



# FOOTWEAR RETAILER INFORMATION SYSTEM

by

Ms. Ghan Wangsiri

A Final Report of the Three - Credit Course  
CS 6998 System Development Project

Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Master of Science  
in Computer Information Systems  
Assumption University

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Project Title                      Footwear Retailer Information System

Name                                Ms. Ghan Wangsiri

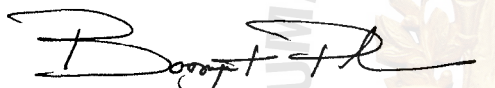
Project Advisor                  Dr. Boonyarit Pokrud


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The Graduate School of Assumption University has approved this final report of the three-credit course, CS 6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.

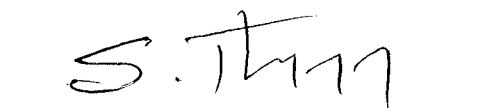
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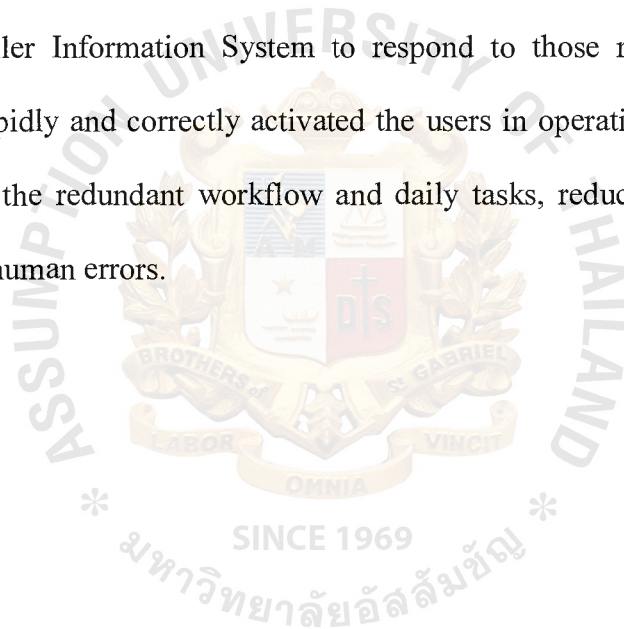
  
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November 2000

## ABSTRACT

The nature of fashion, particularly in footwear sector, is known as the strongly competitive scheme. It is found that the fashion has rapidly updated day-by-day. This competitive characteristics of fashion scheme has encouraged the footwear retailer to seek a better solution for enabling the simple procurement processes such as developing more cost effective methods, implementing a computerized inventory system, which include handling and storage system. CG Footwear Shop also realizes the needs to replace the current manual system with computerized system, so it has developed Footwear Retailer Information System to respond to those requirements. This new program has rapidly and correctly activated the users in operating the business process flow, reducing the redundant workflow and daily tasks, reducing the workforce, and decreasing the human errors.



## ACKNOWLEDGEMENTS

This is the final project that the writer has to complete before graduating, but it is not the end of the story. About 2 years for MS (CIS) and 4 years for BBA (Accounting) at Assumption University (ABAC), the writer has gained plenty of knowledge and experience that are very beneficial both for her life and her career path. Beyond the best wishes from Bro. Prathip M. Komolmas, the President of Assumption University, and all professors and all instructors at ABAC. She would like to thank all of them with her full respect.

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## **I. INTRODUCTION**

### **1.1 Background of the Project**

Many new fashions are introduced to the world market for consumers' satisfaction which are various in styles, patterns, price level, and occasions. Beside clothes, and accessories, footwear is the one that the producer can gain more profit and it is also high competition. There are over thousand brands of footwear in the world, over hundred types classified by size.

The CG Footwear Shop was established in January 1998 and located on Ladprarob Rd. Bangkok. The shop operates as a retailer of footwear products. There are many product lines such as sport slippers, canvas shoes, high-heel shoes, leather shoes, and boots. CG Footwear shop is a dealer selling both imported footwear and local-made footwear from many brands. The shop still uses the manual system to manage and control the system. The footwear fashion changes all the time, the new styles from all brands are always introduced every month. The shop also grows very rapidly, and very popular among various customers, especially, the teenagers. The shop has to hire many staff to manage all products.

The capabilities of the Footwear Shop System generate better quality such as providing faster service and information service to customers. The original motivation of the Footwear Shop System is to develop a more cost effective and more reliable method to process orders of hundreds of footwear. Type, color, brand name and size can differentiate the footwear products. Owing to the unit of measurement and brand name of products, the prices are different. The large number of trading transactions occurred each day is another reason for using the computerized system for the inventory system.

The system will provide information for stock keeping, preventing stock shortage or over stock. In addition, it also provides reports for sales analysis.

## **1.2 Objectives of the Project**

The objectives of the project of the Footwear Shop System are as follows:

- (1) To study the existing manual system of footwear shop.
- (2) To design the new computerized system to facilitate the process and solve various problems
- (3) To provide accurate and up-to-date information for footwear shop and customers.
- (4) To provide reports to manage the shop effectively.
- (5) To reduce cost, redundant tasks, and errors.

## **1.3 Scope**

The project covers major aspects of footwear shop operation, which are:

- (1) Inventory management system
- (2) Physical stock handling: inventory order, inventory received, inventory sold, and adjustment
- (3) Sales plan preparation
- (4) Stock movement management and control
- (5) Updated inventory information system reports

## **1.4 Deliverable**

- (1) The new computerized system for CG Footwear Shop
- (2) The testing plan for the new system
- (3) Training for CG staffs
- (4) Inventory management and sales reporting

## 1.5 Project Plan

- (1) System analysis and design
- (2) Software development
- (3) Implementation methodology
- (4) Implementation plan



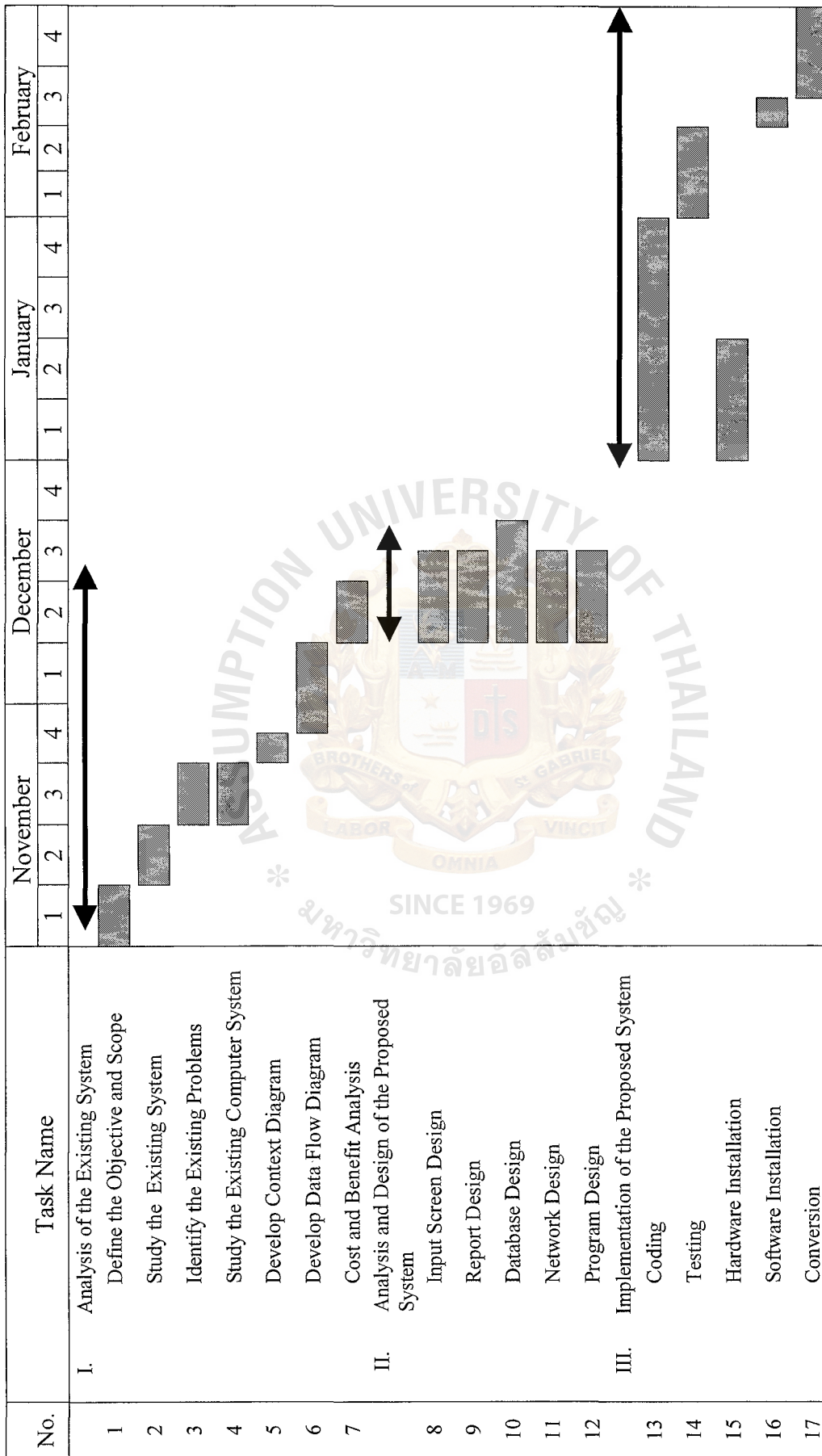


Figure 1.1. Project Plan of Footwear Retailer Information System.



## **II. THE EXISTING SYSTEM**

### **2.1 Background of the Organization**

The CG Footwear Shop was found in January 1998 and located on Ladprarob Rd. Bangkok. The owner is Ms. Chalernporn Kaewnarnit. The purpose of this shop is to operate a retailer of footwear products. Ms. Chalernporn had begun the business from a small shop in Jatujak Market. Providing the good service toward customers, cheap and good quality, she expanded her shop into The CG Footwear Shop at Ladprarob Rd. The shop provides many product lines such as sport slippers, canvas shoes, high-heeled shoes, leather shoes, and boots. CG Footwear shop also acts as a dealer selling both imported footwear and local-made footwear from many brands.

Owing to the rapidly growth and high sales volume, the CG Footwear Shop needs an efficient system to manage and operate the shop's workflow. The shop still uses manual system to manage and control the system.

### **2.2 Existing Business Functions**

The CG Footwear Shop has 3 sections

- (1) Sales Section - The Sales Section checks the stocks and prepares the order to the purchasing section. The sales function is to control inventory, provide customer service, retain safety stocks, and do the promotion.
- (2) Inventory Section – The Inventory Section performs entire operation starting from contact vendors, select quotations, issue purchase order, order goods, receive goods, check goods accuracy and condition, issue receiving report and then pass the purchase order and receiving report to Finance and Accounting Section

- (3) Finance and Accounting Section – The Finance and Accounting Section handles accounting activities that cover revenue cycle, payment cycle and general ledger handling. The section also handles tax and legal issues, and human resources function.

The organization chart of CG Footwear Co., Ltd. is shown on Figure 2.1.



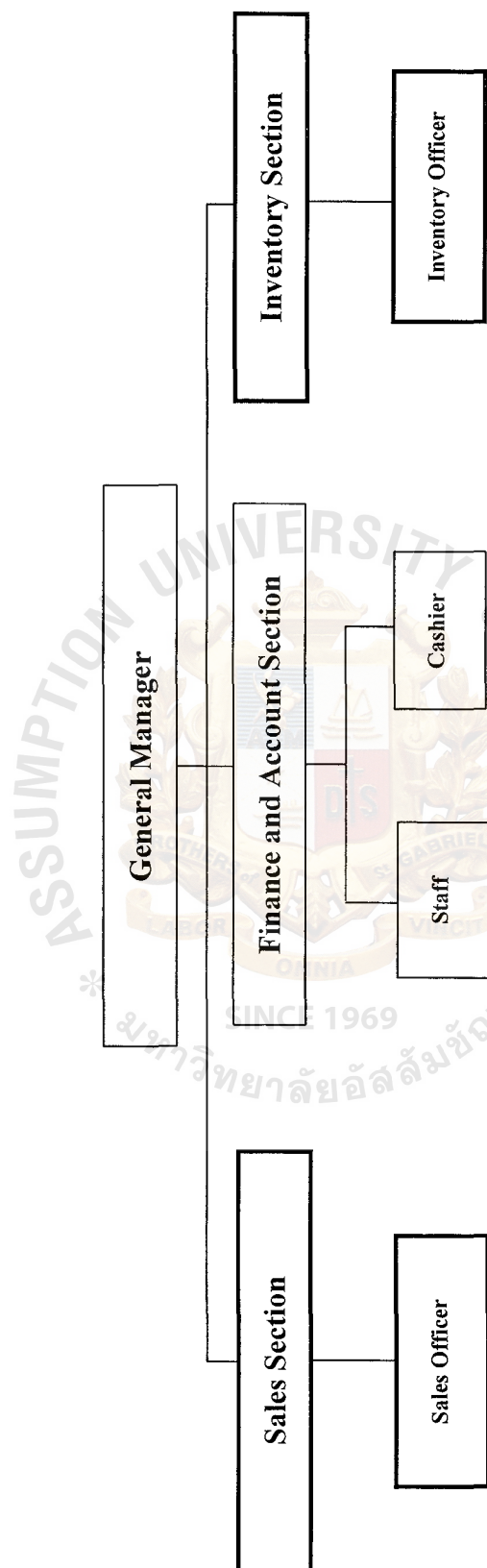


Figure 2.1. The Organization Chart of CG Footwear Co., Ltd.

### 2.3 Current Problems and Areas for Improvement

The existing system is a manual system. Therefore, there are many problems that occur in CG Footwear Shop

- (1) Shipping errors – Shipping the wrong items to customers, it can significantly reduce customer satisfaction and future sales.
  - (a) Areas for improvement – The use of application controls such as field checks, completeness tests, and the like, can significantly reduce errors.
- (2) Theft of inventory – Theft also makes inventory records inaccurate, which lead to problems in filling customer orders.
  - (a) Areas for improvement – Inventory should be kept in a secure place to which physical access is restricted. All inventory transfers within the company should be documented. Using the application that user can track the inventory movement.
- (3) Failure to bill customers – Unbilled items result in the loss of assets and erroneous data about sales and inventory.
  - (a) Areas for improvement – It should be pre-numbered and periodically accounting for all documents.
- (4) Billing/pricing mistake – Over pricing can result in customer dissatisfaction.
  - (a) Areas for improvement – Pricing mistakes can be avoided by having the computer retrieve the appropriate data from the inventory master file.
- (5) Loss of cash – Retail stores that receive cash directly from customers, so the loss of cash might occur.



- (a) Areas for improvement – Use cash registers that automatically produce a written record of all cash received.
- (6) Quality of record – The examples are:
  - (a) Data are redundant and not updated.
  - (b) There are too many data inconsistencies caused by incorrectly typing and misunderstanding while recording the data.
  - (c) Lacking of statistic report to support the decision-making process.
  - (d) It is difficult to collect the necessary record for creating reports.
- (7) Human errors – such as:
  - (a) Typing or writing incorrect record.
  - (b) Calculating incorrect payment.
  - (c) Providing incorrect or misunderstood information.
- (1) Areas for improvement – Using the computer-based system will keep all the information in the database and retrieve the information in the report form in the required format. While the computer system must provide the reliable and correct information that produce the statistical reports to support the decision-making and forecasting trend for manager.

## **2.4 Existing Computer System**

To understand the proposed system, it is necessary to understand the existing system in order to know which parts needs to be improved or changed. Thus, the system analyst must thoroughly understand the existing system and provide the complete proposed system to the area understudy. CG footwear shop is a manual system using stock card as a reference. It has to be updated in every transaction, whether purchasing transaction, receiving transaction, or sales transaction.

The customers make order to the shop then the shop prepares products and two copies of receipts for cash payment. The receipt copy will pass to the finance and the accounting section. In the purchasing section after checking stock of products in the stores, the workers will check the stock card and list out the items that are below the safety stock. The list of products will be sent to the manager. The manager will order these items from the vendors. The list will be kept in the temporary file so that it can be checked whether the products have been ordered and received. After sending purchased orders to the vendors, the vendors deliver their goods to the firm with invoices. The inventory staff checks these products with the invoices for products' types, brands, sizes, colors, quantities and prices. If all details are correct, the inventory staff that received the products will sign his name on the invoices and return it to the vendor, the other copy of the invoices will be sent to the accounting section for later payment. Then the product will be placed in the stores.

The key business function of the firm is concerned mostly with the procurement of products and supplying products. So inventory system is considered to be the most important system. The daily business transactions involved directly the receiving and delivery of products. From the study, the firm has a large amount of products, which leads to some problems in the inventory control system of the firm. The stocks of products require a lot of space to store because there are a large amount of product types and quantities and also a large number of trading transactions. Everyday the users of the system are rarely involved in the work of transactions records. In this case, the computer is considered to be the solution to apply in this area.

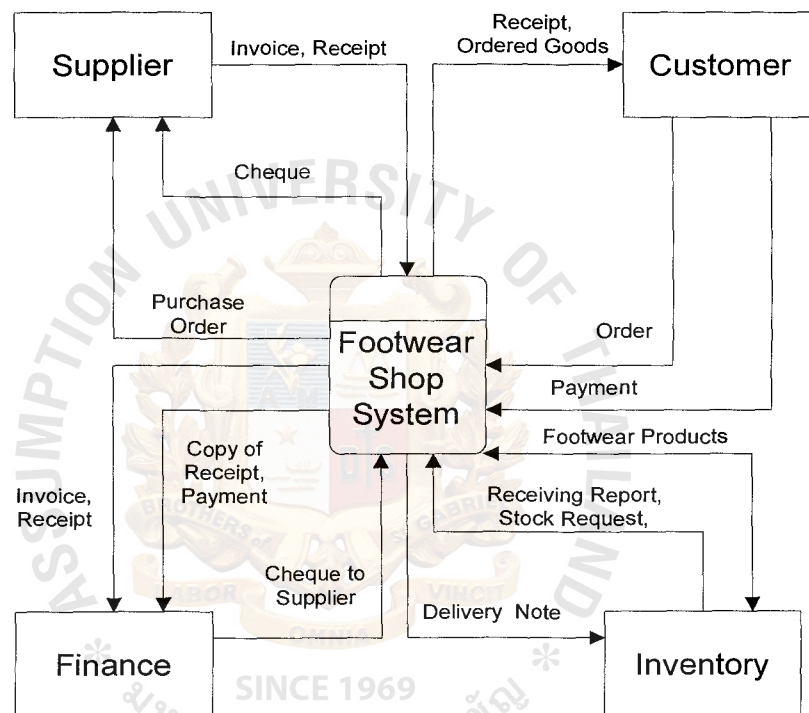


Figure 2.2. Context Diagram of the Existing System.

