and at the end of the month 142 units are left in stock. That means 98 units has been "lost" the following will show how the cost of wastage is absorbed into the cost of good materials charged to production.

QUANTITY	RATE	AMOUNT
Wastage	-	-
Issued to reduction 1, 760	1, 84	3, 238
Closing stock 142	1, 84	262
2000		3, 500

Total = $\frac{\text{Total cost}}{\text{Good unit}} = \frac{3,500}{1902}$

= ₦1.84

However, an element of this month wastage is carried to next month in the closing stock figure. Conclusively, if the cost of good material, the production proceeds is penalized because it bears the cost of inefficiency or waste in the stores.

2.9 PURPOSES OF INVENTORIES

Inventory is expensive. The organization must store it, move it from on place to the other and safeguard it. The organization also incurs the cost of having funds tied up in inventory and therefore unavailability for other, profit-making investments. We will have more to say about inventory costs later. The point is that inventory costly, and organizations would prefer to do other things with their funds, inventory, then, must exist for purpose. Here are the most important ones:

1. To promote customer service
2. To promote manufacturing flexibility
3. To promote certainty in production and operation
4. To promote profits through price specification
5. To enhance production smoothing; that is, relatively consistent-rates of production over time.

SYSTEM ANALYSIS

System analysis is a discipline whose development goes back to the late 1950 at which time commercial organization began to make use of computer. Difficulties emerged when programmers were asked to computerized certain part of a business system or operation which were less clearly defined.

Indeed, there are two broad stages to achieve a new system. To carry out a detailed analysis of the existing system and then to design a computerized system upon the analysis carried out.

System analysis is defined as the method of determining how best to use computer with other resources to perform tasks which meets the information needs of an organization and method which is a general approach to solving procedural problems.

3.0 OVERVIEW OF THE EXISTING SYSTEM

Most computer companies develop automatic system for organization without themselves being computerized.

Westcoast systems limited use a standard stock control method for its operations, though not fully computerized. Some of the operation of the company is still being carried out manually.

The company records its out takes on a form that looks like a cash book. More over, it records its stock Received and issued on a form they called stock received and stock issued note respectively. It also has the stock transfer note.

The stock Received note keeps or evident the amount of goods received into store. This note keeps record of all goods that is in the store. It has the following format:

STOCK RECEIVED NOTE.

DEPT	REF.....
DESTINATION .....MAIN STORE:	INV. NO .....
	DATE .....
QYT	DESCRIPTION

NAME OF RECEIVER ..... FROM .....

SIGN ..... SIGN .....

Stock issued note keeps record of the movement of stock from store to the individual users. This note must be authorized by an officer of the store. The company being a computer vendor, does not only maintain systems but services other companies and individuals in terms of suppliers of computer and its accessories. This note keeps record of stock from store to their clients, its looks like this:

STOCK ISSUED NOTE.

DEP.....	**INV . NO** .....
DESTINATION	DATE .....
QYT	DESCRIPTION

NAME OF RECEIVER ..... AUTHORIZED BY: FROM .....

SIGN ..... SIGN .....

Stock transferred note: this note keeps record of interdepartmental movement of stock for examples; stock could be moved from store to software department still within the same company. This note backs up stock movement in order to know the final destination of stock.

The company has a system in place which has the format of the stock received note. The systems allows for an update of transaction made on daily basis using the information manually entered into the hard copies.

Reports on stock are being generated manually and stock is physically counted at the end of every week.

3.1 PROBLEMS ASSOCIATED WITH EXISTING SYSTEM

Manually stock control is very cumbersome and tedious in term of recording of the quantity sold, and re-orders stock. The following are some of the major problems of manual system.

1. Manual system requires staff and clerifal effort which involves a lot of paper works, documentation which need to be supervised and well controlled.
2. It is not a reliable system because of the limited storage capacity which is being done by filling, photo coping and so on, and also error goes unnoticed until the jobs are audited.
3. Costing is involved, money used in buying office materials and stationeries like paper, stapler, office pins, photocopy, pen and others may not be necessary in a computerized system.
4. In manual system, too many files are generated. Stock recording in manual system is very sophisticated in material requisition, receive note, invoice note and source document for updating a physical stock balance.
5. Error transcription or missing of stock document may occur. Updating of stock may be very difficult on manual system unlike computerized system where we can add, delete, update, modify as whenever we wish.

3.2 PROBLEM DEFINITION

The purpose of problem definition is to enable us establish whether there is a need for a new system and if so to specify the objectives of the system: or to clearly define the problem to be solved or the new system to be designed.

The project: Stock Monitoring System has the following objectives:

1. To provide the most efficient method of handling large data and provide management with timely information on stock.
2. To maintain a ledger for all stock items and history of each stock items could be obtained through the system.
3. To established the most desirable distribution of services and product throughout the company.
4. to clearly define orderly method of handling transaction activities using sound organization procedures
5. to minimize the operating cost and maximize potential saving for the organization.

3.3 MERITS OF COMPUTERIZED SYSTEM OVER MANUAL SYSTEM

Computerization will bring amongst others the following benefits:

1. **Effectiveness and Efficiency:**

Computerization will facilitates the most effective and efficient handling of large volume of data provide management with accurate and timely information on stock.

2. **Turnaround time is reduced:**

Computer is able to process data quickly, making available information on stock and also process large volume of stock which can be retrieved when needed.

3. **Accuracy:**

Stock monitoring system has erased frequency errors committed by clerks due to human factors; computers are sure of providing accuracy result so long as it is being fed with correct input.

4. **Cost:**

Computerization will bring about minimization on operating costs and thereby increasing profits that is profit maximization for the organization.

5. **Storage:**

Computer has a high storage capacity particularly suited to handle large amount of stock information which can be kept on minimize space.

6. **Complexity:**

Stock involves a lot of calculation computer can perform the most complex calculations, as long as the application can be programmed then computer can provide the required answer.

7. **Repetitiveness:**

Processing circles that repeat themselves over and over are ideal suited. Once stocks are input into the computer, it goes on automatically performing as many circles of operations as required.

3.4 FEASIBILITY STUDY

Feasibility study enables us to investigate the project in sufficient depth to be able to provide information which either justifies the development of the new system or show why the new project should not continue.

Feasibility study was conducted to analyze the existing manual transaction and stock control in BitCom systems Ltd. In order to determine whether the proposed system should be developed. The study was conducted with the corporation and assistance from the store keeper of the company.

RESEARCH METHODOLOGY

Research methodology discusses the technique and methods employed for fact and fault finding; this includes interview, questionnaire, document review and observation.

(i) **Interview:**

Personal interview was held with a number of individuals and companies, so as to clarify issues associated with stock control.

(ii) **Questionnaire:**

This helps in obtaining specific information usually printed in form of questions about stock control so that the actual data can be analyzed and interpreted resulting in a better appreciation of the problems.

(iii). **Document review and Observations:**

Some important documents were studies and a general observation of the company was made.

3.5 FEASIBILITY REPORT

Having been able to study or familiarize ourselves with the operations going on in the company, and most importantly, a comprehensive study of the existing system for stock monitoring there are sufficient reasons that justify the development of a new system. Among the flaws discovered that should have been taken care of in the existing system are as follows:

(i) it is expected for effective and efficient stock monitoring, that a system should be available which will be able to carry out some mathematical and accounting calculations as against the manual calculator processing.

(ii) We discovered from our investigation that weekly, monthly and annual reports are required as the case may be, about the state of the stock. The weekly report is generated by manually counting of stock remaining and subtracting from the initial stock at the start of the week. This is repeated for subsequence weeks to generate monthly and yearly reports.