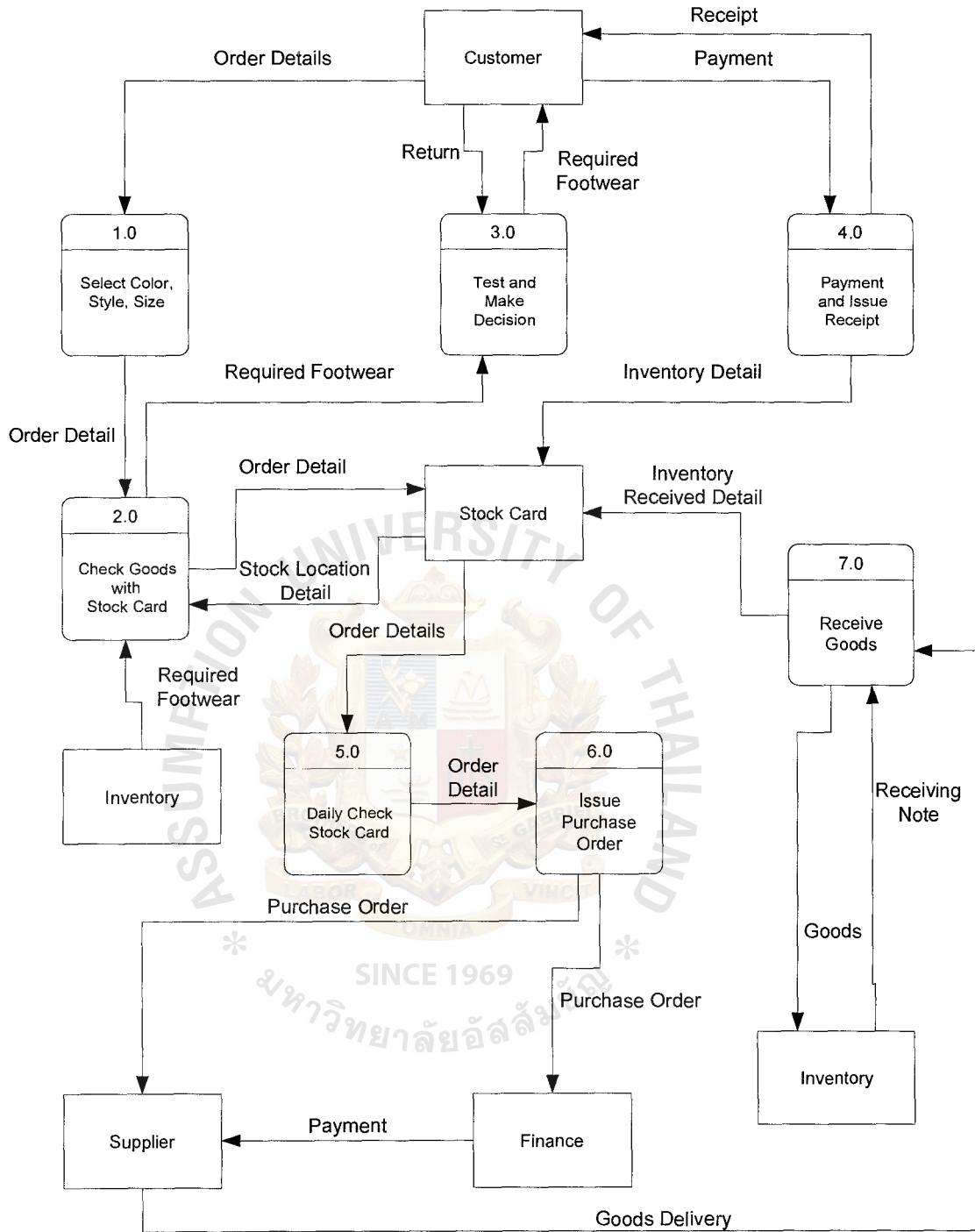


Figure 2.3. Data Flow Diagram Level 0 of the Existing System.



### **III. THE PROPOSED SYSTEM**

#### **3.1 System Specification**

Footwear Retailer Information System is developed to improve the work performance in the CG Footwear Shop in order that the shop can gain more effectiveness and efficiency. The main functions of the proposed system are as follows:

- (1) Purchasing
  - (a) Preparing the Purchasing Order using data from Back Order Report or Product Cost Report.
  - (b) Preparing the Purchasing Order for the new vendor whose details has been entered.
  - (c) If the details of goods to be selected are not on file, the user can add the new goods details.
- (2) Sales
  - (a) Receive the information of goods from customer
  - (b) Search the goods item from the list for selling
  - (c) Show the place where each goods is kept
  - (d) Able to define and change the tax rate
  - (e) Automatic adjustment for goods balance
  - (f) Issue the receipt to customer
- (3) Goods receiving
  - (a) Select details from purchase order from Purchasing Menu
  - (b) View the details of goods ordered from the purchase order list to check the accuracy and condition of goods delivered before receiving into the warehouse and arrange the receiving note report.

- (c) Manage and control the new goods and determine the place where it should be kept.
- (4) Data adjustment
  - (a) Determine the user access right in order to secure the system.
  - (b) Inventory data adjustment by the authorized person.
  - (c) Vendor data adjustment by the authorized person.
- (5) Reports
  - (a) Back order report
  - (b) Product cost report
  - (c) Daily sales report
  - (d) Stock on hand report

### **3.2 System Design**

The system design categories are divided into sections as stated below:

#### **(1) Design of Input Screen**

The input screen provides convenience for users to key in the data into the system. The input screen should be the simple screen, user graphic interface, easy to key in and ensures that the forms meet the purpose and design forms to assure accurate completion. The input screen is the user interface designs for the proposed system and is shown in Appendix A.

#### **(2) Design of Output Screen**

The output screen will display the data for reference of printing reports. The output screen should be easy to read and the information must be useful and support user requirements and management decision-making. The output screen is shown in Appendix B.

(3) Design of Structure Chart

The Structure Chart is shown in Appendix H.

(4) Design of Database

The Entity Relationship Database Diagram and Database Design are shown in Appendix C. The Data Dictionary is shown in Appendix E.

(5) Design of Context Diagram and Data Flow Diagrams

The Entity Relationship Database Diagram and Database Design are shown in Appendix C.

The context diagram of the proposed system represents an overview of the Footwear Retailer Information System. It depicts the relationship between the Footwear Retailer Information System and external entity. Because the system must keep track of all the number of footwear that the customer has purchased. The context diagram should be kept relatively simple. The context diagram of the proposed system is shown in Figure 3.1.

Data Flow Diagram is a tool that depicts the flow of data through a system and the work or processing performed by the Footwear Retailer Information System. Data Flow Diagram Level 0 for the proposed system is shown in Figure 3.2.

The functions of the proposed system can be summarized as follows:

Process 1.0. Check Availability

The stock officer will check the stock availability after getting the product requisition list from Sales Section. In the case of unavailable stock, new products, the required goods will be listed out for further processing in Process 2.0 to reorder and issue the purchase order. Data Flow Diagram for Process 1.0 is shown in Figure 3.3.

## Process 2.0. Reorder Goods

After getting the list of unavailable stock or new products from Sales section and passing through Process 1.0. The stock officer will contact vendors to compare price and quality and then select the appropriate vendor. The stock officer will key in the purchase order details into the Footwear Retailer Information System to issue the purchase order to be sent to the vendor. Also, two additional copies of purchase order are made for Finance and Accounting and for Inventory. Data Flow Diagram for Process 2.0 is shown in Figure 3.4.

## Process 3.0 Receive Products

Vendor will supply the ordered products to the warehouse, the receiving staff will check and count the supplied products. Then he will maintain the product code, add the product quantity and update the record into the system. Afterwards, he will prepare the receiving report kept in Inventory Section and two copies for Finance & Accounting and Sales Section. Data Flow Diagram for Process 3.0 is shown in Figure 3.5.

## Process 4.0 Retail Sales

The sales officer will get the customer order. He will check the stock location and pick it for customer to test before making the decision to buy. After the customer makes a decision, the sales will issue the receipt for the customer. At the end of each day, sale will print out the sales summary report for Sales Section, Finance & Accounting Section and Inventory Section. Data Flow Diagram for Process 4.0 is shown in Figure 3.6.

## Process 5.0 Return Product

The receiving staff gets the product return list from Sales Section and the returned product from Inventory Section to make a claim with the vendor. Data Flow Diagram for Process 5.0 is shown in Figure 3.7.

#### Process 6.0 Check Inventory

The stock officer will print out the stock movement report to submit to the Inventory Manager to compare the stock on hand list with the sales report in order to adjust the stock details before updating the record and printing the stock report to Management. Data Flow Diagram for Process 6.0 is shown in Figure 3.8.

#### Process 7.0 Report

The required reporting is given monthly, daily or on demand basis. The system provided the standard reports that are Daily Sales Balance Report, Stock Movement Report, Re-order Report, and Product Cost Report. The on-demand report can be customized further to support management's requirement.

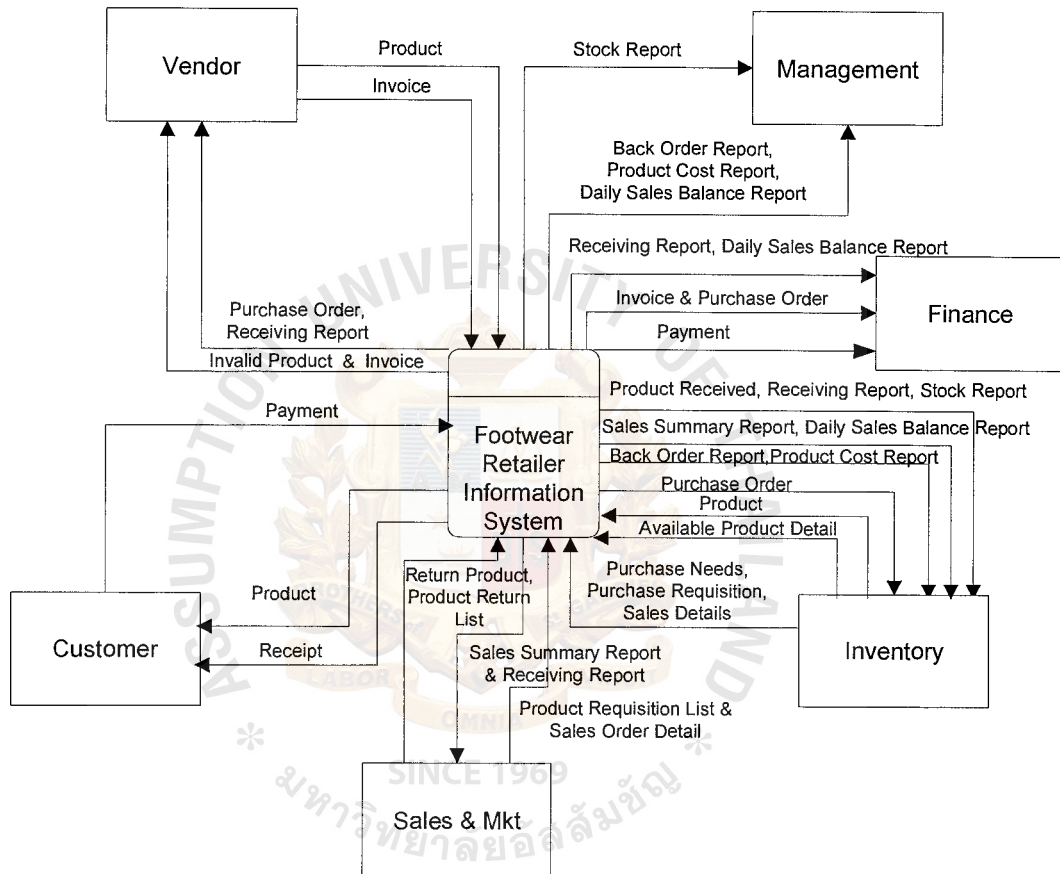


Figure 3.1. Context Diagram of the Proposed System.



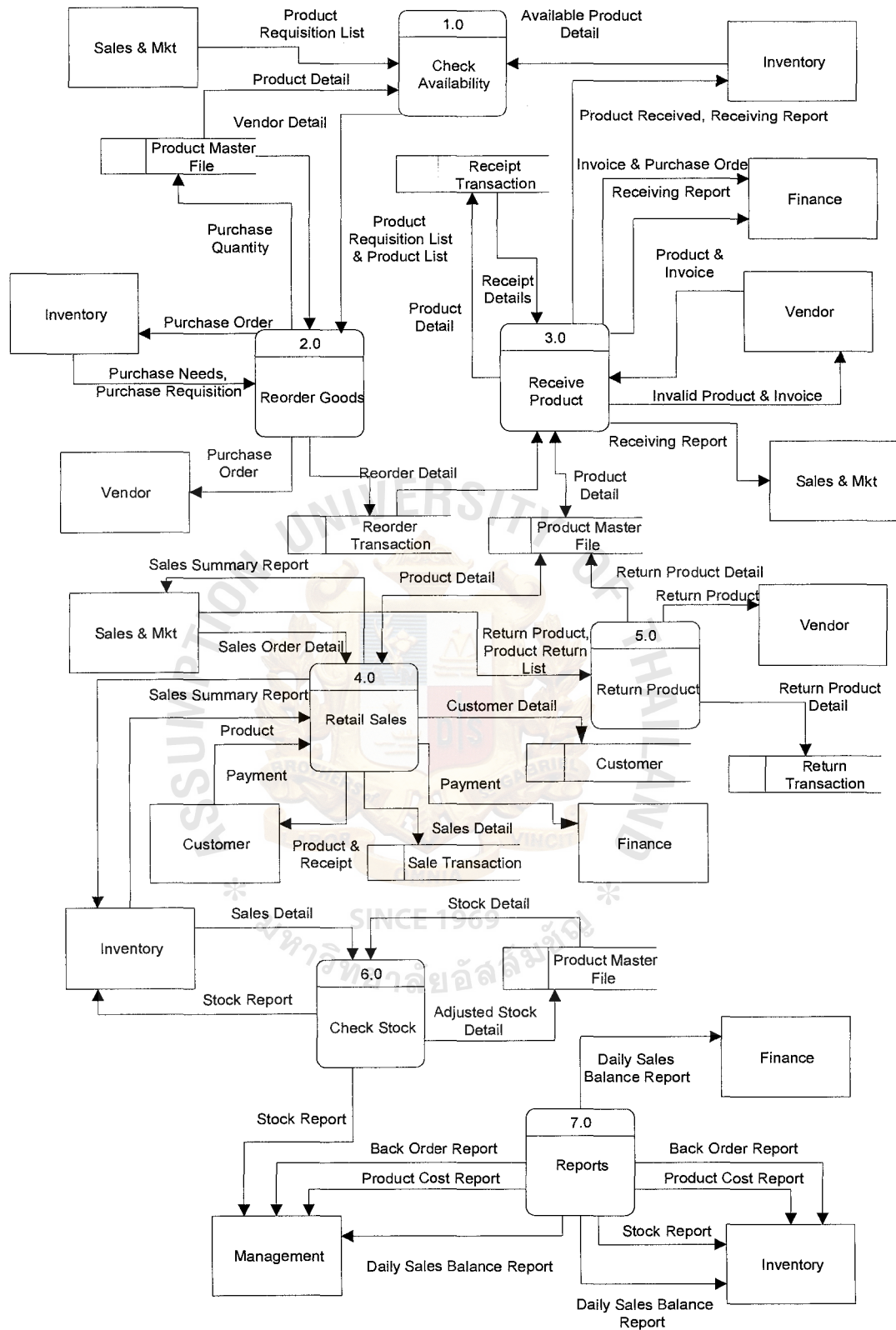


Figure 3.2. DFD Level 0 (The Proposed System).

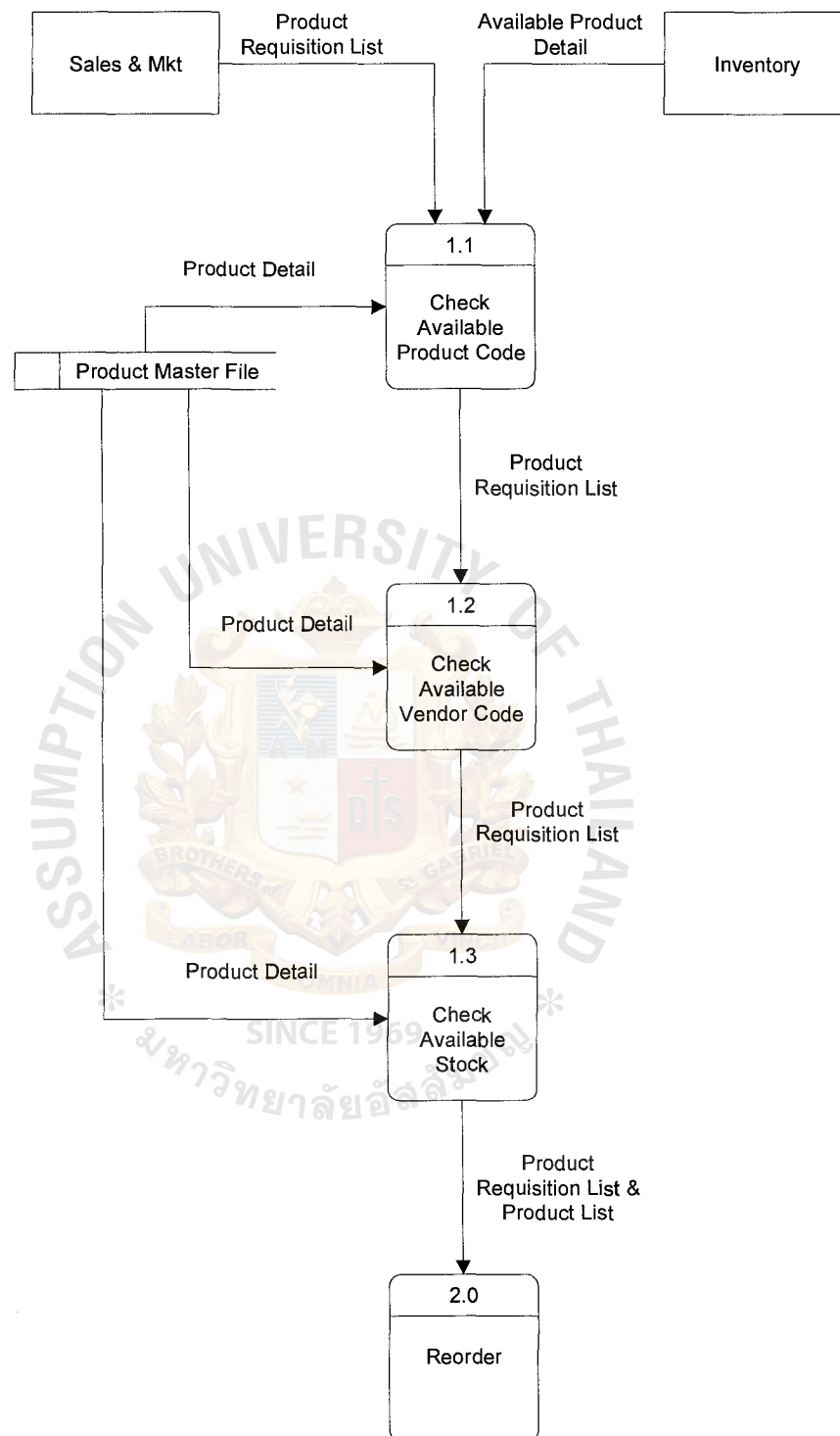


Figure 3.3. DFD Process 1.0 Level 1.0 (The Proposed System).

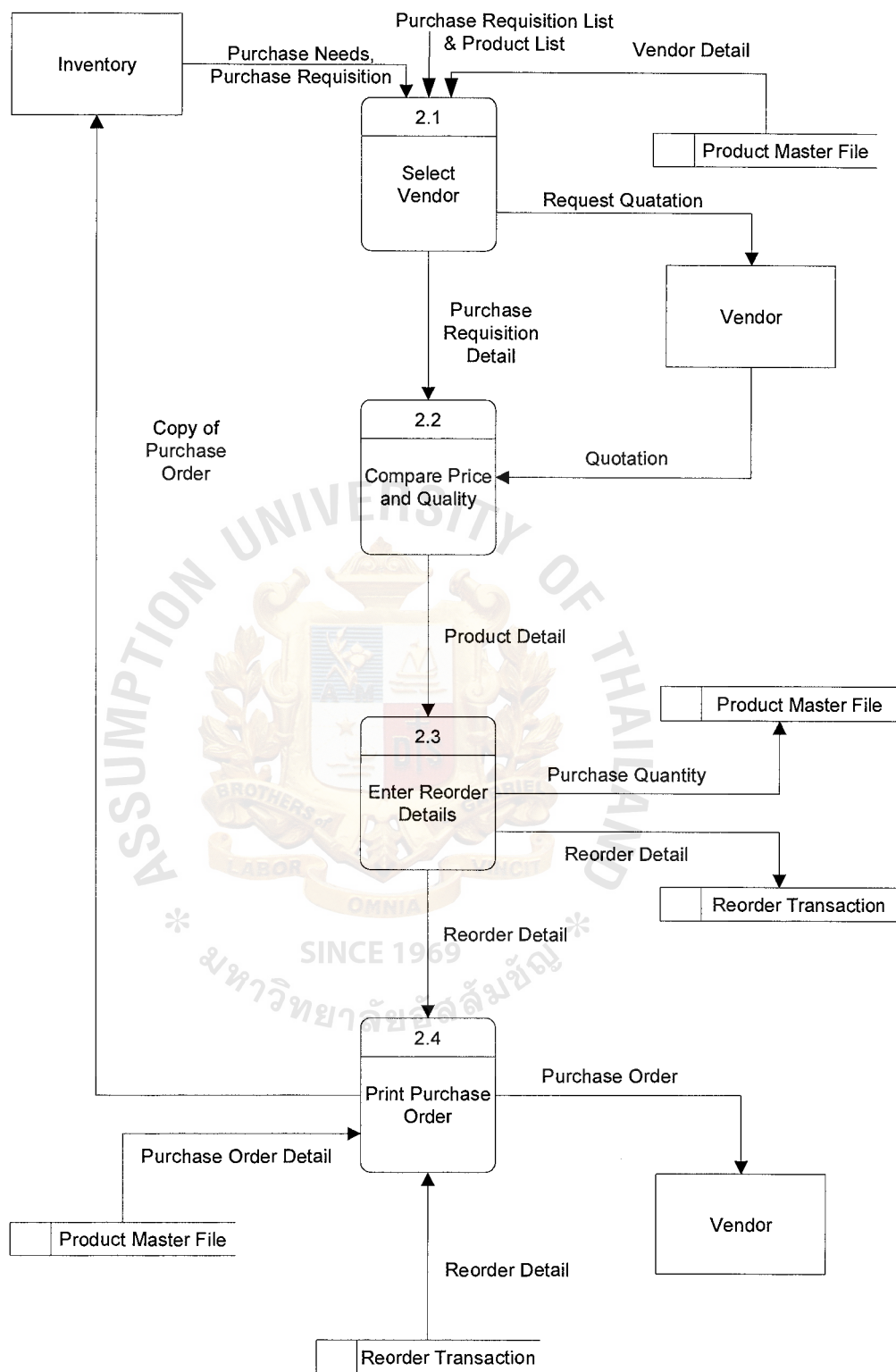


Figure 3.4. DFD Process 2.0 Level 1.0 (The Proposed System).

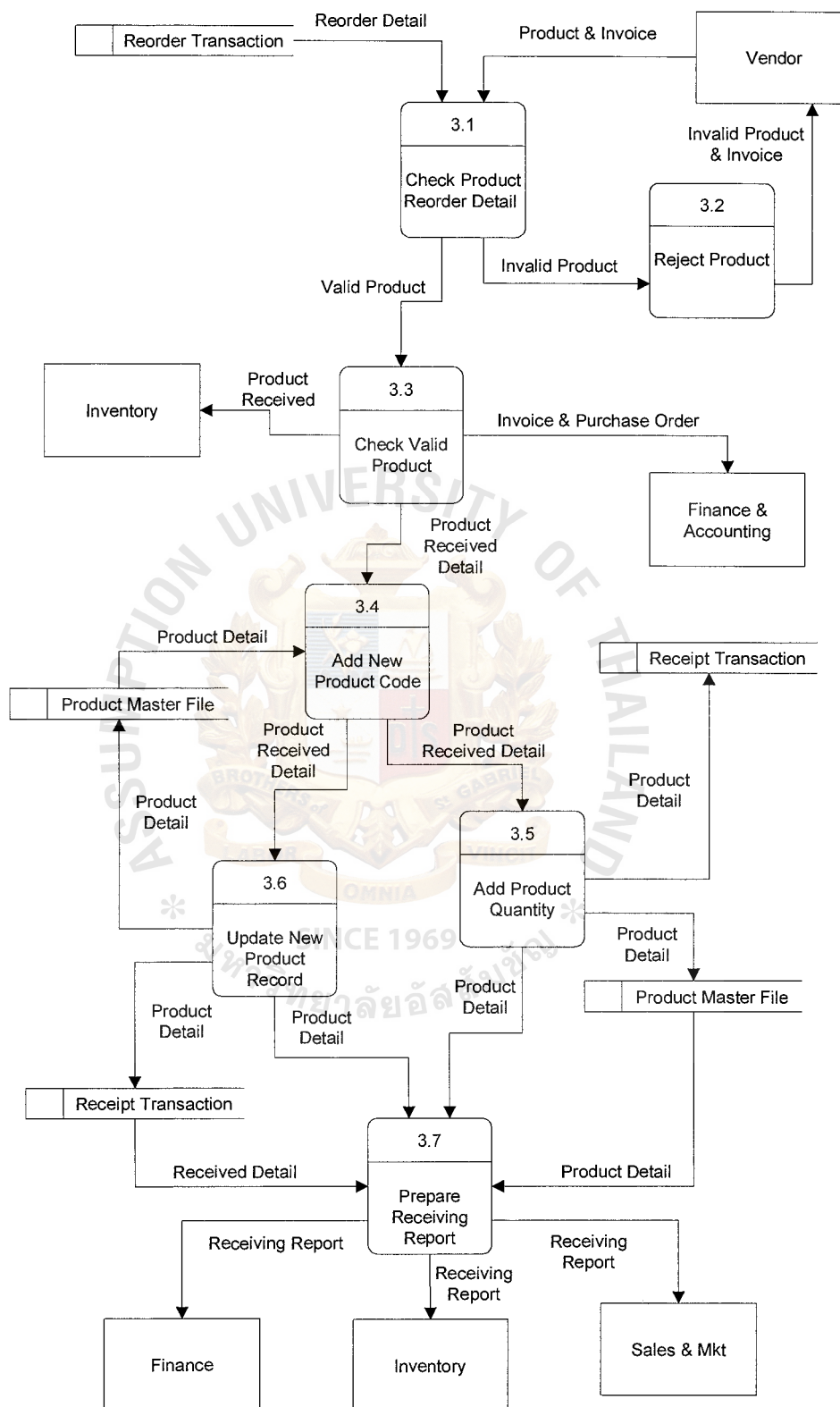


Figure 3.5. DFD Process 3.0 Level 1.0 (The Proposed System).

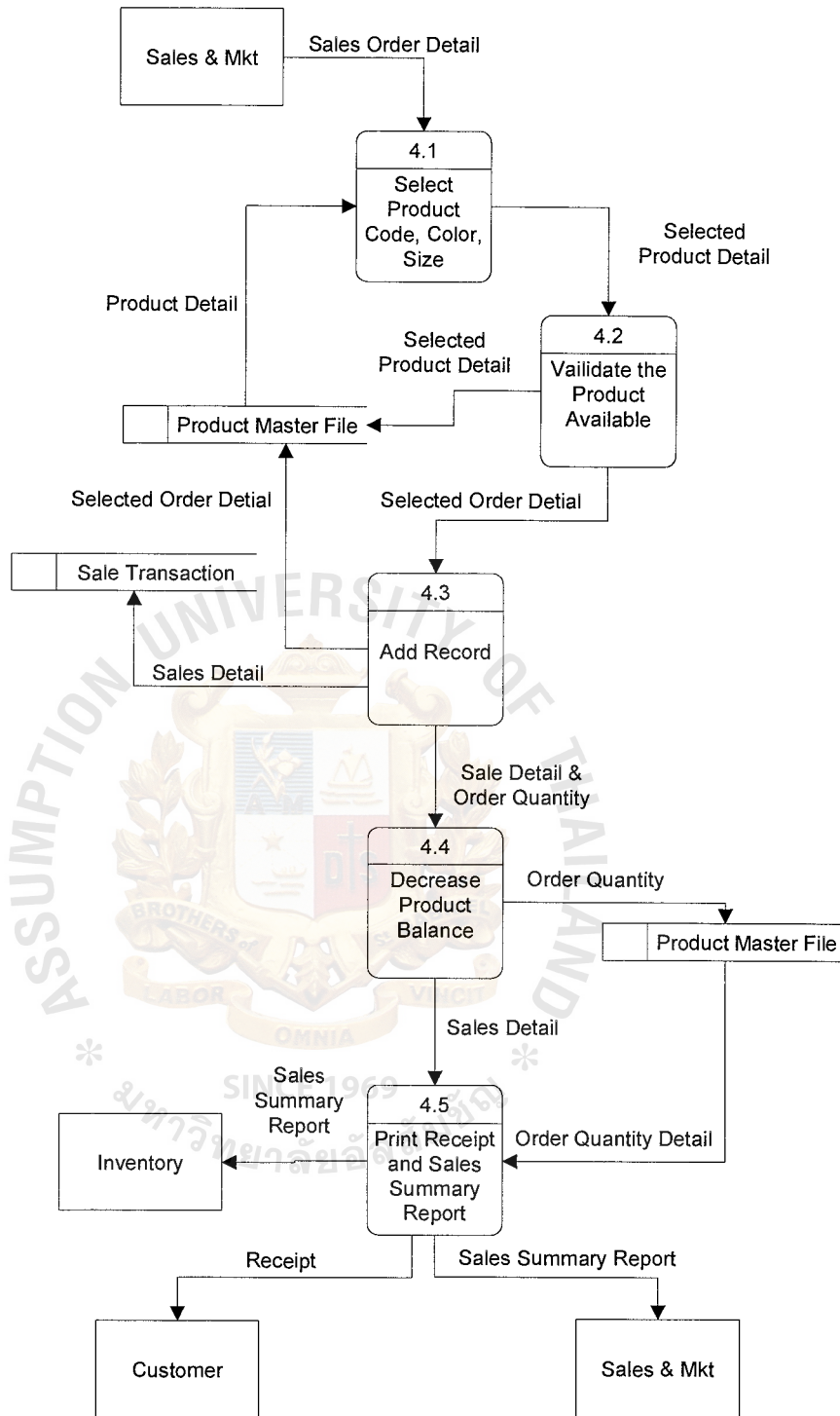


Figure 3.6. DFD Process 4.0 Level 1.0 (The Proposed System).

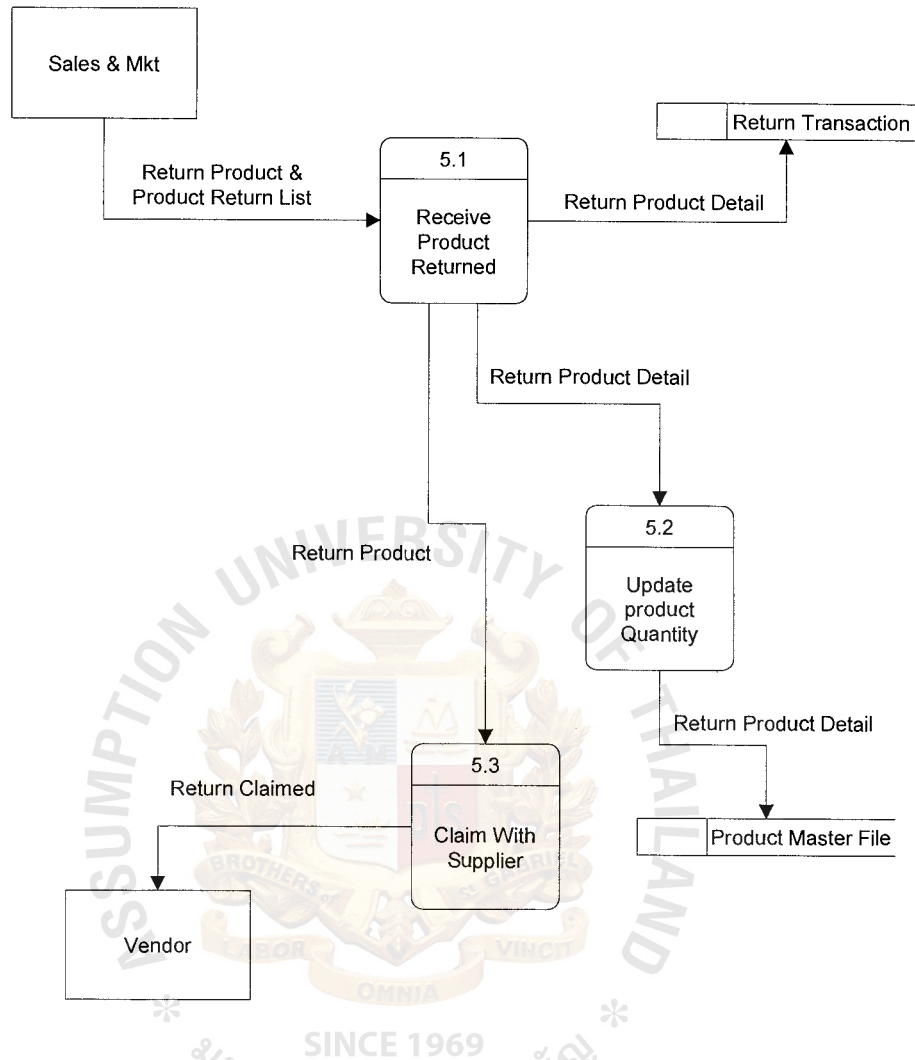


Figure 3.7. DFD Process 5.0 Level 1.0 (The Proposed System).



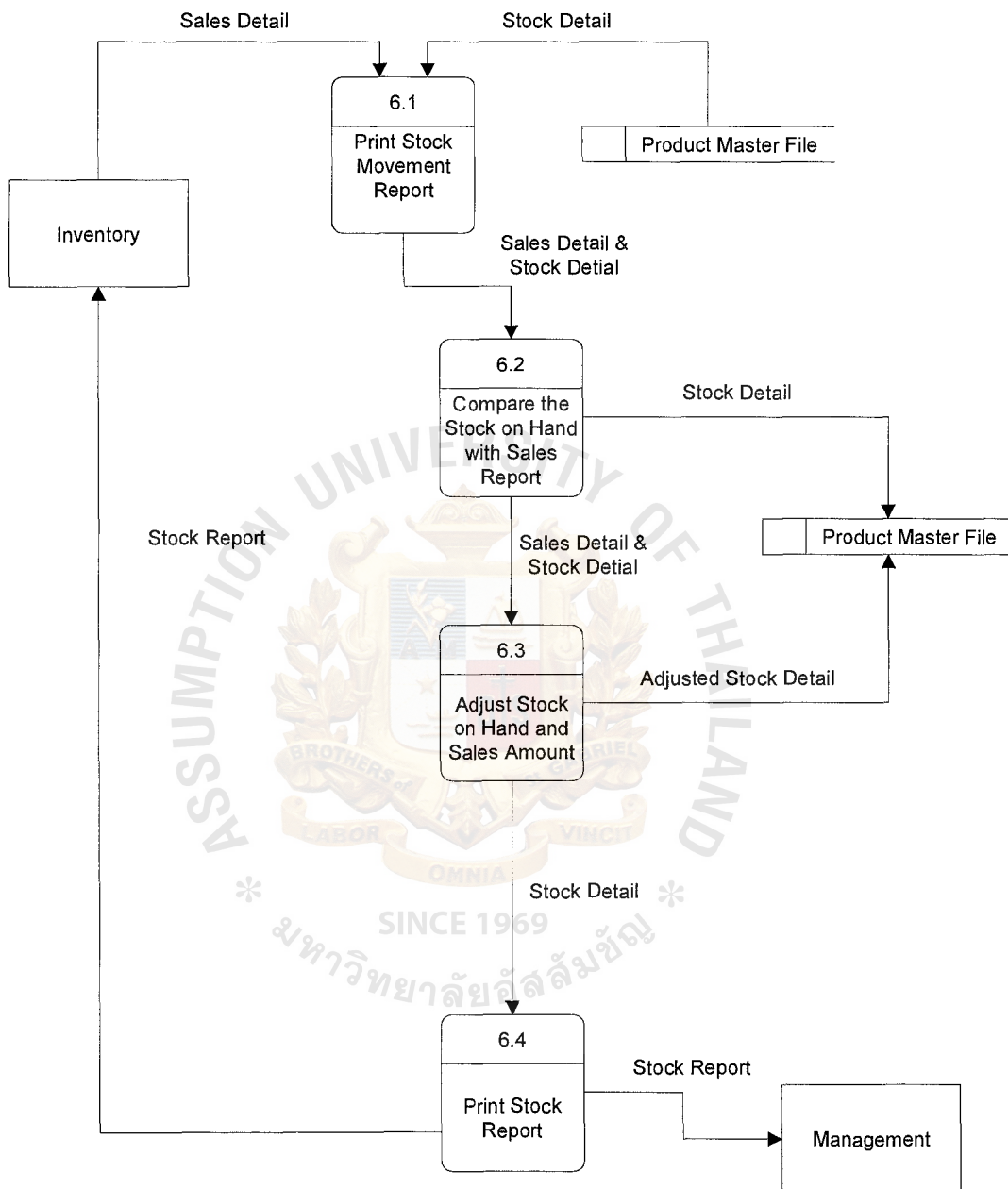


Figure 3.8. DFD Process 6.0 Level 1.0 (The Proposed System).

### 3.3 Hardware and Software Requirements

#### (1) Hardware Requirements

The hardware requirement for the proposed system is composed of 1 application server, 2 clients, 2 printers, 1 UPS, network peripherals, and cabling, of which the specifications are stated below:

##### (a) Application Server (1 Unit)

- Pentium III 450MHz.
- 128MB SDRAM PC-100
- 8.4 GB. HDD Ultra DMA/66
- Floppy Disk Drive 1.44 MB
- PCI Sound Yamaha and Boston Acoustic 635
- CD-ROM 45X Speed
- Modem 56K V.90/ LAN card on board
- Serial Mouse
- Keyboard Multimedia
- DVD 5X Sony
- Monitor 17" NEC V700
- Medium Tower Case 235watts

##### (b) Workstations (4 units)

- Pentium II 400 MHz.
- 64 MB SDRAM PC-100
- 6.4 GB. HDD Ultra DMA/66
- Floppy Disk Drive 1.44 MD
- 3D PCI Digital Stream 128 and Final Speaker 120 watt.
- CD-ROM 45X Speed

- 56K Rockwell Internal V.90
  - Serial Mouse
  - Keyboard Win98
  - Monitor 15” Sony Super Trinitron
  - Final ATX Middle Tower Case
- (c) Printer
- HP DeskJet 810 C (1 unit)
  - HP LaserJet 1100 (1 unit)
- (d) UPS (1unit)
- UPS Leonic Green II- 500 VA
- (e) Network Peripherals
- 3 COM Super Stack II (Hub) 10:12 ports
  - HP Jet Direct Ex plus printer server, 1 serial ports
- (f) Cabling
- UTP Cable
  - RJ-45 Connector

(2) Software Requirements

The required software are listed below:

- (a) Operating System for Server – MS Windows NT Version 4.0
- (b) MS Office Pro97 Thai Edition Professional
- (c) Delphi 5.0
- (d) MS SQL Server DBMS
- (e) DBMS Client PC Workstation

### (3) Data Communication and Network

All computers are interconnected in a local area network (LAN). Each device is directly connected to the central server. All communication between devices are controlled by and routed through the central server. Typically, the server polls each device to see if it wants to send a message. If it does, the packet of data is sent to the server, which reads the destination address and routes it to the appropriate node. The reason the proposed system requires this specification is that if one node goes down, the performance of the rest of the network is not affected, and still can operate.