(iii) There is non comprehensive first hand information for auditors to work on without having to search through the various and thousands of stock notes used in the fiscal year.

If a system were to be in place to update the daily transactions and necessary calculations, the stock level at any point in time could be known without physical counting. This also allows the auditors to work with the computer system independently so as to have general information before undergoing the actual auditing procedures.

Based on the aforestated reasons, we have resolved that there is justification for a computerized system to be developed which will be able to take care of the flaws deemed necessary for a standard stock monitoring.

3.6 REQUIREMENT SPECIFICATION

To run this newly developed system efficiently, you must have certain hardware and software installed on your computer. The system requirements include:

Hard ware:

- An 80486 or higher microprocessor.
- A hard with minimum of 50 megabytes available space for a full installation.
- 8 megabytes of RAM
- A mouse or suitable pointing device.
- VGA or higher-resolution screen supported by windows.
- A 3.5" Disk drive
- A printer.

Software:

- Microsoft windows 95 or windows 3.1
- Microsoft visual basic 5.0

The peripheral requirement include

- UPS (uninterruptible power supply) system.
- Stabilizer
- Backup device (e.g A surestore).

3.7 COST AND BENEFIT ANALYSIS

The following is the cost of running our stock monitoring system effectively. The costing is categorized into development cost and operating cost.

DEVELOPMENT COST

(i) Installation/delivering cost = ₦ 45, 000
(ii) Stock monitoring system package cost

- Windows 95 = ₦45,000
- Visual basic 5.0 = ₦50,000
- Microsoft access = ₦22,000
- Sheridan data widgets = v 17, 000

= ₦179, 000,00

OPERATING COST

Maintenance cost

- Environment cost = ₦ 140,000
- Software modification = ₦25,000
- System servicing cost = ₦42,000

Implementation

- Staff training cost = ₦40,000
- Staff salary/wages = ₦110,000

Hardware cost

- 166 MHz Pentium (PC) = ₦85,000
- Laser jet 5L printer = ₦40,000

User and staff facilities cost

- Furniture cost = ₦ 40,000
- Stationary = ₦ 62,000
- Transportation = ₦ 60,000

= ₦ 644, 000, 00

Total cost = Dev. Cost + operating cost

= ₦ 179,000 + 644,000
= ₦ 823,000

BENEFITS

The following benefits to be derived on installation of our stock monitoring system.

1. it will reduces the duplication and inconsistency in data
2. The number of personnel working on stock will be greatly reduced.
3. Accuracy and speed with which data is processed is increased.
4. Loss of forms and documents that is major problem in manual system will be eradicated.
5. share ability of the data and its integrity is promoted
6. Maintenance cost is cheap and auditing is made easy.
7. Lastly, human error is reduced.

SYSTEM IMPLEMENTATION

The new system designed in this project is an interactive one. A batch (off-line) system would have been preferred for economical reasons, but it is not always up-to-date. In a computer based environment, there are various ways of processing data (that is batch, on-line-, real-time and so on), and various file organization method access organization). However, with such an interactive system as ours, where data should processed as soon as they are received, we will need an on-line-system with an indexed sequential file organization.

Also, considering the problems faced in the existing system which were highlighted in chapter three, our new system is also designed to look into ways of improving, if not totally eliminating the problems of the old system.

4.0 DESIGN METHODOLOGY

Top-down approach to system design will be used in designing our stock monitoring system. This method starts with the problem as a whole and decomposes it into individual components until the lowest component is reached. To achieve this goal, we will use stepwise refinement which is an early top-down design strategy proposed by Niklaus Wirth. The program architecture will be developed by successive refinement of the procedural levels in details. A hierarchy is developed by decomposing our problem in a stepwise fashion until programming language statement are reached.

In each step of the refinement, one or several instructions of the given program are decomposed into more detailed instruction. This refinement of specification terminates when all instructions are expressed in terms of any underlying computations or programming language. As tasks re refined, so the data may have to be refined, decomposed or structured and it is natural or refine the program and the data specifications in parallel.

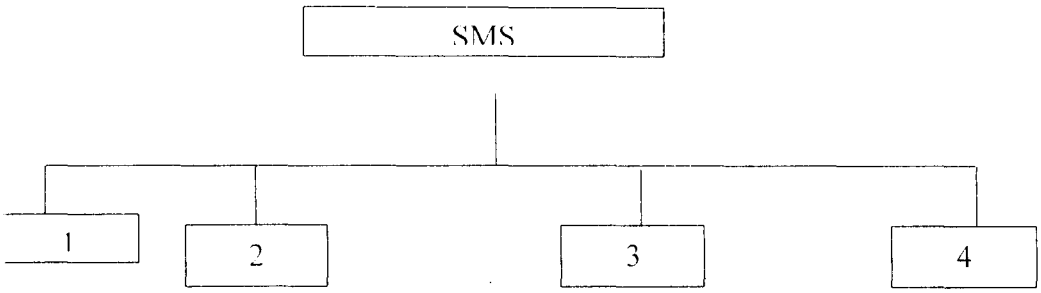
Every refinement step implies some design decisions. It is important that the program be aware of the underlying criteria for design decision and of the existence of alternative decision.

Refinement is actually a process of elaboration. We begin with a statement of function (or description of information) that is defined at a high level of abstraction. That is, the statement describes functions or information conceptually but provides no information about the internal working of the function or the internal structure of the information. Refinement causes the designer to elaborate on the original statement. Providing more and more detail as each successive refinement occurs.

In our problem, which we can define as "design of a stock monitoring system" this is at a high level of abstraction and can be developed to give a database system that will perform the following functions.

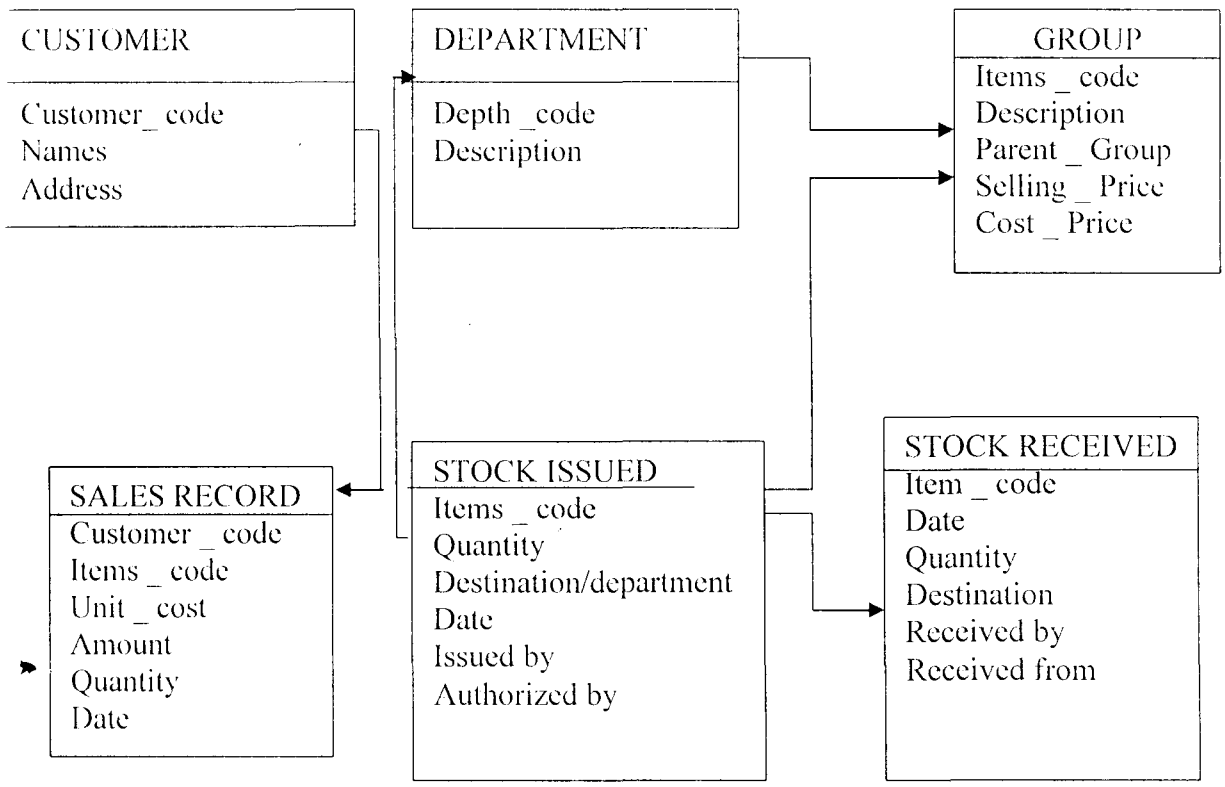
(1) keep stock control entries
(2) monitoring movement of stock
(3) generate required reports
(4) keep customers record.