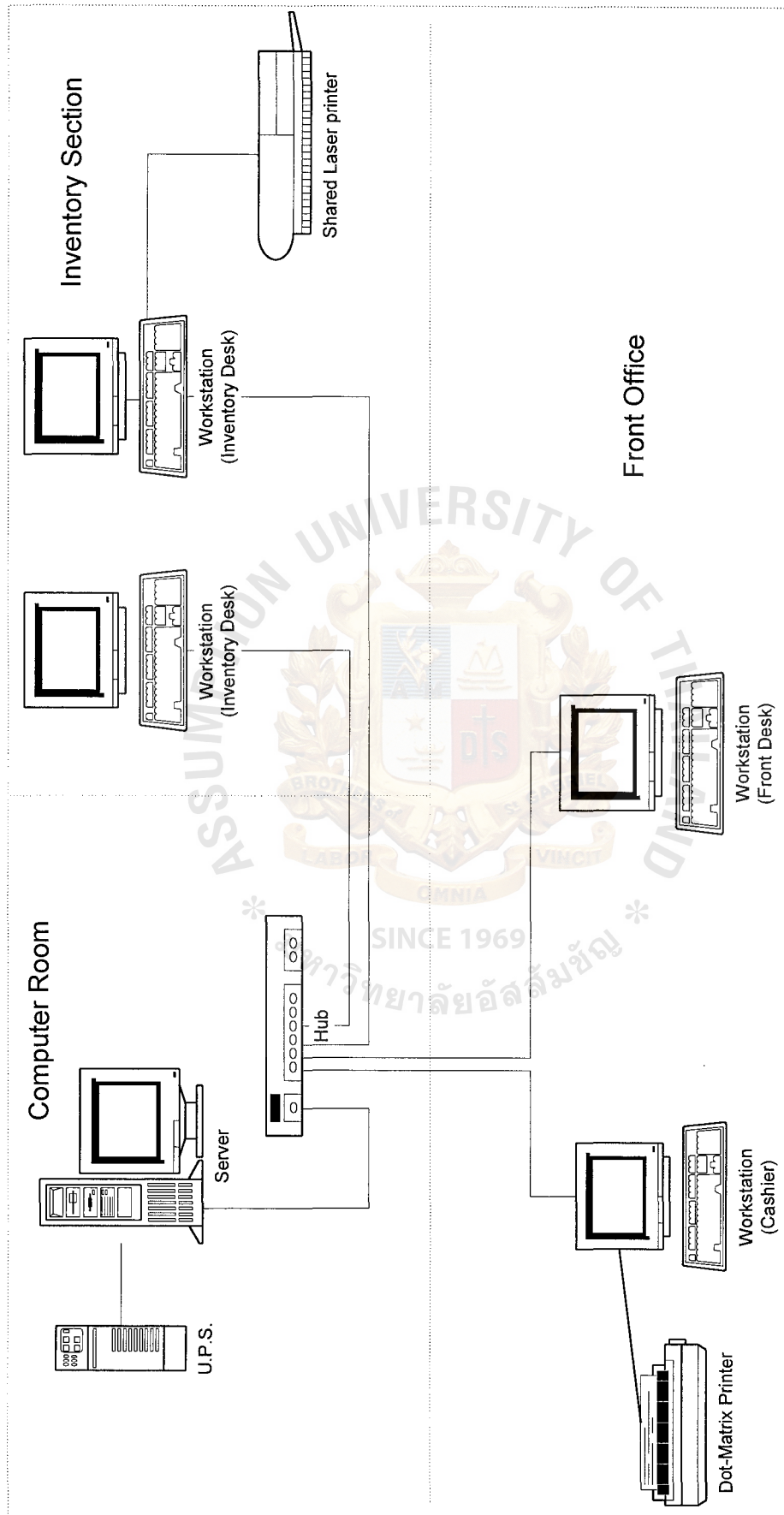


Figure 3.9. Network Configuration of the Proposed System.

### 3.4 Security and Control

Security and control plan is one of the most important controls a company can implement. A good way to develop a plan is to determine who needs access to what information, when they need it, and on which systems the information resides. This information can be used to determine information threats, risks, and exposures and to select the most cost-effective security measures.

The physical ability to use computer equipment referred to as physical access, and the ability to gain access to company data, called logical access controls, should be restricted.

Physical access security can be achieved by the following controls:

- (1) Placing computer equipment in locked rooms and restricting access to authorized personnel.
- (2) Using a security alarm system to detect unauthorized access during off-hours.
- (3) Restricting access to private, secured telephone lines or to authorized terminals or PCs.
- (4) Installing locks on PCs and other computer devices.
- (5) Use UPS (Uninterruptible Power supply) to supply power in stead of the main electricity supply.
- (6) A virus-checking program will be installed for scanning viruses before running any program. Service information system will update the virus checking every 6 months.



## Logical access controls

Users should be allowed access only to the data they are authorized to use and then only to perform specific, authorized functions such as reading, copying, and adding to and deleting data. It is also important to protect data from external sources.

- (1) Password is a series of characters that uniquely identifies the user and is known only to the user and the system. If the user-entered ID and password that match those in the computer, the system assumes it is an authorized user. The downside of passwords is that they can be guessed, lost, written down, or given away, creating the potential for unauthorized, and in some cases, dangerous persons to gain system access.
- (2) Data Storage Controls a properly supervised file library is one essential means of preventing loss of data. The file storage area should also be protected against fire, dust, excess heat or humidity, and other conditions that could harm stored data.
- (3) Back Up. A staff member has to back up the important information to prevent damages in the files in the hard disk, and has a recovery means to retrieve any destroyed or corrupted files.

## Document

- (1) The source documents will be stored in a secure cabinet that is located outside the company in order to prevent unauthorized changes and to prevent loss of source documents due to a natural disaster such as a fire or flood.

### 3.5 Cost and Benefit Analysis

In order to evaluate the manual system with the computerized system efficiently in term of financial aspect, the cost comparison between the existing system and proposed system is also required. Cost analysis should be considered on the investment costs, implementation costs, and operating costs.

#### (1) Costs of the Manual System

Cost of the manual system is shown on Table 3.1 and 5 years accumulated manual system cost is shown on Table 3.2.

Table 3.1. Manual System Cost Analysis, Baht.

Cost items		Years				
		1	2	3	4	5
<u>Fixed Cost</u>						
Typewriter	2 units @ 9,000	3,600.00	3,600.00	3,600.00	3,600.00	3,600.00
Calculator	5 units @ 2,000	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00
Total Fixed Cost		5,600.00	5,600.00	5,600.00	5,600.00	5,600.00
<u>Operating Cost</u>						
<u>Salary Cost:</u>						
Inventory Manager	1 person @ 20,000	20,000.00	21,000.00	22,000.00	23,000.00	24,000.00
<u>Staff:</u>						
Sales officer	4 persons @ 15,000	60,000.00	62,000.00	63,500.00	68,000.00	72,000.00
Stock officer	3 persons @ 10,000	30,000.00	31,500.00	33,000.00	35,000.00	37,000.00
Receiving clerk	1 person @ 7,500	7,500.00	7,800.00	8,100.00	9,000.00	9,500.00
Total monthly salary Cost		97,500.00	101,300.00	104,600.00	112,000.00	118,500.00
Total Annual Salary Cost		1,170,000.00	1,215,600.00	1,255,200.00	1,344,000.00	1,422,000.00
<u>Office Supplies &amp; Miscellaneous Cost:</u>						
Stationary	Per Annual	10,000.00	12,000.00	14,000.00	16,000.00	18,000.00
Paper	Per Annual	35,000.00	40,000.00	45,000.00	48,000.00	50,000.00
Utility	Per Annual	15,000.00	18,000.00	20,000.00	22,000.00	24,000.00
Miscellaneous	Per Annual	25,000.00	27,500.00	29,000.00	31,500.00	33,500.00
Total Annual Office Supplies & Miscellaneous Cost		85,000.00	97,500.00	108,000.00	117,500.00	125,500.00
Total Annual Operating Cost		1,255,000.00	1,313,100.00	1,363,200.00	1,461,500.00	1,547,500.00
Total Manual System Cost		1,260,600.00	1,328,700.00	1,368,800.00	1,467,100.00	1,553,100.00

Table 3.2. Five Years Accumulated Manual System Cost, Baht.

Year	Total Manual Cost	Accumulated Cost
1	1,260,600.00	1,260,600.00
2	1,318,700.00	2,579,300.00
3	1,368,800.00	3,948,100.00
4	1,467,100.00	5,415,200.00
5	1,533,100.00	6,968,300.00
Total	6,968,300.00	-

(2) Costs of the Computerized System

Cost of the computerized system is shown on Table 3.3, and 5 years accumulated computerized system cost is shown on Table 3.4.

Table 3.3. Computerized System Cost Analysis, Baht.

Cost items	Years				
	1	2	3	4	5
<b>Fixed Cost</b>					
Hardware Cost:					
Computer Server Cost 1 unit @ 70,000	14,000.00	14,000.00	14,000.00	14,000.00	14,000.00
Workstation Cost 4 units @ 35,000	28,000.00	28,000.00	28,000.00	28,000.00	28,000.00
Printer – Dot Matrix 1 unit @ 13,500	2,700.00	2,700.00	2,700.00	2,700.00	2,700.00
- Laser Jet 1 unit @ 15,000	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00
UPS 1 unit @ 3,500	700.00	700.00	700.00	700.00	700.00
Network Peripherals	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00
Cabling	800.00	800.00	800.00	800.00	800.00
Total Hardware Cost	52,200.00	52,200.00	52,200.00	52,200.00	52,200.00
Maintenance Cost:					
Maintenance Cost	–	5,000.00	5,000.00	5,000.00	5,000.00
Total Maintenance Cost	–	5,000.00	5,000.00	5,000.00	5,000.00
Software Cost:					
Window NT Server	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00
Window 98 Thai Edition	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Delphi 5.0	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00
MS SQL Server DBMS	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
DBMS Client PC Workstation	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00
Total Software Cost	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
Implementation Cost:					
Training Cost	15,000.00	–	–	–	–
Set up Cost	100,000.00	–	–	–	–
Total Implementation Cost	115,000.00	–	–	–	–
Office Equipment Cost:					
Calculator 2 units @ 2,000	800.00	800.00	800.00	800.00	800.00
Total Office Equipment Cost	800.00	800.00	800.00	800.00	800.00
<b>Total Fixed Cost</b>	<b>213,200.00</b>	<b>103,000.00</b>	<b>103,000.00</b>	<b>103,000.00</b>	<b>103,000.00</b>
<b>Operating Cost</b>					
People-Ware Cost:					
Inventory Manager 1 person @ 22,000	22,000.00	22,500.00	23,000.00	22,000.00	24,500.00
Staff:					
Sales Officer 3 persons @ 16,000	48,000.00	49,000.00	50,500.00	51,500.00	52,500.00
Stock Officer 1 person @ 11,000	11,000.00	11,500.00	12,500.00	13,100.00	13,500.00
Receiving Clerk 1 person @ 8,000	8,000.00	8,250.00	8,850.00	9,050.00	9,200.00
Total Monthly Salary Cost	89,000.00	91,250.00	94,850.00	97,650.00	99,700.00
Total Annual Salary Cost	1,068,000.00	1,095,000.00	1,138,200.00	1,171,800.00	1,196,400.00
Office Supplies & Miscellaneous Cost:					
Stationary 500 per month	6,000.00	6,500.00	7,000.00	7,500.00	8,000.00
Paper 2,000 per month	24,000.00	25,000.00	30,000.00	32,000.00	33,000.00
Utility 1,500 per month	18,000.00	18,900.00	19,000.00	20,000.00	21,000.00
Miscellaneous 2,000 per month	24,000.00	25,200.00	26,000.00	27,000.00	28,300.00
Annual Office Supplies & Miscellaneous Cost	72,000.00	75,600.00	82,000.00	86,500.00	90,300.00
<b>Total Operating Cost</b>	<b>1,140,000.00</b>	<b>1,170,600.00</b>	<b>1,220,200.00</b>	<b>1,258,300.00</b>	<b>1,286,700.00</b>
<b>Total Computerized System Cost</b>	<b>1,353,000.00</b>	<b>1,273,600.00</b>	<b>1,323,200.00</b>	<b>1,361,300.00</b>	<b>1,389,700.00</b>

Table 3.4. Five Years Accumulated Computerized Cost, Baht.

Year	Total Computerized Cost	Accumulated Cost
1	1,353,000.00	1,353,000.00
2	1,273,600.00	2,626,600.00
3	1,323,200.00	3,949,800.00
4	1,361,300.00	5,311,100.00
5	1,389,700.00	6,700,800.00
Total	6,700,800.00	-

(3) The Comparison of the System Costs between the Manual System and the Computerized System

To compare costs between the existing system and the proposed system is shown in Table 3.5 and Figure 3.10 in the graph format. It shows the cost of the proposed system is rather higher than the cost of existing system at the earlier period. After 2 years passed, the line of proposed system cost will decline and cut the line of existing system cost at the break-even point, and then it will lower than the existing system cost. It caused from higher first investment cost and lower operation cost such as labor cost and overhead cost.

Table 3.5. The Comparison of the System Costs, Baht.

Year	Accumulated Manual Cost	Accumulated Computerized Cost
1	1,260,600.00	1,353,000.00
2	2,579,300.00	2,626,600.00
3	3,948,100.00	3,949,800.00
4	5,415,200.00	5,311,100.00
5	6,968,300.00	6,700,800.00





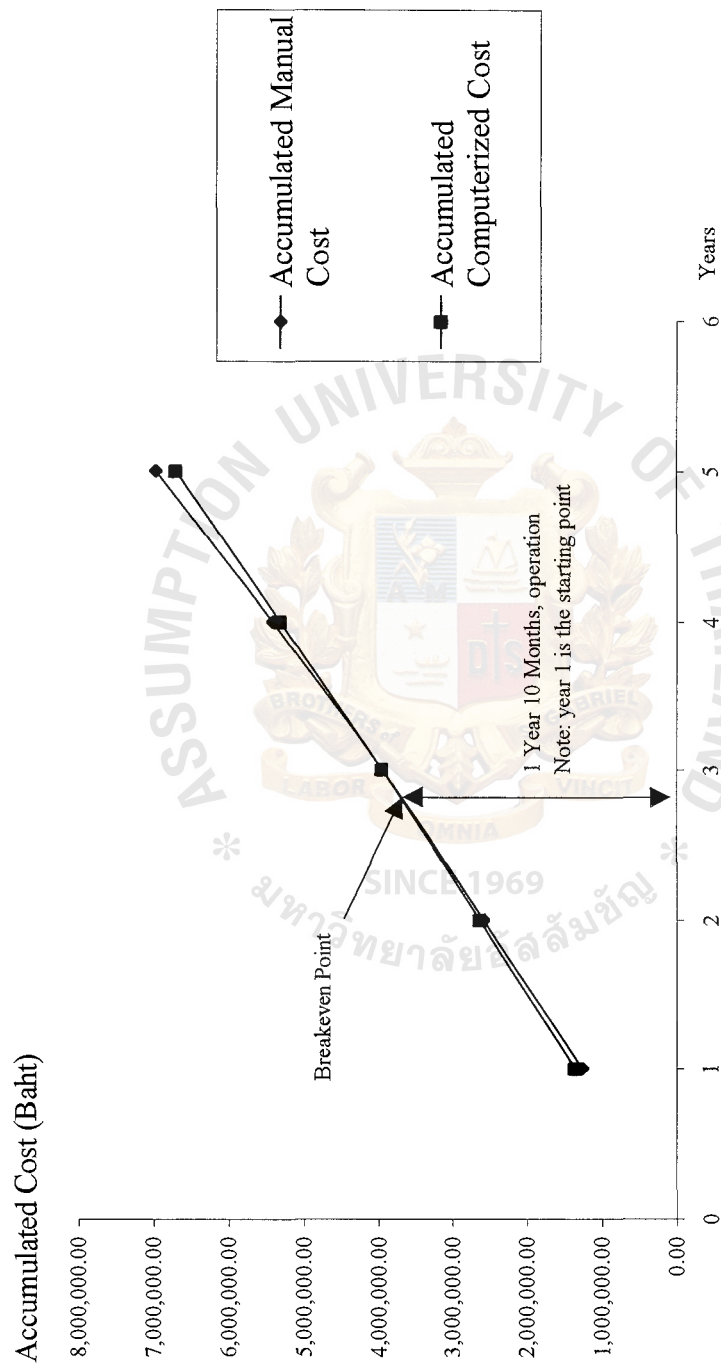


Figure 3.10. Cost Comparison between Manual and Proposed System.

#### (4) Benefit Analysis

Benefits analysis is the method for evaluating the proposed computer information system. The benefits of the Footwear Retailer Information System can increase profits and the efficiency of service and also decrease costs of operation. The benefits are classified as tangible benefits and intangible benefits

##### (a) Tangible benefits

Tangible benefits are usually measured in terms of monthly or annual savings or of profit to the firm. They can be quantified in Baht value amount. The tangible benefits are realized when the proposed system is implemented to save the cost of the footwear shop.

##### (1) Reduction of human labor

Sales Officer	1 persons @ 16,000 Baht	16,000 Baht
Stock Officer	2 persons @ 11,000 Baht	22,000 Baht

##### (2) Reduction of stationary

7,000 Baht

##### (3) Reduction of paper

10,000 Baht

##### (4) Increase efficiency in processing

50,000 Baht

##### (b) Intangible benefits

Intangible benefits are those benefits that are difficult to quantify. The benefits that occur and affect the organization use a period of time to measure. The proposed system provides the intangible benefits toward the footwear shop as follows:

##### (1) Improve customer goodwill

##### (2) Improve employee morale

##### (3) Better service to customer

- (4) Improve the decision-making process
  - (5) Reduce the risks of human errors
  - (6) Reduce paper works
  - (7) Reduce time to operate and redundant work flow
  - (8) Increase work capacity, accuracy, and efficiency of employee.
- (5) Payback Analysis

The payback method is the simplest way of looking at one or more major project ideas. It tells you how long it will take to earn back the money you'll spend on the project. System development costs are incurred long before benefits begin to accrue so it will take time for the benefits to overtake the costs. The payback period is the number of years required to accumulate earnings sufficient to cover the investment cost. The payback period formula is shown as follows.

$$P = \frac{I}{(1-T) R}$$

Where P = Payback Period

I = Initial or Investment Cost

R = Annual Saving realized by investment

T = Tax Rate in percent (30%)

The payback period of the proposed system can be calculated as follow.

$$I = 213,200 \text{ Baht}$$

$$R = 105,000 \text{ Baht}$$

$$P = \frac{213,200}{(1-0.3)(105,000)}$$

$$= 2.10 \text{ years}$$

- (a) Inventory control keeps track of stock levels and processes inventory receipts, shipments, returns and adjustments. It also includes extensive screen inquiry and reporting functions to give user the detailed, current information about quantities, prices, item movements, and sales history that is crucial for effective inventory management. It also provides the integration between purchasing module, inventory module, and order entry module for complete control of inventory.
- (b) The system developed under Graphical User Interface (GUI) concept, so the system is a user-friendly program that made user enter data easier, faster and more accurate comparing with the manual system.
- (c) Online inquiry allows user and management can inquire the information from the system immediately, unnecessary to waste time to keep the record by manual which takes twice as much times. Management has the up-to-date information for his decision-making and analysis.
- (d) Faster and safe time to operate the task, reducing the redundant works with clear job description.
- (e) The user has to spend high investment cost at the beginning period, but in the long run, the user can gain more advantages from changing the existing system into the proposed system. Notice from the graph in figure 3.10, after about 3 years the cost of proposed system is lesser than the existing system. The break-even point is on 2 years and 10 months.

Table 5.1. Table of Achievement.

Process	The Existing System (minutes.)	The Proposed System (minutes.)
1. Check Availability	5	1
2. Reorder Goods	20	5
3. Receive Product	60	30
4. Retail Sales	20	10
5. Return Product	20	10
6. Check Stock	120	60
7. Reports	7 hrs.	3.5 hrs.

Due to the online inquiry feature that the computerized system offers, the used time for each task is reduced such as:

(a) Check availability

Manual system – staff has to go physically search in the warehouse.

Computerized system – online search or inquiry

(b) Reorder goods

Manual system – staff has to check and count the item both in display and warehouse.

Computerized system - automatic reorder

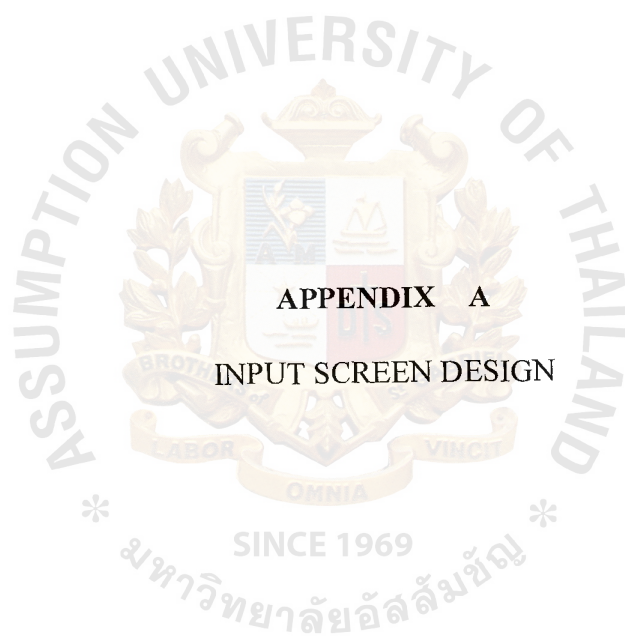
These are only the sample that the computerized system provides the better advantages, speeds up workflow and operation, and reducing labor cost.

## 5.2 Recommendations

The Footwear Retailer Information System is just one of the example cases where computerization can be applied to ease daily business operations. The system can also be modified and adapted to suit other types of business.

The existing system is, at present, efficient enough to handle the retailer's daily operations. However, the design was focused on selling, purchasing and stock controlling parts. Additional functions can be added to the system to enhance its performance as follows:

- (a) The system could be modified to generate account transactions to interface to financial application. This does not have to be in a complicated format. The summary of daily sale amount and daily purchase amount may be sufficient for this purpose
- (b) More reports will definitely enhance the usage of the system. For instance, Report to alert stock clerk in case new stock is lower than re-order level to minimize the event of lost sale.
- (c) The bar code reader, which has become the common device, will speed up the operation process both sale and stock check.
- (d) The CG Footwear Shop plans to have its own website in order that the shop can promote the product via Internet and expand sales target market which is high competition nowadays.
- (e) In order to secure the system, the CG Footwear Shop must determine the standard rules and procedures. For examples, the unauthorized staff are prohibited from entering the computer room, administration tasks like perform disk scan, check virus and install Anti-Virus.



## APPENDIX A

### INPUT SCREEN DESIGN



## Footwear Retailer Information

This section will present the input screen and procedure inside the Footwear Retailer Information System, starting from user sign on until view report.

Security before Entering into the System

- (1) All users have to sign on to the system by their own password

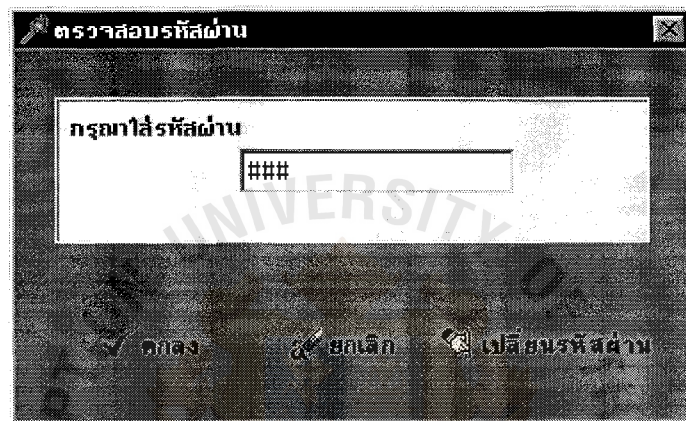


Figure A.1. Sign on Screen.

- (2) If user fills in the wrong password, the system will give an alert message.  
The user has to key in again with the correct password.



Figure A.2. Invalid Password Alert.



Figure A.3. Re-enter Password Screen.

## Footwear Retailer Information System



Figure A.4. Main Function.

The system composed of 4 sections

- (1) Transaction
- (2) Correction
- (3) Inquiry
- (4) Reports

### The Main Menu

This screen is the main screen for the Footwear Retailer Information System.

There are 3 functions to operate:

- (1) Sales
- (2) Purchasing
- (3) Receiving

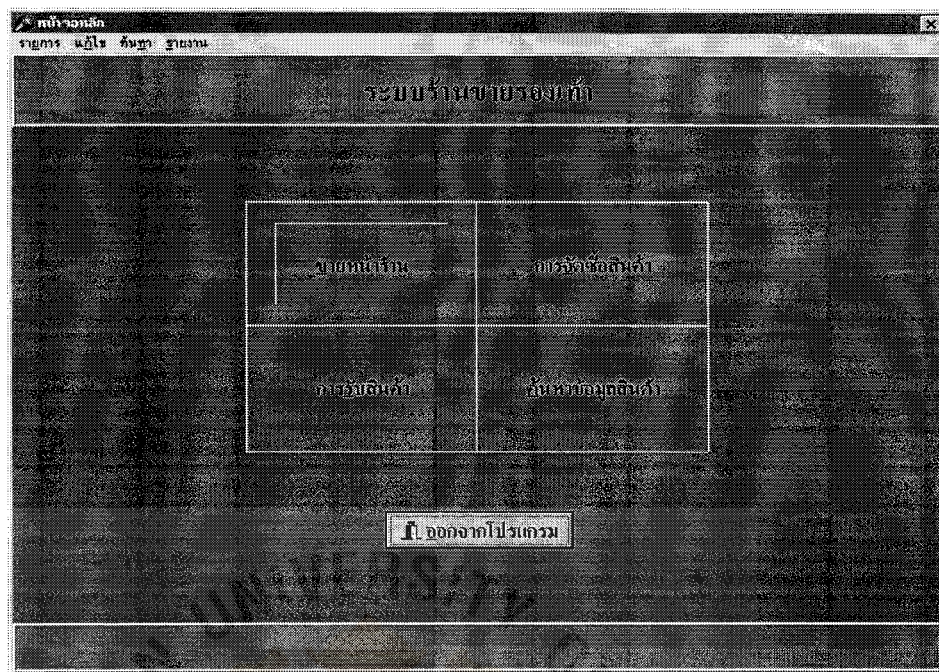


Figure A.5. Main Menu.

The main screen will show after signing on the system, the user can access each system by selecting from the main screen or from the menu bar.

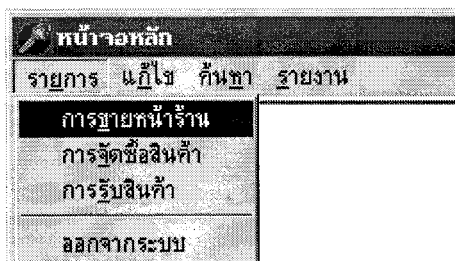


Figure A.6. Menu Bar.



- (1) Sales – used for entering the details of goods purchased from customers and issuing the receipt.

การขายหน้าร้าน

วันที่: 20/05/2557

รหัสสินค้า: 4300003 สี: ดำ ขนาด: 42 จำนวนที่ซื้อ: 1

ส่วนลดรวม: 7% จำนวนที่เก็บ: 83 จำนวนสินค้าคงเหลือ:

รหัสสินค้า	ชื่อ	สี	ขนาด	ราคา	จำนวนที่ซื้อ
4300001	Reebok	PUMP	ดำ	42	3900
4300001	Reebok	PUMP	ดำ	44	3900
4300002	Nike	AIR	ดำ	42	23000

รายการสินค้าที่ซื้อ

ออกใบเสร็จ OK ยกเลิกการขาย พิมพ์ใบเสร็จ

Figure A.7. Input Sales Screen.

User enters item number (1) and selects color (2), size (3), and quantity purchased (4), and then clicks OK (5). Each transaction will enter into the table until completing all items, select Issue Receipt (6) to print the receipt.

When click OK (5), if there is not enough goods, or keying the wrong item number, the system will alert as shown below:

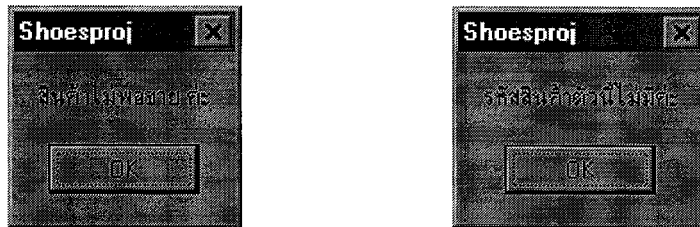


Figure A.8. Not Enough Product and No Product Code Alert.

- (2) Purchasing – uses this screen to enter the details of goods, and vendors, and issue purchase order.

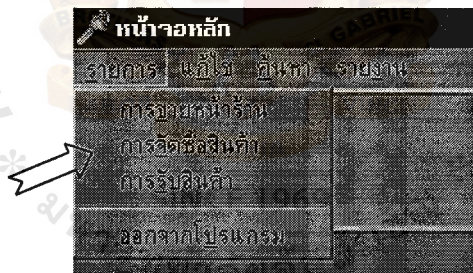


Figure A.9. Purchasing Menu Bar.



การสั่งซื้อสินค้า

ลำดับใบสั่งซื้อสินค้า 16 วันที่ 09/21/2548

ชื่อผู้ติดต่อ นายต๋นง เฟื่องฟู	ชื่อแบรนด์ TWIN	ประเภท หนึ่ง
ชื่อบริษัท พระโขนงซูเปอร์ไฮเตอร์	สี GOLDEN	ขนาด 39 สี ดำ
	จำนวน 10	ราคาต่อหน่วย 950

ปุ่มที่ปรากฏ: บันทึกการสั่งซื้อ, กลับเมนูหลัก

Figure A.10. Purchasing Input Screen.

User can view 2 data in this screen:

- (a) Vendor data
- (b) Goods data

Vendor Data

The user can view the vendor listing from the right bottom from vendor field.

The screen below will be shown.

เลือกผู้แทนจำหน่ายที่ต้องการ

โปรดเลือกข้อมูลที่ต้องการ

ชื่อบริษัท	ชื่อผู้ติดต่อ
NIKE	พรพิมล
NIKE	สมศักดิ์

ตกลง

ปิด

กรณีไม่พบข้อมูลกด >>

เพิ่มข้อมูล

Figure A.11. Vendor Inquiry Screen.

In case of the new vendor, it can be added by selecting add, the below screen will be shown. User fills in the detail and saves it.



บันทึกข้อมูลด้วยตนเอง

บันทึกข้อมูลด้วยตนเอง

รหัส: 2      ชื่อบริษัท: NIKE

ที่อยู่: EKK

หมายเลขโทรศัพท์: 8128792      ชื่อผู้ติดต่อ: สมศักดิ์

เพิ่ม      ยกเลิก      บันทึก

กดปุ่มหน้าจอกรังตั้งชื่อ

Figure A.12. Vendor Input Screen.

## Goods Data

The screen shows the goods listing. User can select the goods to be purchased.



Figure A.13. Product Inquiry Screen.

To add the new goods data, click Add, the below screen will be shown.



บันทึกข้อมูลสินค้า

บันทึกข้อมูลสินค้า

กรุณาใส่ข้อมูลให้ครบ

ชื่อสินค้า  ชื่อรหัส

ประเภท  ขนาด  สี

Figure A.14. Product Input Screen.

- (3) Receiving – uses this function to select purchase order from purchasing menu to check accuracy and condition of goods received and define the place where the goods should be kept.



Figure A.15. Receiving Menu Bar.

การรับสินค้า

การรับสินค้า

ใบสั่งซื้อที่ยังไม่ได้รับสินค้า

หมายเลขใบสั่งซื้อ: 2      วันที่: 20/05/2543

ชื่อสินค้า	ชื่อผู้ขาย/ยี่ห้อ	ยี่ห้อ	รุ่น	สี	ขนาด	ราคา	จำนวน
NIKE CO.,LTD.	สมนึก สเนกาวังค์	Reebok	PUMP	ดำ	42	2,000.00	33
NIKE CO.,LTD.	สมนึก สเนกาวังค์	Reebok	PUMP	ดำ	44	2,000.00	20
NIKE CO.,LTD.	สมนึก สเนกาวังค์	Nike	AIR	ดำ	42	1,500.00	30

ปุ่ม: ค้นหา, แก้ไข, ลบ, ยืนยัน, อนุมัติ, อนุมัติแล้ว

Figure A.16. Purchase Order Inquiry Screen.

The user fills in the purchase order number. The system will show the detail of the goods purchased. User can check it with the goods received. After that the undefined goods and the store position can be defined in the screen below.



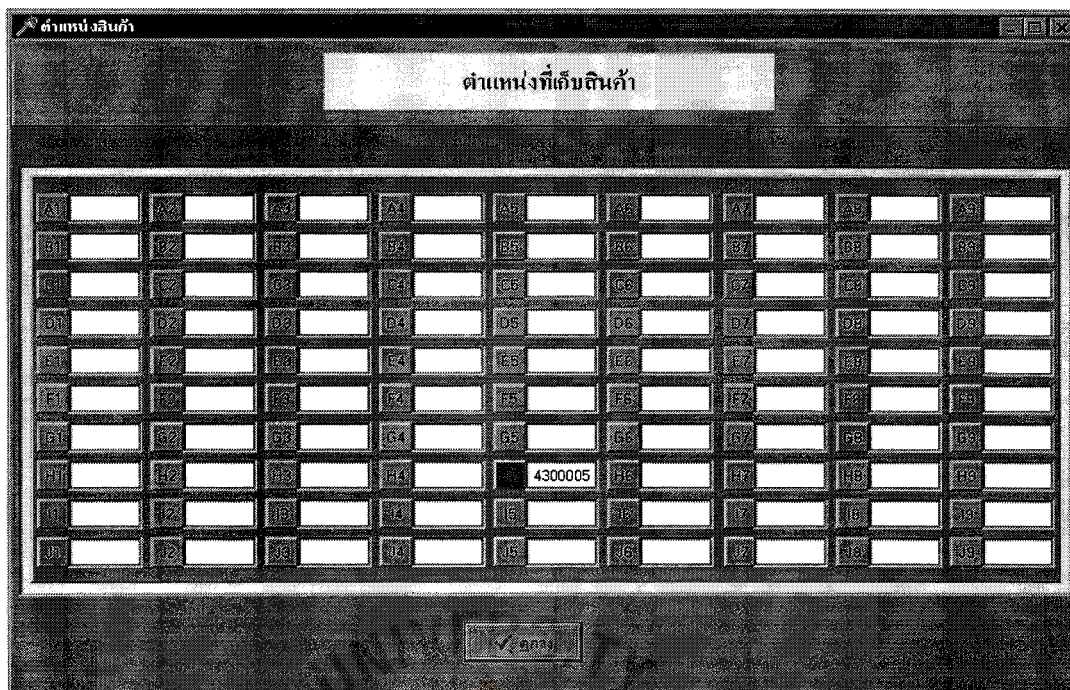


Figure A.17. Stock Location Screen.

#### Correction

The second section is the correction; the user can do the correction in 2 ways:

- (1) Goods data correction
- (2) Vendors data correction

To correct, the authorized person can do each datum, so the user password is required.



Figure A.18. Correction Menu Bar.

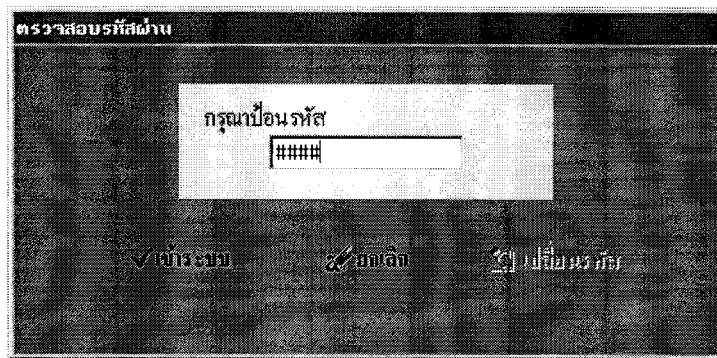


Figure A.19. Sign on Screen for Correction Screen.

- (1) Goods data correction – the user can retrieve the required data and do the correction for the goods data such as price, or warehouse position.

Figure A.20. Product Correction Screen.



- (2) Vendor data correction – user can retrieve vendor data and correct it on this screen, when vendor has the change in company name, address, contact name, contact person, or delete the vendor detail.

แก้ไขข้อมูลผู้แทนจำหน่าย			
ตรวจสอบรหัสผู้แทนจำหน่าย		<input type="text" value="1"/>	<input checked="" type="checkbox"/> ตรวจสอบ
ชื่อบริษัท	<input type="text" value="NIKE CO., LTD."/>	โทรศัพท์	<input type="text" value="1111111"/>
โทรสาร	<input type="text" value="Bkk"/>	ชื่อผู้แทนจำหน่าย	<input type="text" value="สมนึก"/>
<input checked="" type="checkbox"/> ยืนยัน		<input checked="" type="checkbox"/> บันทึก	
<input checked="" type="checkbox"/> กลับเมนูหลัก			

Figure A.21. Vendor Data Correction Screen.

## Inquiry

There are 2 kinds of data that the user can inquire:

- (1) Inquire goods data
- (2) Inquire vendor data





Figure A.22. Search Menu Bar.

(1) Inquire Product data

Inquiry for the goods data helps the user to be able to manage and control the sales promotion. The user can inquire about the system by product class. The matched detail will be shown.

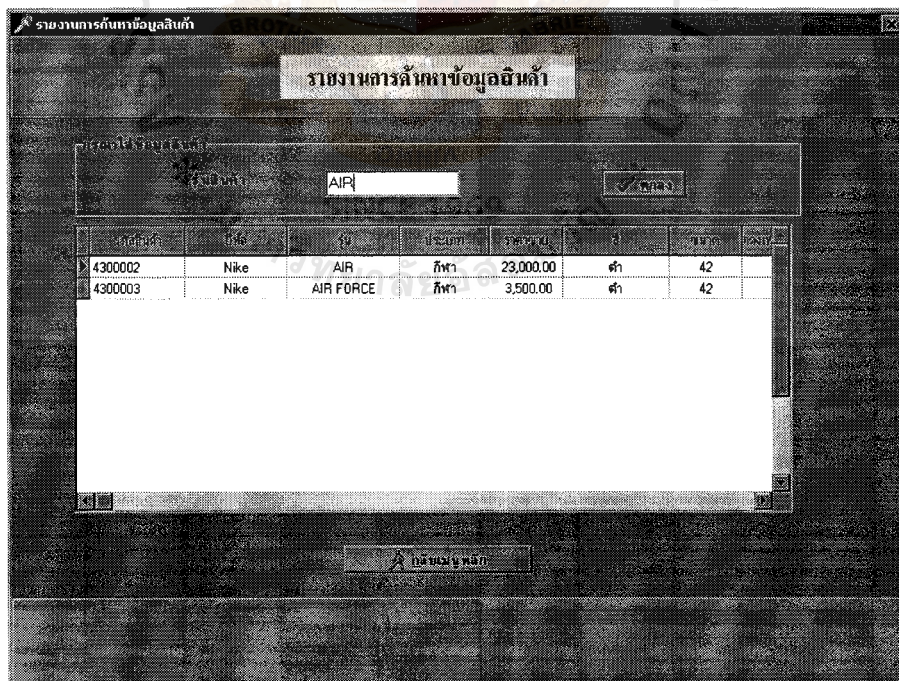


Figure A.23. Product Data Inquiry Screen.

(2) Inquire vendor data

User can inquire the vendor data by vendor code, company name, or contact person.