This can be illustrated as follows.



1-4 can also be decomposed into individual sub-problems and the overall decompositions will lead to the general architecture of the new system. The modulator structure of the new system will be shown in section 4.4

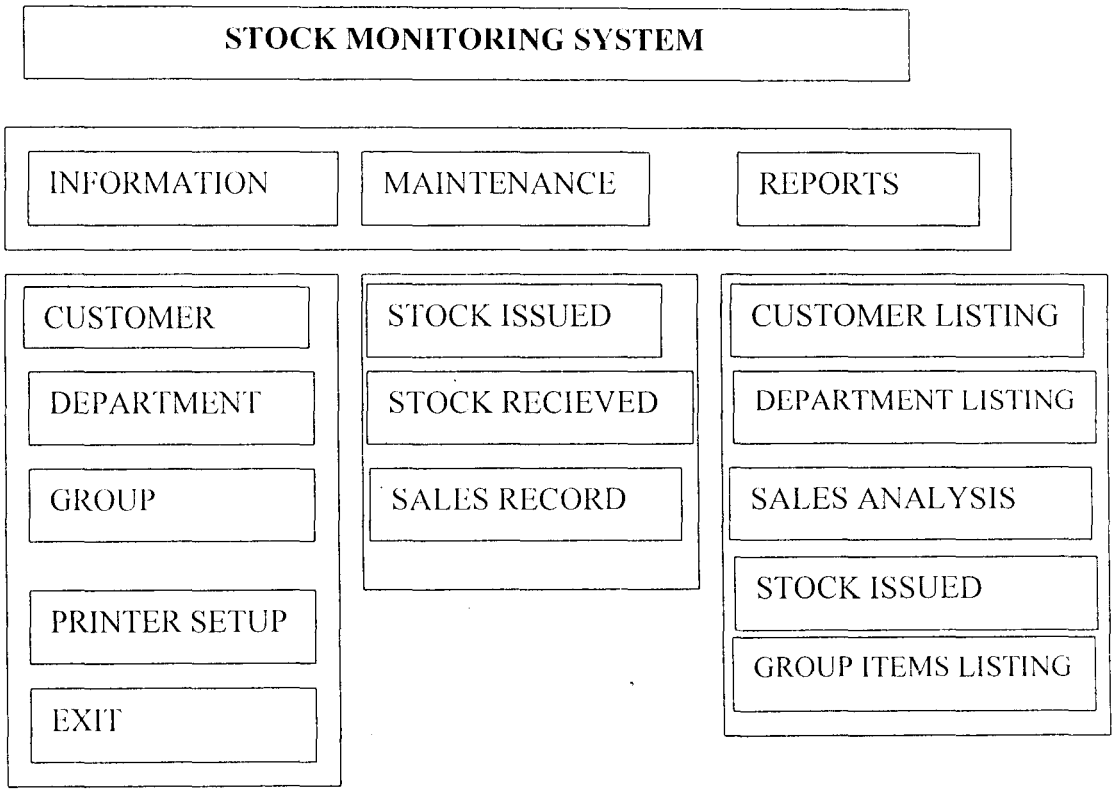
4.1 SYSTEM DATABASE MODEL



4.2 SYSTEMS FLOWCHART

For systems flowchart refer to Appendix A.

4.3 MODULAR STRUCTURE OF THE SYSTEM



4.4 DATA STRUCTURE

Data structure is the method used in organizing data processed by an algorithm. In this project data processed are organized in the following ways:

Table: GROUP

Columns

NAME	TYPE	SIZE
Item _ code	text	5
Description	text	10
Parent _ Group	text	15
Cost _ price	Number (Double)	8
Selling _ price	Number (Double)	8

Table: CUSTOMER

Columns

NAME	TYPE	SIZE
Customer _ code	text	5
Name	text	50
Address	text	50

TABLE: STOCK ISSUED

Columns

NAME	TYPE	SIZE
Dept _ code	text	5
Destination	text	50
Quantity	number	long integer
Item _ code	text	5
Description	text	50
Received	text	25

Table: SALES RECORD

Columns

NAME	TYPE	SIZE
Date	Date/ time	
Customer _ code	text	5
Description	text	50
Item _ code	text	5
Unit _ code	number (Double)	
Amount	Number (Double)	

Table: DEPARTMENT

Columns

NAME	TYPE	SIZE
Dept _code	Text	5
Description	Text	50

4.5 SYSTEM IMPLEMENTATION

This is the process of making the system fully operational, the efforts of the user department, the data processing department, the computer equipments and procedures must be coordinated and make to function smoothly. At this stage the conception requirements of the new system and the overall objectives are to be transformed into physical reality. The implementation of this system will be in three stages:

FILE CONVERSION

The old system of stock control in Westcoast systems stores its data on a stock card. All the data created must be stored in the format required by the new system which stores the data directly onto the magnetic tape or disk within the system.

SYSTEM CONVERSION

It is suggestion that parallel conversion of the system should be used. This method involves the use of the old and the new system concurrently of a planned period of time. With this method, the old system is phased out and the new system takes its place. This system offers the opportunity of comparing results of the manual system with the computerized system.

TRAINING OF STAFF

All the user involves with the new system must be carefully trained in order to measure progress as well as implementation with preparation in the process of development; the training exercise should be initiated so that the staff would meet a fully operational system.

SYSTEM DOCUMENTATION

Documentation is the final design consideration that describes the program in the proper form users and maintenance officers. It also allows the designer to develop a program library for subsequent developer to follow.

Stock monitoring system is a simple but sophisticated system that ensures the user has information about their organization vendors, the items they supply and the items currently expected from them. The user also has information about the materials they have in stock and those that have been reserved for some work and destinations.

SMS is a menu driven system which provides the basic levels of a stock control system. It enables the user to record stock movement in and out of inventory and it accomplishes basic stock control through the use of a series of operating reports. The system has three main modules, viz:

(1) Information
(2) Maintenance
(3) Reports

(1) INFORMATION SETUP:

This section contains information on customers. Group, and Department. It has five Submenus which are Group, customer, Department, Printer setup and Exit.