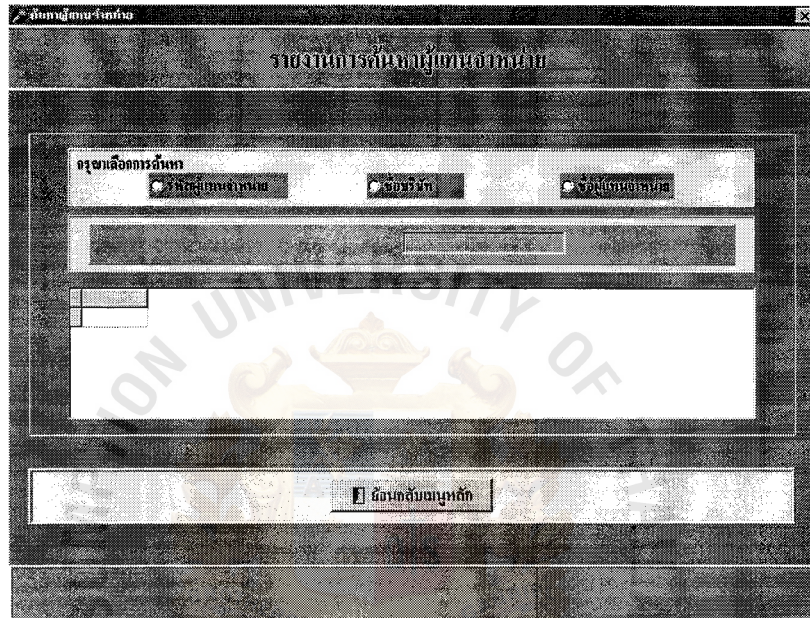


Figure A.24. Vendor Inquiry Selection Screen.

ค้นหาข้อมูลผู้แทนจำหน่าย

รายงานผลการค้นหาข้อมูลผู้แทนจำหน่าย

รหัสผู้แทนจำหน่าย: 1

บริษัท: NIKE

ชื่อผู้แทนจำหน่าย: บริษัท

✓ ค้นหา

รหัสผู้แทนจำหน่าย	บริษัท	ชื่อผู้แทนจำหน่าย	โทรศัพท์	รหัสประจำตัว
1 NIKE CO.,LTD.	Bangkok		2542514	สมนึก สเนกนาวังค์

✓ ยอมรับ

✗ ยกเลิก

Figure A.25. Vendor Inquiry Screen.

## Reports

There are 4 kinds of report that the system provides:

- (1) Daily sales balance
- (2) Stock movement report
- (3) Back order report (below safety stock)
- (4) Product cost report



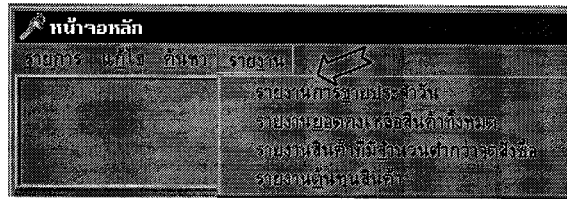


Figure A.26. Report Menu Bar.

(1) Daily sales balance report

This report shows the daily sales, total sales amount, and total revenue in order to prepare the sales summary, and market plan to promote the popular product.

รายงานการขายประจำวัน

รายงานการขายประจำวัน

20 มิถุนายน 2543

รายการวันที่ 20/06/2543

แสดงรายการ

ใบเสร็จ	รหัสสินค้า	ชื่อสินค้า	ยี่ห้อ	รุ่น	สี	ขนาด	จำนวน	ราคาต่อหน่วย	รวม
53	4300001	กีฬา	Reebok	PUMP	ดำ	43	1	3,900.00	3,900.00
55	4300001	กีฬา	Reebok	PUMP	ดำ	44	1	3,900.00	3,900.00
56	4300001	กีฬา	Reebok	PUMP	ดำ	43	1	3,900.00	3,900.00
									รวม 11,700.00

แสดงรายการ

สรุปยอดรวม

Figure A.27. Daily Sales Inquiry Screen.

(2) Stock movement report

This report shows the stock movement to manage and control the stock balance and forecast the safety stock quantity and reorder point.

รายงานยอดสินค้าคงเหลือ

รายงานยอดคงเหลือสินค้าทั้งหมด

วันที่ 09/28/2543

รหัสสินค้า	ชื่อ	ชื่อรุ่น	สี	ขนาด	ยอดคงเหลือ
4300001	SOLDIER	C111	น้ำตาล	32	21
4300001	SOLDIER	C111	น้ำตาล	33	25
4300001	SOLDIER	C111	น้ำตาล	34	25
4300001	SOLDIER	C111	น้ำตาล	36	50
4300001	SOLDIER	C111	น้ำตาล	38	22
4300002	WALKER	STAR	ดำ	39	24
4300002	WALKER	STAR	ดำ	42	25
4300002	WALKER	STAR	ดำ	41	25

จบรายงาน กลับเมนูหลัก

Figure A.28. Stock Movement Inquiry Screen.



(3) Back order report (below safety stock)

The report shows the stock on hand and reorder-point to manage the stock suitable for the customer's requirements.

รายงานสินค้าที่ต่ำกว่าจุดสั่งซื้อ

รายงานสินค้าที่ต่ำกว่าจุดสั่งซื้อ

ตรวจสอบรายการสินค้า

✓ แสดงข้อมูล

รหัสสินค้า	ชื่อ	รุ่น	ประเภท	สี	ขนาด	สต็อกคงเหลือ	จุดสั่งซื้อ
4300001	Reebok	PUMP	กีฬา	ดำ	43	4	5
4300002	Nike	AIR	กีฬา	ดำ	42	10	15

✓ ออกรายงาน

✱ กลับเมนูหลัก

Figure A.29. Back Order Inquiry Screen.

(4) Product cost report

รหัสสินค้า	ชื่อ	ขนาด	วันที่รับ	ราคาทุน	ปริมาณ	ผลิตต่อ

☐ แสดงทั้งหมด  
☐ แสดงกำไรสูงสุด  
☐ แสดงต้นทุน

กรองข้อมูล  
 ออกรายงาน  
 กลับหน้าจอ

Figure A.30. Product Cost Inquiry Screen.



ขายหน้าร้าน

## การขายหน้าร้าน

วันที่ 10/12/2543

รหัสสินค้า  ลิ  ขนาด  จำนวนกล่อง

เปลี่ยนอัตราภาษี ภาษี 7 % ส่วนลดพิเศษ  จำนวนสินค้าคงเหลือ

รหัสสินค้า	ยี่ห้อ	ชื่อรุ่น	สี	ขนาด	ราคา	จำนวนรวม
4300005	REEBOK	PUMP	ดำ	39	฿1,680.00	15
4300002	WALKER	STAR	ดำ	40	฿1,190.00	15

Figure B.1. Issuing Receipt Screen.

1091/3 จ.พพรบุรีดิถีไทย		1	
เบดรายทรี ททท. 10400		<b>CG Footware Retailer Co., Ltd.</b>	
โทร : 02-253-7531, 02-253-4166		วันที่ 10/12/2543	
โทรสาร : 02-253-7532		ใบเสร็จรับเงิน	
หมายเลขใบกำกับภาษี 31011866SS		หมายเลขใบเสร็จ 10	

รหัสสินค้า	ยี่ห้อ	ชื่อรุ่น	สี	ขนาด	จำนวน	ราคา/หน่วย	ราคารวม
4300005	REEBOK	PUMP	ดำ	39	15	฿1,680.00	฿25,200.00
4300002	WALKER	STAR	ดำ	40	15	฿1,190.00	฿17,850.00

ราคาค่าก่อนรวมภาษี =    ฿40,036.50   บาท

ภาษี 7 % =    ฿3,013.50   บาท

ราคารวมทั้งหมด =    ฿43,050.00   บาท

Figure B.2. Receipt Report.



การออกใบสั่งซื้อ

การออกใบสั่งซื้อ

เลือกผลิตภัณฑ์จาก 2 ของ

ชื่อผลิตภัณฑ์: สมาร์ทโฟน Samsung

บริษัท: NIKE CO.

หมายเลขใบสั่งซื้อ: 19

รุ่น	ชื่อ	ขนาด	สี	จำนวน
AIR	NIKE	42	สีดำ	10
AIR	NIKE	42	ขาว	30

Figure B.3. Issuing Purchase Order Screen.

ชื่อผู้ติดต่อ สมณีก่อนนางค์ ชื่อบริษัท NIKE CO. หมายเลขใบสั่งซื้อ 13					
ใบสั่งซื้อสินค้า CG Footware Retailer Co.,Ltd 1091/3 ถ.เพชรบุรีตัดใหม่ เขตราชเทวี กทม. 10400					
ชื่อ	รุ่น	ขนาด	สี	จำนวน	ราคาต่อหน่วย
NIKE	AIR	42	ดำ	10	฿2,800.00
NIKE	AIR	42	ขาว	10	฿2,800.00
				ราคา	฿56,000.00 บาท
				Vat 7%	฿3,920.00 บาท
				ราคารวม	฿59,920.00 บาท

Figure B.4. Purchase Order Report.



รายงานการขายประจำวัน

12 ตุลาคม 2543

รายการวันที่ 10/12/2543

แสดงรายการ

ใบเสร็จ	รหัสสินค้า	ประเภท	ชื่อ	รุ่น	สี	ขนาด	จำนวน	ราคาต่อหน่วย	ราคารวม
8	4300002	หนัง	WALKER	STAR	ดำ	40	1	฿1,190.00	฿1,190.00
8	4300004	กีฬา	NIKE	AIR	ดำ	42	1	฿2,100.00	฿2,100.00
10	4300002	หนัง	WALKER	STAR	ดำ	39	15	฿1,190.00	฿17,850.00

รวม ฿21,140.00

ออกรายงาน กดปุ่มบันทึก

Figure B.5. Daily Sales Balance Inquiry.

10/12/2543

รายงานการขายประจำวัน

ชื่อ	รุ่น	สี	ขนาด	จำนวน	ราคาต่อหน่วย	ราคารวม
WALKER	STAR	ดำ	39	15	฿1,190.00	฿17,850.00
WALKER	STAR	ดำ	40	1	฿1,190.00	฿1,190.00
NIKE	AIR	ดำ	42	1	฿2,100.00	฿2,100.00

รวมสุทธิ = ฿21,140.00

Figure B.6. Daily Sales Balance Report.

รายงานยอดสินค้าคงเหลือ

รายงานยอดคงเหลือสินค้าทั้งหมด

วันที่ 10/12/2543

รหัสสินค้า	ชื่อ	ชื่อรุ่น	สี	ขนาด	ยอดคงเหลือ
4300001	SOLDIER	C111	น้ำตาล	32	21
4300001	SOLDIER	C111	น้ำตาล	33	25
4300001	SOLDIER	C111	น้ำตาล	34	25
4300001	SOLDIER	C111	น้ำตาล	36	50
4300001	SOLDIER	C111	น้ำตาล	38	22
4300002	WALKER	STAR	ดำ	39	9
4300002	WALKER	STAR	ดำ	42	25
4300002	WALKER	STAR	ดำ	41	25

ดูกรายงาน    อัปเดตข้อมูล

Figure B.7. Stock Movement Inquiry.

รายงานยอดสินค้าคงเหลือทั้งหมด

รหัสสินค้า	ชื่อ	ชื่อรุ่น	สี	ขนาด	ยอดคงเหลือ
4300001	SOLDIER	C111	น้ำตาล	32	21
4300001	SOLDIER	C111	น้ำตาล	33	25
4300001	SOLDIER	C111	น้ำตาล	34	25
4300001	SOLDIER	C111	น้ำตาล	36	50
4300001	SOLDIER	C111	น้ำตาล	38	22
4300002	WALKER	STAR	ดำ	39	24
4300002	WALKER	STAR	ดำ	42	25
4300002	WALKER	STAR	ดำ	41	25
4300002	WALKER	STAR	ดำ	40	23
4300002	WALKER	STAR	ดำ	38	25
4300003	GOLDEN	TWIN	ดำ	38	25
4300003	GOLDEN	TWIN	ดำ	39	24

Figure B.8. Stock Movement Report.



รายงานสินค้าที่ต่ำกว่าจุดสั่งซื้อ

รายงานสินค้าที่ต่ำกว่าจุดสั่งซื้อ

แสดงข้อมูล

รหัสสินค้า	ยี่ห้อ	รุ่น	ประเภท	สี	ขนาด	ยอดคงเหลือ	จุดสั่งซื้อ
4300002	WALKER	STAR	หนัง	ดำ	39	9	
4300002	WALKER	STAR	หนัง	ดำ	40	8	
4300005	REEBOK	PUMP	กีฬา	ดำ	39	9	

แสดงรายงาน

ย้อนกลับเมนูหลัก

Figure B.9. Below Safety Stock Inquiry.

รายงานสินค้าที่ต่ำกว่าจุดสั่งซื้อ

รหัสสินค้า	ยี่ห้อ	รุ่น	ประเภท	สี	ขนาด	ยอดคงเหลือ	จุดสั่งซื้อ
4300002	WALKER	STAR	หนัง	ดำ	39	9	10
4300002	WALKER	STAR	หนัง	ดำ	40	8	10
4300005	REEBOK	PUMP	กีฬา	ดำ	39	9	10

Figure B.10. Below Safety Stock Report.



รายงานต้นทุนสินค้า

X

**รายงานต้นทุนสินค้า**

รหัสสินค้า	สี	ขนาด	วันที่รับ	ราคาทุน	บริษัท	ผู้ติดต่อ
4300001	น้ำตาล	33	09/08/2543	฿70.00	เฉลิมชัยเครื่องหนัง	นายวรวิทย์ มีธรรม
4300001	น้ำตาล	38	01/01/1457	฿5.00	เฉลิมชัยเครื่องหนัง	นายวรวิทย์ มีธรรม
4300001	น้ำตาล	32	01/01/1457	฿25.00	เฉลิมชัยเครื่องหนัง	นายวรวิทย์ มีธรรม
4300002	ดำ	40	09/08/2543	฿850.00	แกรนด์เฮ้าส์ จำกัด	นายมีชัย ก่อสุข
4300002	ดำ	38	01/01/1457	฿1,250.00	แกรนด์เฮ้าส์ จำกัด	นายมีชัย ก่อสุข
4300003	ดำ	42	09/08/2543	฿850.00	พระโขนงซูเปอร์เซ็นเตอร์	นายदनัย เพ็งบุญ
4300003	ดำ	38	09/08/2543	฿850.00	พระโขนงซูเปอร์เซ็นเตอร์	นายदनัย เพ็งบุญ
4300003	ดำ	39	01/01/1457	฿950.00	พระโขนงซูเปอร์เซ็นเตอร์	นายदनัย เพ็งบุญ
4300004	น้ำตาล	42	09/08/2543	฿1,500.00	NIKE CO.	สมนึก อเนกนาวงศ์
4300004	ดำ	42	01/01/1457	฿2,800.00	NIKE CO.	สมนึก อเนกนาวงศ์
4300005	ดำ	39	09/08/2543	฿1,200.00	REEBOK CO.	สมบัติ วรศิริชัย
4300005	ม่วง	43	09/08/2543	฿1,200.00	REEBOK CO.	สมบัติ วรศิริชัย

☐ แสดงทั้งหมด  
☒ แสดงครึ่งหลังสุด

แสดงข้อมูล

ขอชมผลงาน

กลับเมนูหลัก

Figure B.11. Product Cost Inquiry Screen.

รายงานต้นทุนสินค้า

รหัสสินค้า	สี	ขนาด	วันที่	ราคาทุน	บริษัทผู้แทน	ผู้ติดต่อ
4300001	น้ำตาล	33	09/08/2543	฿70.00	เจolimชัยเครื่องหนัง	นายวราวุฒิ มีธรรม
4300001	น้ำตาล	38	01/01/1457	฿5.00	เจolimชัยเครื่องหนัง	นายวราวุฒิ มีธรรม
4300001	น้ำตาล	32	01/01/1457	฿25.00	เจolimชัยเครื่องหนัง	นายวราวุฒิ มีธรรม
4300002	ดำ	40	09/08/2543	฿850.00	แกรนด์ไฮสปี จำกัด	นายมิชัย ก่อสุข
4300002	ดำ	38	01/01/1457	฿1,250.00	แกรนด์ไฮสปี จำกัด	นายมิชัย ก่อสุข
4300003	ดำ	42	09/08/2543	฿850.00	พระใจเนงูส์เซ็นเตอร์	นายคณัย เฝิงบุญ
4300003	ดำ	38	09/08/2543	฿850.00	พระใจเนงูส์เซ็นเตอร์	นายคณัย เฝิงบุญ
4300003	ดำ	39	01/01/1457	฿950.00	พระใจเนงูส์เซ็นเตอร์	นายคณัย เฝิงบุญ
4300004	น้ำตาล	42	09/08/2543	฿1,500.00	NIKE CO.	สม นึก อเนกนางค์
4300004	ดำ	42	01/01/1457	฿2,800.00	NIKE CO.	สม นึก อเนกนางค์
4300005	ดำ	39	09/08/2543	฿1,200.00	REEBOK CO.	สม บิทธิ วรดิษฐ์
4300005	ม่วง	43	09/08/2543	฿1,200.00	REEBOK CO.	สม บิทธิ วรดิษฐ์

Figure B.12. Product Cost Report.



## APPENDIX C

### ERD & DATABASE DESIGN

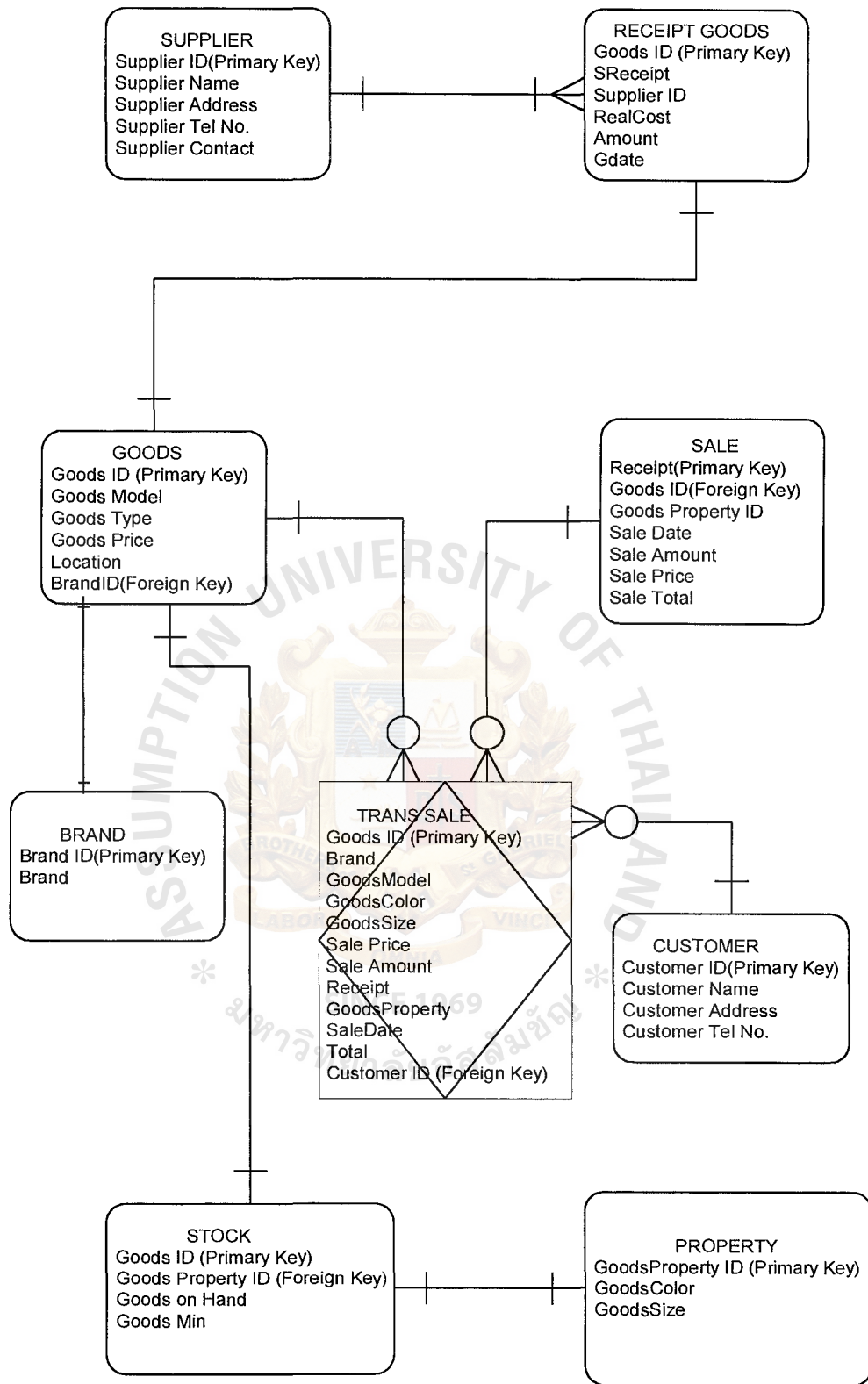


Figure C.1. Entity Relationship Diagram of Footwear Information System.

## DATABASE DESIGN

Table C.1. Structure of Brand Table.

No.	Field Name	Type	Size	Key
1	Bid	S		*
2	Brand	A	20	

Table C.2. Structure of DefineRid Table.

No.	Field Name	Type	Size	Key
1	Rcount	I		

Table C.3. Structure of Goods Table.

No.	Field Name	Type	Size	Key
1	Gid	A	7	*
2	Gmodel	A	10	
3	Gtype	A	15	
4	Gprice	\$		
5	Location	A	2	
6	Bid	S		

Table C.4. Structure of Password Table.

No.	Field Name	Type	Size	Key
1	Passid	S		*
2	Password	A	8	



Table C.5. Structure of Property Table.

No.	Field Name	Type	Size	Key
1	Gpropertyid	I	15	*
2	Gcolor	A		
3	Gsize	N		

Table C.6. Structure of Receipt\_goods Table.

No.	Field Name	Type	Size	Key
1	Gid	A	7	*
2	Sreceipt	I		*
3	Gpropertyid	I		*
4	Sid	S		
5	Realcost	\$		
6	Amount	S		
7	Gdate	D		

Table C.7. Structure of Sale Table.

No.	Field Name	Type	Size	Key
1	Receipt	I	7	*
2	Gid	A		*
3	Gpropertyid	I		*
4	Sale_date	D		
5	Sale_amount	S		
6	Sale_price	\$		
7	Sale_total	\$		

Table C.8. Structure of Stock Table.

No.	Field Name	Type	Size	Key
1	Gid	A	7	*
2	Gpropertyid	I		*
3	Gonhand	I		
4	Gmin	S		

Table C.9. Structure of Supplier Table.

No.	Field Name	Type	Size	Key
1	Sid	S		*
2	Sname	A	30	
3	Saddr	A	50	
4	Stel	A	10	
5	Scontact	A	30	

Table C.10. Structure of Tmporder Table.

No.	Field Name	Type	Size	Key
1	Orderno	I		
2	Tmpmodel	A	20	
3	Tmpbrand	A	20	
4	Tmpsize	N		
5	Tmpcolor	A	15	
6	Tmpcontact	A	30	
7	Tmpname	A	30	
8	Tmpamount	S		
9	Tmpsid	S		
10	Tmppropid	I		
11	Tmpgid	A	7	
12	Tmpdtype	A	15	
13	Tmpcost	\$		
14	Tmpbid	S		

Table C.11. Structure of TmpRecpt Table.

No.	Field Name	Type	Size	Key
1	Gid	A	7	*
2	Sreceipt	I		*
3	Sid	S		
4	Gpropertyid	I		

Table C.12. Structure of Trans\_sale Table.

No.	Field Name	Type	Size	Key
1	Gid	A	7	
2	Brand	A	20	
3	Gmodel	A	10	
4	Gcolor	A	15	
5	Gsize	N		
6	Sale_price	\$		
7	Sale_amount	S		
8	Receipt	I		
9	Gproperty	I		
10	Sale_date	D		
11	Total	I		

Table C.13. Structure of Customer Table.

No.	Field Name	Type	Size	Key
1	Cid	S		*
2	Cname	A	30	
3	Caddr	A	50	
4	CTel	A	10	



## APPENDIX D

### PROCESS SPECIFICATION



## PROCESS SPECIFICATION

Table D.1. Process Specification of Process 1.

Process Name:	Purchase Order Entry
Data In:	Vendor Name Goods Detail Order Amount
Data Out:	Purchase Order Detail
Process:	<ol style="list-style-type: none"> <li>(1) Receive the goods requirement report</li> <li>(2) Select vendor and goods</li> <li>(3) Check availability of vendor and goods</li> <li>(4) New vendor and goods detail go to process 1.1.1 and 1.1.2 respectively.</li> <li>(5) Fill in the purchase order detail</li> <li>(6) Print out the purchase order form and send to the vendor</li> </ol>
Attachment:	<ol style="list-style-type: none"> <li>(1) Vendor</li> <li>(2) Goods</li> </ol>

Table D.2. Process Specification of Process 1.1.

Process Name:	Record New Vendor
Data In:	Vendor Name Vendor Address Telephone Number Contact Person
Data Out:	Vendor Record
Process:	<ol style="list-style-type: none"> <li>(1) Check availability of each vendor</li> <li>(2) Add new record for the unavailable vendor</li> <li>(3) Fill in the vendor detail</li> <li>(4) Update vendor record</li> <li>(5) Go to process 1.1</li> </ol>
Attachment:	<ol style="list-style-type: none"> <li>(1) Purchase Order</li> <li>(2) Vendor Data Store</li> </ol>

Table D.3. Process Specification of Process 1.2.

Process Name:	Record New Goods
Data In:	Goods No. Goods Name Goods Type Size Color
Data Out:	Goods Record
Process:	(1) Check availability of each goods (2) Add new goods for unavailable goods (3) Fill in the goods detail (4) Go to process 1.1
Attachment:	(1) Purchase Order (2) Goods Data Store

Table D.4. Process Specification of Process 2.

Process Name:	Receive and Check the goods
Data In:	Purchase Order Detail Delivery Note Goods Delivery
Data Out:	Receiving Report
Process:	(1) Retrieve the purchase order from process 1 (2) Match all goods ordered with the goods counted and Delivery Note (3) Check the total amount of each Purchase Order (4) Select the rack number for the new goods (5) Update the inventory record
Attachment:	(1) Inventory Data Store

Table D.5. Process Specification of Process 3.

Process Name:	Retail Sales
Data In:	Goods Code Goods Color Goods Size Sale Amount Vat Rate
Data Out:	Stock On Hand Receipt Sales Record
Process:	(1) Customer Order (2) Fill in Goods Code, Color, and Size to view stock on hand amount. If the required goods are not available in the stock, cancel the order. (3) Select the VAT rate used (4) Add the customer order line item (5) Check amount (6) Issue receipt to customer promptly with the goods ordered
Attachment:	(1) Sales Data Store

Table D.6. Process Specification of Process 4.

Process Name:	Goods Data Correction
Data In:	The Correction Detail
Data Out:	Updated Goods Detail
Process:	(1) Receive the changed details (2) Sign on to the system by authorized person who is able to adjust the goods data (3) Do the correction (4) Update goods record
Attachment:	(1) Goods Data Store

Table D.7. Process Specification of Process 5.

Process Name:	Vendor Data Correction
Data In:	The Correction Detail
Data Out:	Updated Goods Detail
Process:	<ol style="list-style-type: none"> <li>(1) Receive the changed details</li> <li>(2) Sign on to the system by authorized person who is able to adjust the vendor data</li> <li>(3) Do the correction</li> <li>(4) Update vendor record</li> </ol>
Attachment:	(1) Vendor Data Store

Table D.8. Process Specification of Process 6.

Process Name:	Inquiry and Report
Data In:	Goods Vendor Stock Sale Receipt Goods
Data Out:	Goods Detail Inquiry Vendor Detail Inquiry Daily Sales Balance Report Stock Movement Report Back Order Report Product Cost Report
Process:	<ol style="list-style-type: none"> <li>(1) Obtain Management requirement</li> <li>(2) Select the system option to view and arrange the report that serve the management's requirement</li> <li>(3) Print out the report</li> </ol>
Attachment:	<ol style="list-style-type: none"> <li>(1) Goods Data Store</li> <li>(2) Vendor Data Store</li> <li>(3) Stock Data Store</li> <li>(4) Sale Data Store</li> <li>(5) Receipt Goods Data Store</li> </ol>





## APPENDIX E

### DATA DICTIONARY

## DATA DICTIONARY

Table E.1. Data Dictionary of Footwear Database.

Field Name	Meaning
Amount	The number of received footwear item
BID	The Brand Identification
Brand	The footwear brand name
GonHand	The number of stock on hand
GMin	The minimum of stock available
GID	The Footwear Identification Number
GModel	The model of footwear
GType	The description of footwear type
GPrice	Price specified for each shoe
Location	The stock location where each item is kept
GColor	Color of each footwear
GSize	Size specified for each shoe such as 36, 38, 40
Gdate	The receiving date of each receiving time
RealCost	The actual cost of each item
SReceipt	Receipt number of each time when receives the footwear
SaleDate	The sale transaction date
SaleAmount	The sale amount of each footwear item
SalePrice	The price of footwear item
SaleTotal	The total value amount of sale
SName	Supplier's name
SAddr	Supplier's address
STel	Supplier's telephone number
SContact	Contact person
Tax	Tax rate

Table E.2. Data Dictionary of Footwear Data Store.

Field Name	Meaning
Customer	Customer Data File
Product Master File	Master file for Product
Receipt Transaction	The file that store the receipt transaction detail
Reorder Transaction	The file that store the reorder transaction detail
Return Transaction	The file that store the return transaction detail
Sale Transaction	The file that store the sale transaction detail

Table E.3. Data Dictionary of Footwear Process Flow.

Field Name	Meaning
Check Availability	The process that check the availability of product code, vendor code, and product amount.
Check Available Product Code	The process that check available product code
Check Available Product Code	The process that check available vendor code
Check Available Vendor Code	The process that check available stock
Reorder Goods	The process of reorder the product and issue purchase order
Select Vendor	The process of selecting vendor for purchasing
Compare Price and Quality	The process that compares price and quality of each vendor
Enter Reorder Details	The process of entering the reorder details to system
Print Purchase Order	The process of printing purchase order submitted to vendor
Receive Product	The process of receiving goods and check the amount and quality with purchase order.
Check Product Reorder Detail	The process of check product reorder detail
Reject Product	The process of reject the invalid product to vendor
Check Valid Product	The process of check the valid product received
Add New Product Code	The process of adding new product code into system
Add Product Quantity	The process of adding the quantity of product
Update New Product Record	The process of updating the new product record to system
Prepare Receiving Report	The process of preparing the receiving report
Retail Sales	The process of retailer sales in the front shop.
Select Product, Code, Color, Size	The process of selecting product code, color, size
Validate the Product Available	The process of validating the product available in the system
Add Record	The process of add record of product purchased to system
Decrease Product Balance	The process of reducing the quantity of product purchased in the system
Print Receipt and Sales Summary Report	The process of printing receipt and sales summary report
Return Product	The process of return product and claim with vendor
Receive Product Returned	The process of receiving return product to claim with vendor
Update Product Quantity	The process of update the return product quantity
Claim with Supplier	The process of claim the return stock with the vendor
Check Stock	The process of check stock amount at the period of time.
Print Stock Movement	The process of printing the stock movement report

Table E.3. Data Dictionary of Footwear Process Flow (continued).

Field Name	Meaning
Compare Stock on hand with Sales Report	The process of comparing the stock on hand and sales
Adjust Stock On Hand And Sales Amount	The process of adjusting the stock compared with sales amount
Print Stock Report	The process of printing the stock report
Report	The process of preparing the standard report to management.

Table E.4. Data Dictionary of Footwear Dataflow.

Field Name	Meaning
Adjusted Stock Detail	The detail of stock adjusted after checked with sales report
Available Product Detail	The detail of product that ate available for sales
Back Order Report	The report that state the product that has to reorder
Daily Sales Balance	The report that summarizes the sales every day
Report	Invoice from Vendor
Invoice	The product and invoice return to the vendor to claim
Invalid Product & Invoice	Payment from customer
Payment	Product Received from vendor
Product	The detail of product that store in Product Master File
Product Detail	The invalid product that will be claimed
Product Claimed	The report that state the cost of each product item
Product Cost Report	The list of return product
Product Return List	The customer's need to purchase
Purchase Needs	Purchase order form
Purchase Order	The detail of product ordered in Purchase order
Purchase Order Detail	The detail of product requisition from sales and marketing
Purchase Requisition	The list of product requisition from customer and sales
Product Requisition List	The details that shown the received product item
Receiving Report	The detail of each product item that below safety stock
Reorder Detail	The detail of product that returned to vendor
Return Product Detail	The detail of sales
Sales Detail	The customer's order request
Sales Order	The summary of sales at a period of time
Sales Summary Report	The detail of stock movement at a period of time
Stock Report	





## APPENDIX F

### SOURCE CODE

## Footwear Retailer Information System Source Code Sample

```
program ShoesProj;
```

```
uses
```

```
Forms,
MainForm1 in 'Mainform\MainForm1.pas' {MainForm},
SupplyAdd1 in 'G&P_Add\SupplyAdd1.pas' {SupplyAdd},
PickSup1 in 'G&P_Add\PickSup1.pas' {Picksup},
PickGood1 in 'G&P_Add\PickGood1.pas' {PickGood},
GoodsAdd1 in 'G&P_Add\GoodsAdd1.pas' {GoodsAdd},
yoo_orderunit in 'Purchase\yoo_orderunit.pas' {yoo_order},
POreportunit in 'Purchase\POreportunit.pas' {pc_order},
poprintunit in 'Purchase\poprintunit.pas' {poprint},
sale_1 in 'SaleDairy\sale_1.pas' {FmSale},
Reportmin_U in 'Reportmin\Reportmin_U.pas' {Reportmin},
stock_re in 'UpdateSupp\stock_re.pas' {Re_stock},
qrtest in 'UpdateSupp\qrtest.pas' {QRForm},
CHgoods_U in 'CHGoods\CHgoods_U.pas' {Getgoods},
Location_U in 'CHGoods\Location_U.pas' {Location},
report_ordersale in 'Sale\report_ordersale.pas' {reportorder},
formpassword in 'yoo_password\formpassword.pas' {formpassword_form},
formchangeword in 'yoo_password\formchangeword.pas',
Receipt in 'receipt\Receipt.pas' {CostGoods},
UpdateSuppliers_U in 'UpdateSuppliers\UpdateSuppliers_U.pas' {UpdateSuppliers},
UpdataGoods_U in 'UpdateGoods\UpdataGoods_U.pas' {UpdateGoods},
SearchSuppliers_U in 'SearchSuppliers\SearchSuppliers_U.pas' {SearchSuppliers},
SerchGoods_U in 'SearchGoods\SerchGoods_U.pas' {SearchGoods},
passunit_for_update in 'password\passunit_for_update.pas' {passform_for_update},
newsaleunit in 'Sale\newsaleunit.pas' {saleform},
pass_for_update in 'pass_for_update.pas' {pass_update_form},
findpropertyUnit in 'findpropertyUnit.pas' {findproperty},
uBackup in 'Backup\uBackup.pas' {fmBackup};
```

```
{ $R *.RES }
```

```
begin
```

```
Application.CreateForm(Tformpassword_form, formpassword_form);
Application.CreateForm(Tchangeword_form, changeword_form);
Application.CreateForm(Tpassform_for_update, passform_for_update);
Application.CreateForm(TfmBackup, fmBackup);
Application.Initialize; Application.CreateForm(TMainForm, MainForm);
Application.CreateForm(Tsaleform, saleform);
Application.CreateForm(Tpass_update_form, pass_update_form);
Application.CreateForm(TUpdateGoods, UpdateGoods);
Application.CreateForm(Tfindproperty, findproperty);
Application.CreateForm(TSupplyAdd, SupplyAdd);
Application.CreateForm(TPicksup, Picksup);
Application.CreateForm(TPickGood, PickGood);
Application.CreateForm(TGoodsAdd, GoodsAdd);
Application.CreateForm(Tyoo_order, yoo_order);
Application.CreateForm(Tpc_order, pc_order);
Application.CreateForm(Tpoprint, poprint);
Application.CreateForm(TFmSale, FmSale);
Application.CreateForm(TReportmin, Reportmin);
```

```
Application.CreateForm(TRe_stock, Re_stock);
Application.CreateForm(TQRForm, QRForm);
Application.CreateForm(TGetgoods, Getgoods);
Application.CreateForm(TLocation, Location);
Application.CreateForm(Tsaleform, saleform);
Application.CreateForm(Treportorder, reportorder);
Application.CreateForm(TCostGoods, CostGoods);
Application.CreateForm(TUpdateSuppliers, UpdateSuppliers);
Application.CreateForm(TSearchSuppliers, SearchSuppliers);
Application.CreateForm(TSearchGoods, SearchGoods);
Application.Run;
end.
```



CostGoods  
unit Receipt;

interface

uses

Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,  
StdCtrls, Db, Grids, DBGrids, DBTables, ExtCtrls, QuickRpt, Qrctrls;

type

TCostGoods = class(TForm)  
  Query1: TQuery;  
  DataSource1: TDataSource;  
  Panel1: TPanel;  
  Panel2: TPanel;  
  Panel3: TPanel;  
  Panel5: TPanel;  
  DBGrid1: TDBGrid;  
  Panel6: TPanel;  
  QuickRep1: TQuickRep;  
  TitleBand1: TQRBand;  
  ColumnHeaderBand1: TQRBand;  
  DetailBand1: TQRBand;  
  QRLabel1: TQRLabel;  
  QRLabel2: TQRLabel;  
  QRLabel3: TQRLabel;  
  QRLabel4: TQRLabel;  
  QRLabel5: TQRLabel;  
  QRDBText1: TQRDBText;  
  QRDBText2: TQRDBText;  
  QRDBText3: TQRDBText;  
  ShowAll: TRadioButton;  
  ShowLast: TRadioButton;  
  QRLabel8: TQRLabel;  
  QRLabel9: TQRLabel;  
  QRDBText4: TQRDBText;  
  QRDBText7: TQRDBText;  
  QRDBText8: TQRDBText;  
  QRShape1: TQRShape;  
  QRShape2: TQRShape;  
  QRShape4: TQRShape;  
  QRShape5: TQRShape;  
  QRShape7: TQRShape;  
  QRShape8: TQRShape;  
  QRShape9: TQRShape;  
  QRShape10: TQRShape;  
  Query2: TQuery;  
  Query3: TQuery;  
  ShowData: TButton;  
  PrintRep: TButton;  
  Return: TButton;  
  QRLabel6: TQRLabel;  
  QRDBText5: TQRDBText;  
  QRShape3: TQRShape;  
  PageHeaderBand1: TQRBand;  
  QRSysData1: TQRSysData;  
  QRLabel7: TQRLabel;

```

Panel4: TPanel;
procedure Button1Click(Sender: TObject);
procedure PrintRepClick(Sender: TObject);
procedure FormCreate(Sender: TObject);
procedure ReturnClick(Sender: TObject);
procedure FormActivate(Sender: TObject);
private
    { Private declarations }
public
    { Public declarations }
end;

var
    CostGoods: TCostGoods;

implementation

Uses MainForm1;

{$R *.DFM}

procedure TCostGoods.Button1Click(Sender: TObject);
Var I :integer;
begin
    Query1.Active := false;
    If ShowAll.Checked = True Then
        begin
            Query1.SQL.Clear;
            Query1.SQL.Text:= 'SELECT Gdate,RealCost,Gid,Gcolor,Gsize,Sname,Scontact
'+
                'FROM Suppliers,Receipt_goods,Goods,Property '+
                'Where Suppliers.Sid = Receipt_goods.Sid and '+
                'Receipt_goods.Gid = Goods.Gid and '+
                'Receipt_Goods.Gpropertyid = Property.Gpropertyid and '+
                'GDate <> "01/01/2000" '+
                'ORDER BY Gid,Sname,Gdate desc ';
        end
    Else If ShowLast.Checked = True Then
        begin
            Query2.SQL.Clear ;
            Query2.SQL.Text := 'DELETE FROM TmpRecpt';
            Query2.ExecSQL ;
            Query2.SQL.Clear ;
            Query2.SQL.Text := 'INSERT INTO TmpRecpt(Gid,Sreceipt,Gpropertyid,Sid)' +
                'SELECT Gid,Max(Sreceipt),Gpropertyid,Sid ' +
                'FROM Receipt_goods ' +
                'Where GDate <> "01/01/2000" '+
                'GROUP BY Gid,Sid,Gpropertyid ';
            Query2.ExecSQL ;

            Query1.SQL.Clear;
            Query1.SQL.Text:= 'SELECT Realcost,Sname,Gdate,Scontact,Gcolor,Gsize,Gid
'+
                'FROM TmpRecpt,Receipt_goods,Suppliers,Goods ,Property '+
                'Where Receipt_goods.Gid =TmpRecpt.Gid and '+
                'Receipt_goods.Sid =TmpRecpt.Sid and '+
                'Receipt_goods.Gpropertyid =TmpRecpt.Gpropertyid and '+

```



```

        'Receipt_goods.Sreceipt =TmpRecpt.SReceipt and '+'
        'Suppliers.Sid =TmpRecpt.Sid and '+'
        'Goods.Gid = TmpRecpt.Gid and '+'
        'Property.Gpropertyid = TmpRecpt.Gpropertyid ' +
        'ORDER BY Gid,Sname,Gdate desc ';
    end;
    Query1.Active := True;
    If Query1.RecordCount = 0 Then
    Begin
        Showmessage('ไม่พบรายการสินค้า');
        PrintRep.Enabled := False;
    End
    Else
    Begin
        PrintRep.Enabled := True;
        PrintRep.SetFocus ;
    End;
end;

procedure TCostGoods.PrintRepClick(Sender: TObject);
begin
    QuickRep1.Preview ;
    Return.SetFocus ;
end;

procedure TCostGoods.FormCreate(Sender: TObject);
Var D : String;
begin
    ShowAll.Checked := True;
    MainForm1.MainForm.ConvDM(D);
    QRLabel7.Caption := D;
end;

procedure TCostGoods.ReturnClick(Sender: TObject); *
begin
    Close;
end;

procedure TCostGoods.FormActivate(Sender: TObject);
begin
    Query1.Active := False;
    ShowAll.Checked := True;
    ShowData.SetFocus ;
    PrintRep.Enabled := False;
end;

end.