(2) MAINTENANCE:

This section has three submenus which are as follows:

(a) Stock issued browser: this browser keep the record of stock of stock in and out of store to users. This movement is usually authorized officer.
(b) Stock Received Browser: Here, the total goods received into store are recorded. The original of the stock and its description is contained in this section.
(c) Sale Record Browser: A comprehensive record of sale of stock are properly kept in this section.

(3) REPORTS:

These reports help the user control inventories when printed out. It has six submenus which generate the corresponding reports on demands. These submenus are:

(a) Sale Analysis
(b) Stock Issued
(c) Stock Received
(d) Customer Record
(e) Group Item
(f) Department.

SUMMARY CONCLUSION AND RECOMMENDATION

CHOICE OF PROGRAMMING LANGUAGE

The choice of language in system development is an important factor to be considered in developing a system like ours. In this project, pre hypertext protocol PHP was chosen as a programming language to be used due to is vast features ideal for programming.

PHP, is the fastest and easiest to create an application for Microsoft windows, whether you are an experienced professional or brand new to window programming, PHP provide us with a complete set of tools to simplify rapid application development.

USING THE PROGRAM

On the task bar in window 95 click START and select program then click on SMS. This will run the main menu on the screen, where options can be chosen from or if the program is to be run in DOS mode, at system prompt (C :>) type A: or B: as appropriate then press enter key, it will run the program main menu on the screen.

CONCLUTION

The project work is not only for the partial fulfillment for the award Post Graduate Diploma in computer science but it is also an insight to business owner and industrialists as well as reference to students who may want to do a similar project in the near future.

The stock control system of most large companies need interactive processing which brings new opportunities for good and effective designs which include menu driven systems.
Stock monitoring system, SMS is designed to provide management with timely information since the computer and user responds to each other in real-time mode. To ensure proper accountability and security in Westcoast, the system has a security portion for the system administration to give different access levels and password to the user and is enhanced with end of the month processing for all stock transactions.

RECOMMENDATION

Our stock monitoring system package was tested and found to be working effectively however, for the system to perform effectively in the real time and on-line environment, a minimum of a Pentium personal computer with at least 1.2 giga bytes of hard disk storage capacity and a processor of at least 133 MHz speed is recommended because of the volume of data to be handled. A laser printer is also recommended for printing reports.

The clerks in the account department should be trained for at least one week on how to use the new system.

Lastly, it is also recommended for any persons that may want to do further work on this project to concentrate on maintenance and expansion of the system to include invoicing, waybill, finished goods and work in progress.

References

1. Dr. U.Y Abubakar — Lecture Note on inventory control system 2010

2. Anders P. — Data processing, ELBS, low priced Edition, London Sixth Edition. 1987.

3. Charles T.H., George F — cost accounting- A management emphasis. Prentice-Hall of India, New Delhi, sixth Edition. 1988.

4. Francis A. — Business mathematics and statistics, ELBS, low priced Edition, London. 1987.

5. John w. — Warehouse management, ELBS, low priced Edition London. 1987

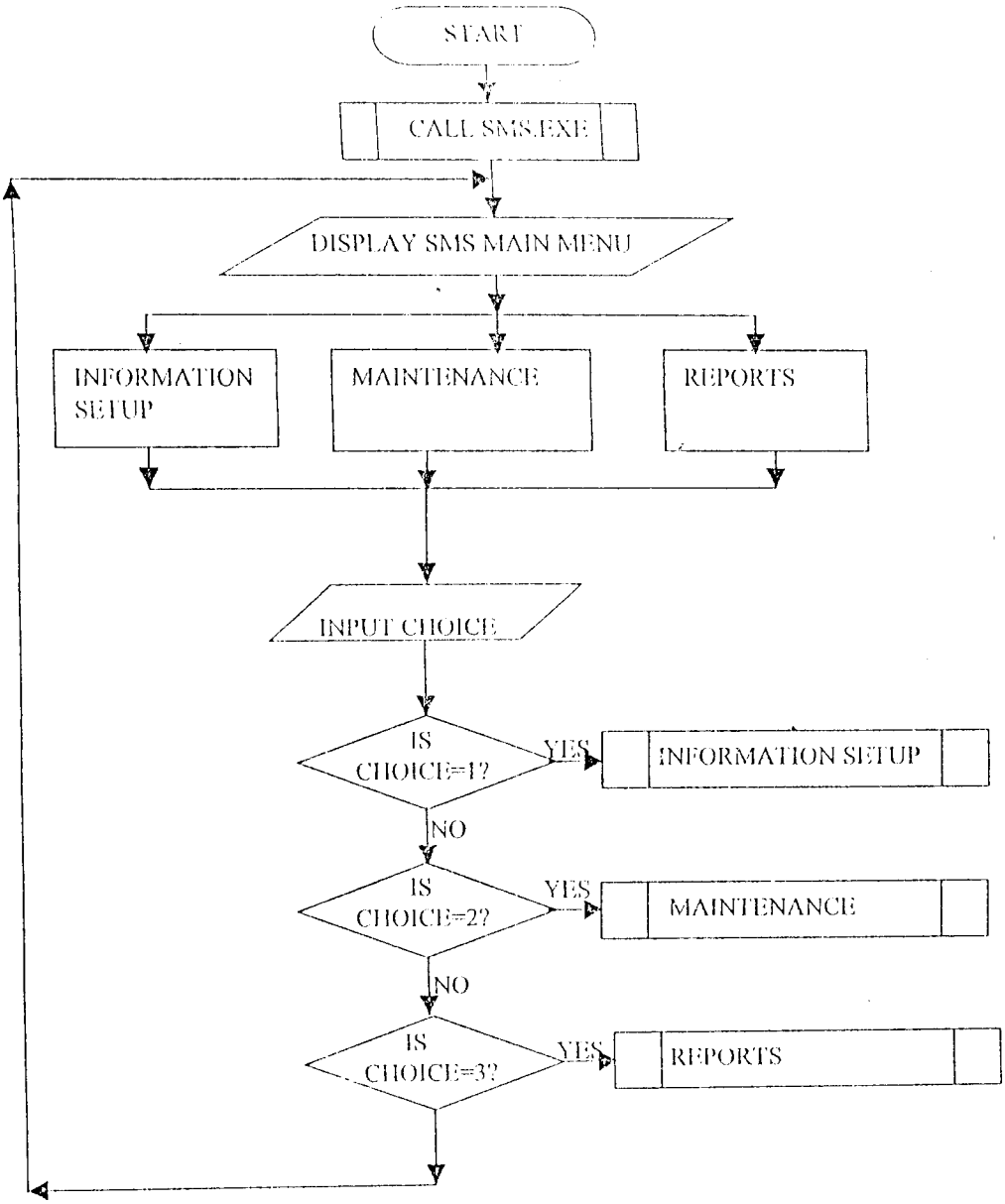
6. Melvin C.O et al — Intermediate Accounting Harcourt brace Jovanovich Publisher, fifth Edition. 1984

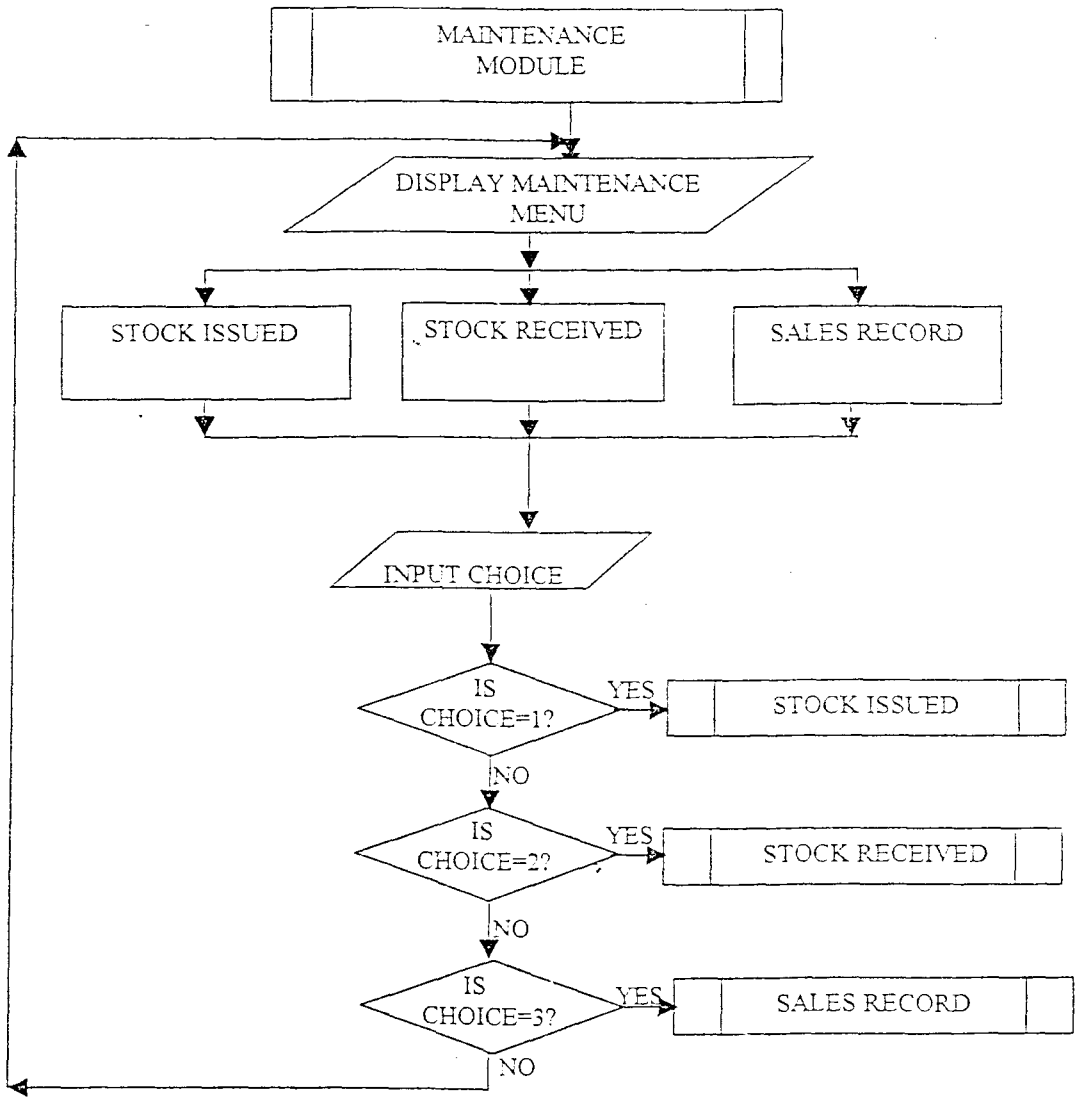
7. Morrison P. — Storage and control of stock, PITMAN, United State of America. 1985.

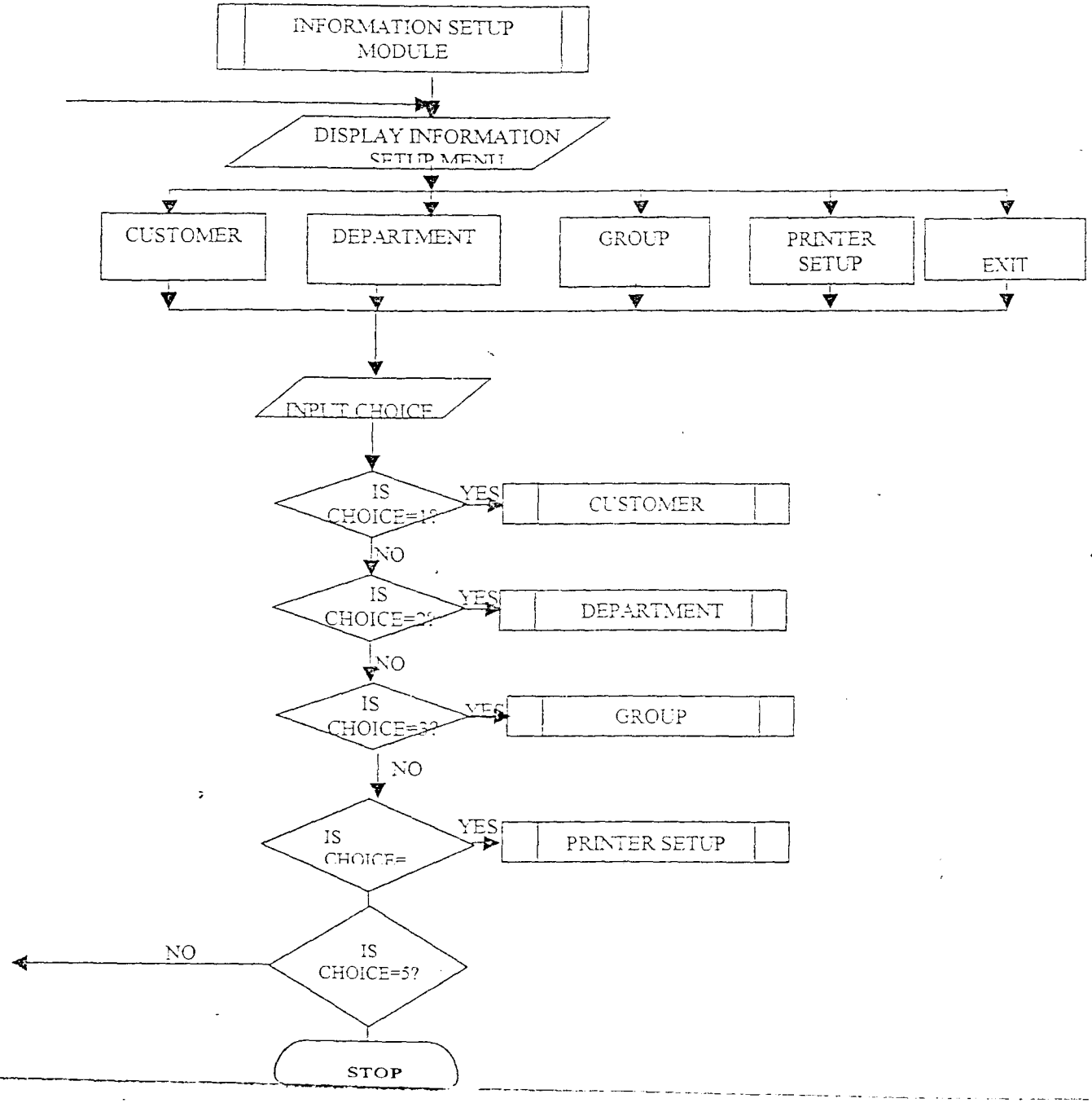
8. Roger H.H. et al — Financial Accounting, BP/IRWIN Boston, MA, fourth Edition. 1989.

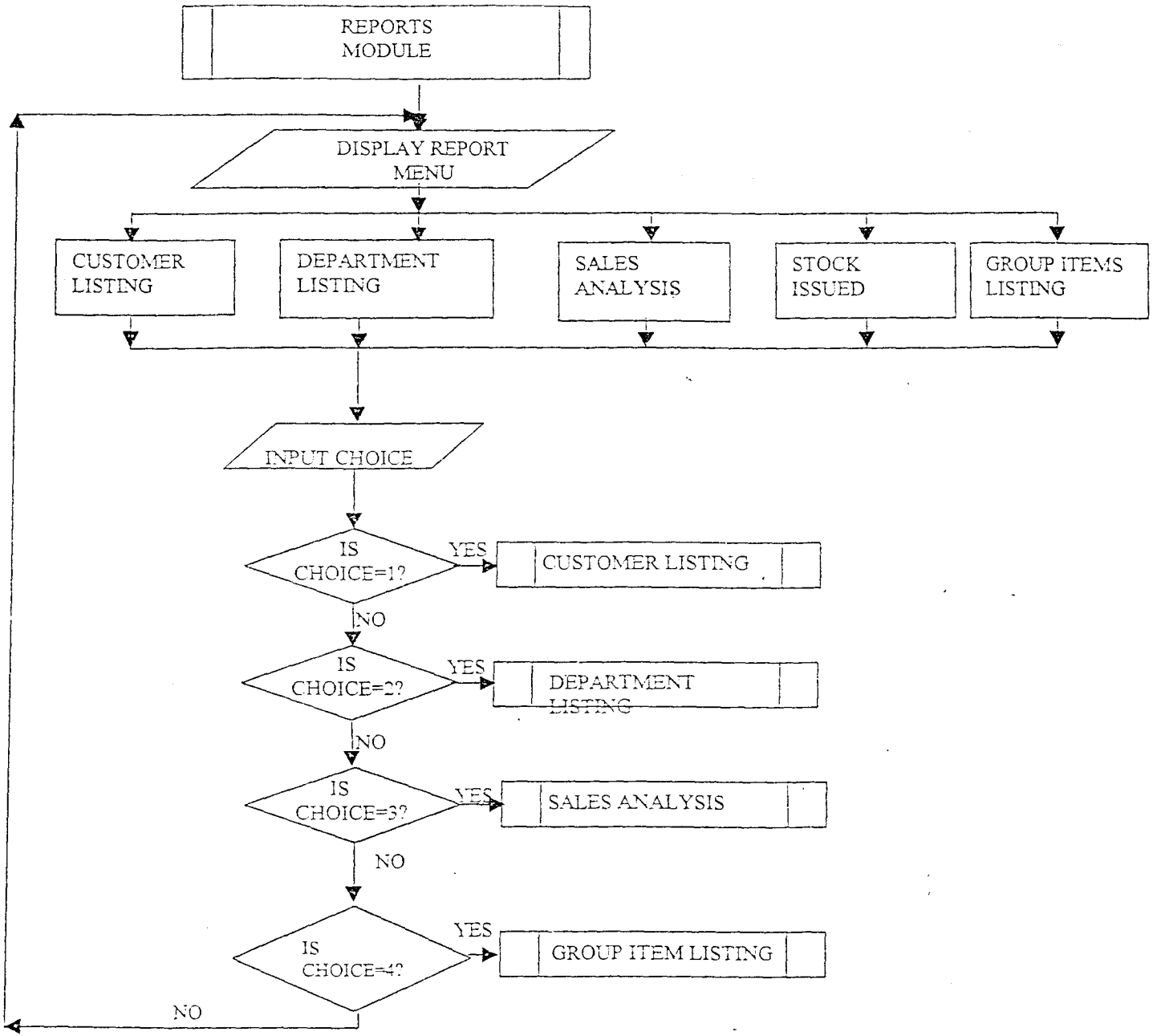
APPENDIX A

SYSTEMS FLOW CHART


START
CALL SMS.EXE
DISPLAY SMS MAIN MENU
INFORMATION SETUP
MAINTENANCE
REPORTS
INPUT CHOICE
IS CHOICE=1?
YES
INFORMATION SETUP
NO
IS CHOICE=2?
YES
MAINTENANCE
NO
IS CHOICE=3?
YES
REPORTS


MAINTENANCE MODULE
DISPLAY MAINTENANCE MENU
STOCK ISSUED
STOCK RECEIVED
SALES RECORD
INPUT CHOICE
IS CHOICE=1?
YES
STOCK ISSUED
NO
IS CHOICE=2?
YES
STOCK RECEIVED
NO
IS CHOICE=3?
YES
SALES RECORD
NO


INFORMATION SETUP MODULE
DISPLAY INFORMATION
CUSTOMER
DEPARTMENT
GROUP
PRINTER SETUP
EXIT
INPUT CHOICE
IS CHOICE=1?
YES
CUSTOMER
NO
IS CHOICE=2?
YES
DEPARTMENT
NO
IS CHOICE=3?
GROUP
NO
IS CHOICE=
YES
PRINTER SETUP
IS CHOICE=5?
NO
STOP


REPORTS MODULE
DISPLAY REPORT MENU
CUSTOMER LISTING
DEPARTMENT LISTING
SALES ANALYSIS
STOCK ISSUED
GROUP ITEMS LISTING
INPUT CHOICE
IS CHOICE=1?
YES
CUSTOMER LISTING
NO
IS CHOICE=2?
YES
DEPARTMENT LISTING
NO
IS CHOICE=3?
YES
SALES ANALYSIS
NO
IS CHOICE=4?
YES
GROUP ITEM LISTING
NO

APPENDIX B

PROGRAM LISTING

```
	//Stock In
		$facetitle = "Stock In";
		$subtitle = "Stock In";

		$msg = "";
		$msg .= "<p><form action='stockin.php' method='post'>Search <select
name='datespec'><option value='Today'>Today</option><option
value='Between'>Between</option></select>$dayselect $monthselect $yearselect and
$dayselect1 $monthselect1 $yearselect1<input type='hidden' value='$userid'
name='userid'><input type='hidden' value='$ontoken' name='ontoken'> by Category
<select name='cat'>$optcat</select> <input type='submit' value = 'Search'
name='op'></form><hr></p><p><form action='stockin.php' method='post'>Find Serial No
<input type='text' name='sn'><input type='hidden' value='$userid'
name='userid'><input type='hidden' value='$ontoken' name='ontoken'> <input
type='submit' value = 'Find' name='op'></form><hr><a
href='stockin.php?userid=$userid&ontoken=$ontoken&op=new'><font color='red'>Add New
Stocks</font></a></p><hr/>";

		$msg4rep = "<p>Stock In</p>";
		$reptitle = $facetitle . " - " . $subtitle;
		$repkey = "<a href='reports.php?msg=$msg4rep&reptitle=$reptitle'
target='blank'><font color='#FFFFCC'>Report</font></a>";

		//**********************************
		if(isset($_REQUEST['op'])){
			$op = $_REQUEST['op'];

			if($op=='new'){
				$msg = "<h5><font color='red'>NEW STOCK
IN</font></h5><form action='stockin.php' method='post'><table width='70%'>";
				if($fixprice=='yes'){
					$msg .= "<tr bgcolor='#cccccc'><td
width='20%'><b>Description</b></td><td
width='10%'><b>Quantity</b></td><td> </td></tr>";
					$msg .= "<tr bgcolor='$rowcolor'><td><select
name='product'>$optproduct</select></td><td><input type='text' name='qty' value='0'
size='6'></td><td align='right'><input type='submit' value = 'Add'
name='op'></td></tr>";
				}else{
					$msg .= "<tr bgcolor='#cccccc'><td
width='20%'><b>Description</b></td><td width='10%'><b>Quantity</b></td><td
width='20%'><b>Rate</b></td><td> </td></tr>";
					$msg .= "<tr bgcolor='$rowcolor'><td><select
name='product'>$optproduct</select></td><td><input type='text' name='qty' value='0'
size='6'></td><td><input type='text' name='rate' value='0'></td><td
align='right'><input type='submit' value = 'Add' name='op'></td></tr>";
				}


				$msg .= "<tr><td colspan='5' align='right'><input
type='hidden' value='0' name='numonlist'><input type='hidden' value='$userid'
name='userid'><input type='hidden' value='$ontoken'
name='ontoken'> </td></tr>";
				$msg .= "</table></form><hr/>";
			}

			if($op == 'Add'){
				$formerror = 'false';
				$productg = explode("-", $_POST['product']);
				$product = $productg[0];
				$qty = $_POST['qty'];

				if($fixprice == "yes"){
```

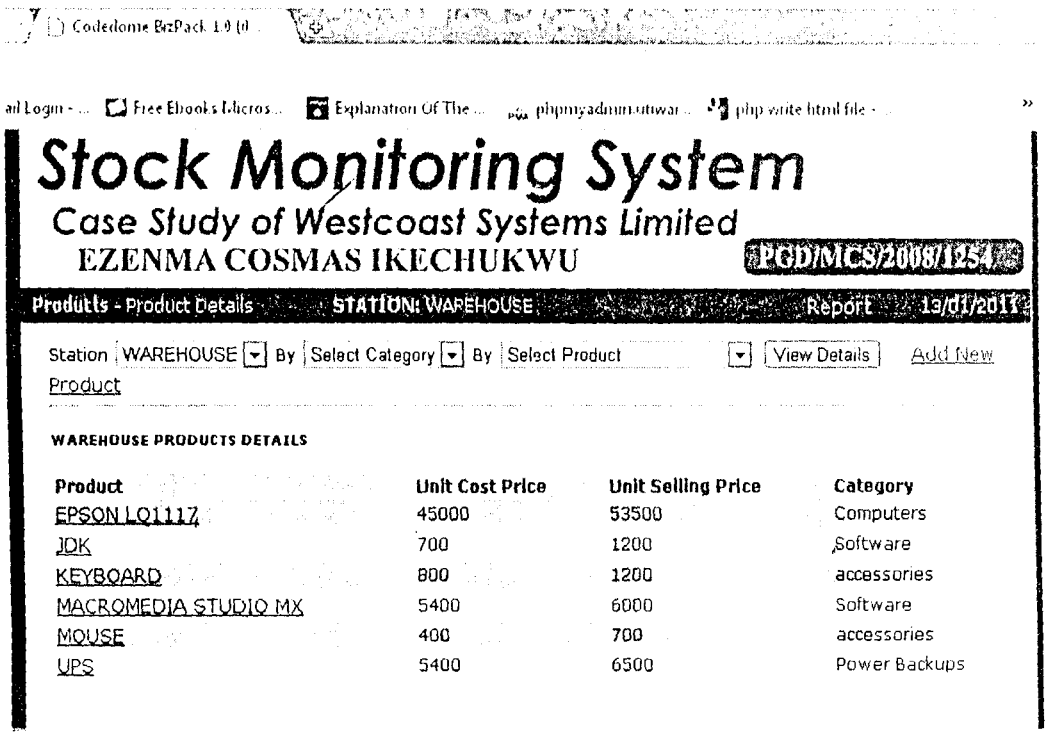
```
                                inventory code.txt
                                        $qryrate = "select cost_price from warehouse
where product='$product'";

                                        $resrate = mysql_query($qryrate);
                                        $rowrate = mysql_fetch_array($resrate);
                                        $rate = $rowrate[0];
                                }else{
                                        $rate = $_POST['rate'];
                                }


                                $numonlist = $_POST['numonlist'];
                                $pform = "<table>";
                                $pform .= "<tr bgcolor='#cccccc'><td
width='20%'><b>Description</b></td><td width='10%'><b>Quantity</b></td><td
width='20%'><b>Rate</b></td><td><b>Amount</b></td><td> </td></tr>";

                                $rowcolor = "#ffffff";
                                $tamount = 0;
                                $j = 0;
                                for($i=0; $i<= $numonlist; $i++){
                                        $p = "p" . $i;
                                        $q = "q" . $i;
                                        $r = "r" . $i;
                                        $c = "c" . $i;
                                        if(isset($_POST[$p])){
                                                if(isset($_POST[$c])){
                                                        $productl = $_POST[$p];
                                                        $qtyl = $_POST[$q];
                                                        $ratel = $_POST[$r];
                                                        $tamount += $_POST[$r] *
$_POST[$q];
                                                        $amount = $_POST[$r] *
$_POST[$q];
                                                        $amountf =
number_format($amount,2,".",",");
                                                        if($rowcolor=="#FFFFFF"){
                                                                $rowcolor="#CCCCff";
                                                        }else{
                                                                $rowcolor="#FFFFFF";
                                                        }
                                                        $p = "p" . $j;
                                                        $q = "q" . $j;
                                                        $r = "r" . $j;
                                                        $c = "c" . $j;
                                                        $pform .= "<tr
bgcolor='$rowcolor'><td width='20%'><input type='hidden' name='$p'
value='$productl'>$productl</td><td width='5%'><input type='hidden' name='$q'
value='$qtyl'>$qtyl</td><td width='20%'><input type='hidden' name='$r'
value='$ratel'>$ratel</td><td width='20%'>$amountf</td><td width='5%'><input
type='checkbox' name='$c' checked='checked'></td></tr>";
                                                        //$repkey .=
"&$p=$productl&$q=$qtyl&$r=$ratel";
                                                        $j += 1;
                                                }
                                        }

                                }

                                if($product != "Select Product"){
                                        if($qty == 0 || !is_numeric($qty)){
                                                $msg .= "<p><font
color='red'>Invalid quantity of <b>$product</b></font></p>";
                                                $formerror = 'true';
```

```
                }else{
                        if($rate == 0 ||
!is_numeric($rate)){
                                $msg .= "<p><font
color='red'>Invalid Rate for <b>$product</b></font></p>";
                                $formerror = 'true';
                        }
                }

        }else{
                $msg .= "<p><font color='red'>No items
selected!</font></p>";
                $formerror = 'true';
        }

        $amount =0;
        if($formerror=='false'){
                $p = "p" . $j;
                $q = "q" . $j;
                $r = "r" . $j;
                $c = "c" . $j;
                if($rowcolor=="#FFFFFF"){
                        $rowcolor="#CCCCff";
                }else{
                        $rowcolor="#FFFFFF";
                }

                $amount = $qty * $rate;
                $amountf = number_format($amount,2,".",",");

                $pform .= "<tr bgcolor='$rowcolor'><td
width='20%'><input type='hidden' name='$p' value='$product'>$product</td><td
width='5%'><input type='hidden' name='$q' value='$qty'>$qty</td><td
width='20%'><input type='hidden' name='$r' value='$rate'>$rate</td><td
width='20%'>$amountf</td><td width='5%'><input type='checkbox' name='$c'
checked='checked'></td></tr>";
                //$repkey .=
"&$p=$product&$q=$qty&$r=$rate";
        }
        $tamount += $amount;
        $tamountf = number_format($tamount,2,".",",");
        $pform .= "<tr><td colspan='3'
align='right'><b>TOTAL NGN </b></td><td bgcolor='cyan'
colspan='3'><b>$tamountf</b></td></tr>";
        $pform .= "<tr><td colspan='6' align='right'><input
type='submit' value = 'Remove Deselected' name='op'></td></td></tr>";
        $pform .= "<tr><td colspan='6'
align='right'> </td></tr>";
        $pform .= "<tr><td colspan='6'
align='right'><hr/></td></tr>";
        $pform .= "<tr><td colspan='6' align='left'><input
type='hidden' value = '$j' name='numonlist'>Supplier's Name <select
name='supplier'>$optsupplier</select> <font color='red'>New Supplier</font> <input
type='text' name='newsupplier' /> <input type='submit' value = 'Conclude List'
name='op'></td></tr></table></form>";

        $msg = "<h5><font color='red'>NEW STOCK
IN</font></h5><form action='stockin.php' method='post'><table width='70%'>";
        if($fixprice=='yes'){
                $msg .= "<tr bgcolor='#cccccc'><td
width='20%'><b>Description</b></td><td
width='10%'><b>Quantity</b></td><td> </td></tr>";
                $msg .= "<tr bgcolor='$rowcolor'><td><select
```

```
                                inventory code.txt
                                        $supplier = $_POST['newsupplier'];
                                }
                                if($supplier == ''){
                                        $msg = "<p><font color='red'>Select a
Supplier</font></p>";
                                        $formerror = 'true';
                                }

                                if($formerror=='true'){
                                        $numonlist = $_POST['numonlist'];
                                        $pform = "<table>";
                                        $pform .= "<tr bgcolor='#cccccc'><td
width='20%'><b>Description</b></td><td width='10%'><b>Quantity</b></td><td
width='20%'><b>Rate</b></td><td><b>Amount</b></td><td> </td></tr>";

                                        $rowcolor = "#ffffff";
                                        $tamount = 0;
                                        $j = 0;
                                        for($i=0; $i<= $numonlist; $i++){
                                                $p = "p" . $i;
                                                $q = "q" . $i;
                                                $r = "r" . $i;
                                                $c = "c" . $i;
                                                if(isset($_POST[$p])){
                                                        if(isset($_POST[$c])){
                                                                $productl =
$_POST[$p];
                                                                $qtyl = $_POST[$q];
                                                                $ratel = $_POST[$r];
                                                                $tamount +=
$_POST[$r] * $_POST[$q];
                                                                $amount = $_POST[$r]
* $_POST[$q];
                                                                $amountf =
number_format($amount,2,".",",");
if($rowcolor=="#FFFFFF"){
$rowcolor="#CCCCff";
                                                                }else{
$rowcolor="#FFFFFF";
                                                                }
                                                                $p = "p" . $j;
                                                                $q = "q" . $j;
                                                                $r = "r" . $j;
                                                                $c = "c" . $j;
                                                                $pform .= "<tr
bgcolor='$rowcolor'><td width='20%'><input type='hidden' name='$p'
value='$productl'>$productl</td><td width='5%'><input type='hidden' name='$q'
value='$qtyl'>$qtyl</td><td width='20%'><input type='hidden' name='$r'
value='$ratel'>$ratel</td><td width='20%'>$amountf</td><td width='5%'><input
type='checkbox' name='$c' checked='checked'></td></tr>";
                                                                //$repkey .=
"&$p=$productl&$q=$qtyl&$r=$ratel";
                                                                $j += 1;
                                                        }
                                                }

                                        }

                                        $tamountf =
number_format($tamount,2,".",",");
```

APPENDIX C

PROGRAM OUTPUT



Group Item Listing (Product Details)

Stock Received (Stock In)

Stock-in(00076) from Supplier: **compovine** completed successfully.

STOCK IN (SN: 00076) SUPPLIED BY COMPOVINE DATE: 2011-01-13

S/N	Product	Category	Quantity	Amount (=N=)	Remark
1	UPS	Power Backups	27	145,800.00	
2	MACROMEDIA STUDIO MX	Software	50	270,000.00	
3	MOUSE	accessories	40	16,000.00	
4	EPSON LQ1117	Computers	29	1,305,000.00	
			TOTAL 146	**1,736,800.00**	

Summary

Invoice No.	0
Supplier	COMPOVINE
Amount	1,736,800.00
Balance bf	900.00
Total Amount	1,737,700.00
Amount Paid	1,737,700.00
Payment Mode	Cash
Balance	0.00
Remark	
Posted by	ADMIN

Customers Listing

Customer	Address	Phone	Remark
AMOGREEN COMPUTERS	Dolphin Estate, Ikoyi	0805899403	ok
BITCOM SYSTEM LTD	Ogunlana Drive	0803899403	ok
SADE	mana	08095674325	ok
SYLSA SYSTEM LTD	11d magodo GRA	080945367856	ok

Stock Issued Listing (Sales Invoice)

SALES INVOICE (No. 00004)

Description	Quantity	Rate	Amount	SERIAL No.
EPSON LQ1117	4	53500	214,000.00	34677567868
MOUSE	5	700	3,500.00	675687-080-0876
UPS	1	6500	6,500.00	46563567
			TOTAL NGN 224,000.00	

Customer	AMOGREEN COMPUTERS
Amount	NGN 224,000.00
Balance B/F	NGN 0.00
Total Amount	NGN 224,000.00
Amount Paid	NGN 224,000.00
Balance	NGN 0.00
Payment Mode	Cash

Print Receipt

Sales Analysis Report

WAREHOUSE SALES REPORT FOR 13-01-2011

Date	Invoice	Product	Quantity	Rate	UCP	Amount	Cost Amount	Interest
2011-01-13	00084	EPSON LQ1117	4	53,500.00	45,000.00	214,000.00	180,000.00	34,000.00
2011-01-13	00084	MOUSE	5	700.00	400.00	3,500.00	2,000.00	1,500.00
2011-01-13	00084	UPS	1	6,500.00	5,400.00	6,500.00	5,400.00	1,100.00
		TOTAL	**10**			**224,000.00**	**187,400.00**	**36,600.00**

TOTAL STOCK SOLD NGN 224,000.00
TOTAL PAYMENT RECEIVED NGN 224,000.00

GROSS PROFIT NGN 36,600.00
EXPENSES NGN 0.00
NET PROFIT NGN 36,600.00

REFERENCES

1. Adeboye, K. R. — Lecture Note on Optimization Theory Unpublished, Minna, Nigeria. 1987.

2. Anders P. — Data Processing, ELBS, Low Priced Edition, London, Sixth Edition. 1987.

3. Charles T. H., George F. — Cost Accounting – A Management Emphasis. Prentice-Hall of India, New Delhi, Sixth Edition. 1988.

4. Francis A. — Business Mathematics and Statistics, ELBS, Low Priced Edition, London. 1987.

5. John W. — Warehouse Management, ELBS, Low Priced Edition, London. 1987.

6. Melvin C. O. et al — Intermediate Accounting, Harcourt Brace Jovanovich Publisher, Fifth Edition. 1984.

7. Morrison P. — Storage and Control of Stock, PITMAN, United State of America. 1985.

8. Roger H. H. et al — Financial Accounting, BPI/IRWIN, Boston, MA, Fourth Edition. 1989.