```

Findproperty

unit findpropertyUnit;

interface

uses

Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,  
Db, Grids, DBGrids, DBTables;

type

Tfindproperty = class(TForm)  
  findtype\_Query: TQuery;  
  dbgrid1: TDBGrid;  
  DataSource1: TDataSource;  
  procedure dbgrid1CellClick(Column: TColumn);  
private  
  { Private declarations }  
public  
  { Public declarations }  
end;

var

findproperty: Tfindproperty;

implementation

uses UpdataGoods\_U;

{ \$R \*.DFM }

procedure Tfindproperty.dbgrid1CellClick(Column: TColumn);

begin

  updategoods.edit7.Enabled:=true;

  updategoods.edit7.Text:=inttostr(findtype\_query['gpropertyid']);

  close;

end;

end.

FmBackup

unit uBackup;

interface

uses

Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,  
StdCtrls, Grids, DBGrids, Db, DBTables, FileCtrl, ComCtrls, Buttons,  
ExtCtrls;

type

TfmBackup = class(TForm)  
  Panel1: TPanel;  
  SaveDialog1: TSaveDialog;  
  OpenDialog1: TOpenDialog;  
  OpenDialog2: TOpenDialog;  
  SaveDialog2: TSaveDialog;  
  GroupBox1: TGroupBox;  
  Button2: TButton;  
  Button4: TButton;  
  Button3: TButton;  
  Label1: TLabel;  
  Label2: TLabel;  
  procedure Button3Click(Sender: TObject);  
  procedure Button4Click(Sender: TObject);  
  procedure Button2Click(Sender: TObject);

private

  { Private declarations }

public

  { Public declarations }

end;

var

  fmBackup: TfmBackup;

  F : File;

implementation

{ \$R \*.DFM }

procedure TfmBackup.Button3Click(Sender: TObject);

var FromF, ToF: file;

  NumRead, NumWritten, I : Integer;

  Buf : array[1..2048] of Char;

  T, T2 : String;

  //T : array[1..25] of char;

begin

  begin

  OpenDialog2.InitialDir := 'C:\New484\ShoesDB';

  If OpenDialog2.Execute Then

  Begin

    T := OpenDialog2.FileName;

    AssignFile(FromF, T);

    Reset(FromF, 1);

    { Record size = 1 }

  begin

```

SaveDialog2.InitialDir := 'C:\New484\Backup';
SaveDialog2.Execute;
AssignFile(ToF, SaveDialog2.FileName ); { Open output file }
Rewrite(ToF, 1); { Record size = 1 }
repeat
  BlockRead(FromF, Buf, SizeOf(Buf), NumRead);
  BlockWrite(ToF, Buf, NumRead, NumWritten);
until (NumRead = 0) or (NumWritten <> NumRead);
CloseFile(FromF);
CloseFile(ToF);
MessageDlg('การ Backup Files เรียบร้อย',mtInformation,[mbOK],0);
end;
end;
End;
end;

procedure TfmBackup.Button4Click(Sender: TObject);
var FromF, ToF: file;
    NumRead, NumWritten, I : Integer;
    Buf : array[1..2048] of Char;
    T : String;
begin
  OpenFileDialog1.InitialDir := 'C:\New484\Backup';
  If OpenFileDialog1.Execute Then
    Begin
      T := OpenFileDialog1.FileName;
      AssignFile(FromF, T);
      Reset(FromF, 1); { Record size = 1 }
      begin
        SaveDialog1.InitialDir := 'C:\New484\ShoesDB';
        SaveDialog1.Execute;
        AssignFile(ToF, SaveDialog1.FileName); { Open output file }
        Rewrite(ToF, 1); { Record size = 1 }
        repeat
          BlockRead(FromF, Buf, SizeOf(Buf), NumRead);
          BlockWrite(ToF, Buf, NumRead, NumWritten);
        until (NumRead = 0) or (NumWritten <> NumRead);
        CloseFile(FromF);
        CloseFile(ToF);
        MessageDlg('การ Restore เรียบร้อย',mtInformation,[mbOK],0);
      end;
    end;
  end;
end;

procedure TfmBackup.Button2Click(Sender: TObject);
begin
  Close;
end;

end.

```

```

FmSale
unit sale_1;
{Code By Pronpimol
 This unit report saling by date and print summary saling of date}
interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  ExtCtrls, Grids, DBGrids, StdCtrls, Db, DBTables, ComCtrls, Qrctrls,
  QuickRpt, Mask, DBCtrls;

type
  TFmSale = class(TForm)
    Panel1: TPanel;
    Panel2: TPanel;
    Panel7: TPanel;
    DBGrid1: TDBGrid;
    Panel8: TPanel;
    Panel9: TPanel;
    DSSale: TDataSource;
    QSaleT: TQuery;
    QSaleTReceipt: TIntegerField;
    QSaleTGid: TStringField;
    QSaleTSale_date: TDateField;
    QSaleTSale_price: TCurrencyField;
    QSaleTGsize: TFloatField;
    QSaleTBrand: TStringField;
    QSaleTGmodel: TStringField;
    Amount: TPanel;
    QuickRep: TQuickRep;
    TitleBand1: TQRBand;
    QRLabel1: TQRLabel;
    DetailBand1: TQRBand;
    ColumnHeaderBand1: TQRBand;
    QRLabel5: TQRLabel;
    QRLabel6: TQRLabel;
    QRLabel7: TQRLabel;
    QRLabel8: TQRLabel;
    QRLabel9: TQRLabel;
    QRLabel11: TQRLabel;
    QRLabel10: TQRLabel;
    QSaleTSale_amount: TSmallintField;
    QRDBText4: TQRDBText;
    QRDBText5: TQRDBText;
    QRDBText6: TQRDBText;
    QRDBText7: TQRDBText;
    QRDBText8: TQRDBText;
    QRDBText9: TQRDBText;
    QRDBText10: TQRDBText;
    QSaleTGtype: TStringField;
    QSaleRep: TQuery;
    QSaleRepGid: TStringField;
    QSaleRepSUMOFSale_amountSal: TCurrencyField;
    QSaleRepGsize: TFloatField;
    QSaleRepBrand: TStringField;
    QSaleRepGmodel: TStringField;
    QSaleRepGtype: TStringField;
  end;

```



```

QSaleRepSale_price: TCurrencyField;
QSaleRepSUMOFSale_amount: TFloatField;
SummaryBand1: TQRBand;
QRLabel2: TQRLabel;
QRLabel12: TQRLabel;
QSaleTGcolor: TStringField;
QSaleRepGcolor: TStringField;
QRShape1: TQRShape;
QRShape3: TQRShape;
QRShape2: TQRShape;
QRShape4: TQRShape;
QRShape5: TQRShape;
QRShape6: TQRShape;
PageHeaderBand1: TQRBand;
QRLabel13: TQRLabel;
QRSysData1: TQRSysData;
Panel4: TPanel;
Panel10: TPanel;
PrintRep: TButton;
RetMenu: TButton;
Panel12: TPanel;
PDay: TPanel;
DDate: TDateTimePicker;
ShowRep: TButton;
Bevel1: TBevel;
QRLabel3: TQRLabel;
QRLabel4: TQRLabel;
QRShape7: TQRShape;
QRShape8: TQRShape;
QSaleTSale_Total: TCurrencyField;
Table1: TTable;
Query1: TQuery;
DBEdit1: TDBEdit;
DataSource1: TDataSource;
procedure RetMenuClick(Sender: TObject); //Return to master menu
procedure ShowRepClick(Sender: TObject); //Report saling by date to monitor
procedure PDayMouseMove(Sender: TObject; Shift: TShiftState; X,
    Y: Integer); //Show hint(day,month,year) when mousepointer move to
procedure QSaleTCalcFields(DataSet: TDataSet); //Multiple Sale_amount, Sale_price
to STotal and Add to Total
procedure PrintRepClick(Sender: TObject); //Show preview before print , set printer
and set paper
procedure DDateKeyPress(Sender: TObject; var Key: Char);
procedure FormActivate(Sender: TObject);

private
{ Private declarations }
public
{ Public declarations }
end;

var
FmSale: TFmSale;
Total : Real; //Sum of Sale_amount*Sale_Price
Day : string; //Keep Month,Day,Year to compare in Query
D : string;
implementation

```

```

uses MainForm1;

{$R *.DFM}

procedure TFmSale.RetMenuClick(Sender: TObject);
begin
    FmSale.Close;
    mainform.visible:=true;
end;

procedure TFmSale.ShowRepClick(Sender: TObject);
var
    Year,i : integer;
    s:string;
begin
    with query1 do
        begin
            close;
            sql.Clear;
            sql.add('update "sale.db" set sale_total=sale_amount*sale_price');
            execsql;
        end;
        //showmessage('update');
        Total := 0.0; //initial variable

        MainForm1.MainForm.ConvDM(Day);
        D := DateToStr(DDate.Date);
        year := StrToInt(Day[7]+Day[8]+day[9]+Day[10]); //Transform Christian Era to
        Buddhist Era
        D := D[1]+D[2]+D[3]+D[4]+D[5]+D[6]+IntToStr(Year); //Concatenate
        day,month,year
        PDay.Caption := D; //Show day to PDay
        QRLabel13.Caption := Day; //Show day to Report
        D := D[4]+D[5]+D[3]+D[1]+D[2]+D[6]+IntToStr(Year); //Concatenate
        day,month,year
        QSaleT.SQL.Delete(5);
        QSaleT.Active := false;
        QSaleT.SQL.insert(5,'Sale.Sale_date = '+'"+D+"');
        QSaleT.Active := True;

        with query1 do
            begin close;
                sql.clear;
                sql.add('select sum(sale_total) from sale where sale_date="'+D+'');
                open;
            end;
            Amount.caption := Dbedit1.text;
            if dbedit1.text<>" then
                begin
                    PrintRep.Enabled := True;
                end
            Else
                Begin
                    Showmessage('ไม่พบข้อมูลการขายของวันนี้');
                    PrintRep.Enabled := False;
                end;
        end;
    end;

```

```

    QRLabel12.Caption := DBEDIT1.TEXT;//FloatToStrF( Total,ffCurrency,10,2);
    RetMenu.SetFocus;
end;

procedure TFmSale.PDayMouseMove(Sender: TObject; Shift: TShiftState; X,
    Y: Integer);
begin
    PDay.ShowHint := True;
end;

procedure TFmSale.QSaleTCalcFields(DataSet: TDataSet);
begin
    Showmessage(FloatToStr(Total));
    QSaleT.FieldByName('STotal').AsFloat :=
    QSaleT.FieldByName('Sale_amount').AsInteger*QSaleT.FieldByName('Sale_price').As
    Float;
    Total := Total + QSaleT.FieldValues['STotal'];
end;

procedure TFmSale.PrintRepClick(Sender: TObject);
begin
    QSaleRep.SQL.Delete(5);
    QSaleRep.Active := False;
    QSaleRep.SQL.Insert(5,'Sale.Sale_date = '+'"+D+"");
    QSaleRep.Active := True;
    QuickRep.Preview;
end;

procedure TFmSale.DDateKeyPress(Sender: TObject; var Key: Char);
begin
    If Key = #13 Then ShowRep.SetFocus;
end;

procedure TFmSale.FormActivate(Sender: TObject);
begin
    PrintRep.Enabled := False;
    DDate.date := Date;
    QSaleT.Active :=False;
    PDay.Caption := "";
    Amount.Caption := "";
end;

end.

```

```

Formpassword_form
unit formpassword;

interface

uses
  Windows, Messages, SysUtils, Classes, Graphics, Controls, Forms, Dialogs,
  Mask, DBCtrls, Db, DBTables, StdCtrls, Buttons, ExtCtrls;

type
  TFormpassword_form = class(TForm)
    Edit1: TEdit;
    Tablepassword: TTable;
    SpeedButton1: TSpeedButton;
    SpeedButton2: TSpeedButton;
    SpeedButton3: TSpeedButton;
    Panel1: TPanel;
    Label1: TLabel;
    procedure FormCreate(Sender: TObject);
    procedure Edit1Change(Sender: TObject);
    procedure SpeedButton1Click(Sender: TObject);
    procedure SpeedButton3Click(Sender: TObject);
    procedure SpeedButton2Click(Sender: TObject);
    procedure Edit1Exit(Sender: TObject);
    procedure FormDeactivate(Sender: TObject);
    procedure FormClose(Sender: TObject; var Action: TCloseAction);
    procedure Edit1KeyPress(Sender: TObject; var Key: Char);

  private
    { Private declarations }
  public
    num:integer;
    { Public declarations }
  end;

var
  formpassword_form: TFormpassword_form;

implementation

uses formchangeword, MainForm1;

{$R *.DFM}

procedure TFormpassword_form.FormCreate(Sender: TObject);
begin
  edit1.text:="";
  if num=2 then
  begin
    num:=1;
    application.terminate;
  end;
  speedbutton3.enabled:=false;
end;

procedure TFormpassword_form.Edit1Change(Sender: TObject);

```

```

begin
    tablepassword.active:=false;
    tablepassword.active:=true;
    tablepassword.first;
    if tablepassword['password']=edit1.text then
        speedbutton3.Enabled:=true
    else speedbutton3.Enabled:=false;
end;
procedure TFormpassword_form.SpeedButton1Click(Sender: TObject);
var
    found:boolean;

begin
    num:=1;
    tablepassword.active:=false;
    tablepassword.active:=true;
    tablepassword.first;
    found:=false;
    if ((not found)and(tablepassword['passid']<4)) then
        begin
            if tablepassword['password']=edit1.text then
                begin
                    found:=true;
                    mainform.visible:=true;
                    formpassword_form.visible:=false;
                    speedbutton3.enabled:=true;
                    tablepassword.edit;
                    tablepassword['passid']:=1;
                    tablepassword.Post;
                end
            else
                begin
                    tablepassword.edit;
                    tablepassword['passid']:=tablepassword['passid']+1;
                    tablepassword.post;
//                    showmessage('รหัสผ่านไม่ถูกต้อง กรุณาป้อนใหม่');
                    Messagedlg('รหัสผ่านไม่ถูกต้อง กรุณาป้อนใหม่' , mtInformation , [mbOK] ,
0);
                    edit1.text:="";
                    edit1.SetFocus;

                    end;
                end;
            if tablepassword['passid']>3 then
                begin
//                    showmessage('คุณใส่รหัสผ่านผิดเกิน 3 ครั้งแล้ว');
                    Messagedlg('คุณใส่รหัสผ่านผิดเกิน 3 ครั้งแล้ว' , mtInformation , [mbOK] , 0);
                    tablepassword.edit;
                    tablepassword['passid']:=1;
                    tablepassword.Post;
                    close;
                end;
        end;

end;

procedure TFormpassword_form.SpeedButton3Click(Sender: TObject);
begin

```



```

changeword_form.show;

{ str:=inputbox('ขอตัวรับเข้าสู่ระบบการแก้ไขข้อมูล','กรุณาใส่รหัสไม่เกิน 8
หลัก','none');
  while length(str)>8 do
    str:= inputbox('ขอตัวรับเข้าสู่ระบบการแก้ไขข้อมูล','ท่านป้อนเกิน 8 หลัก กรุณา
ใส่รหัสไม่เกิน 8 หลัก',str);
    tablepassword.active:=false;
    tablepassword.Active:=true;
    tablepassword.First;
    tablepassword.edit;
    tablepassword['password']:=str;
    tablepassword.Post;}
end;
procedure TFormpassword_form.SpeedButton2Click(Sender: TObject);
begin
  close;
end;

procedure TFormpassword_form.Edit1Exit(Sender: TObject);
begin
  //speedbutton1.setfocus;
end;

procedure TFormpassword_form.FormDeactivate(Sender: TObject);
begin
  num:=1;
end;

procedure TFormpassword_form.FormClose(Sender: TObject;
var Action: TCloseAction);
begin
  // close;
end;

procedure TFormpassword_form.Edit1KeyPress(Sender: TObject; var Key: Char);
begin
  If Key = #13 then SpeedButton1.Click;
end;

end.

```



## **TESTING PROCEDURE**

### **Testing Objectives**

- (1) Test the accuracy of the program and find if the program contains any program errors prior to the actual use.
- (2) Test for the program efficiency and test if processing time is acceptable.
- (3) Test the logic and condition in real time usage.
- (4) Test for the maximum ranges of the data the program can handle.
- (5) Test the integration and data transmission of the functions among the modules.
- (6) Prepare contingency plan if needed.

### **Data for Testing**

For the purpose of inspecting and verifying the data accuracy, data sets were prepared and grouped as:

- (1) Incorrect input data. This set of data will be input over the tolerance of the information range to inspect the acceptance and response of the Module.
  - (a) Incorrect Data Format, for example, a field is valid for numeric but was input as character
  - (b) Correct data format but out of range
  - (c) Invalid short cut key
- (2) Correct data. This set of data will be used to test the functions of the system to confirm that the program works according to the User's requirements.
- (3) Query. This is to test if retrieving data from Database gives the correct result.

## Testing Methodology

The method used in this testing procedure is “Big-Bang”. This method was chosen because it is suitable for a small to medium system. The system was tested in the following sequences;

- (1) Testing on each Module to inspect the functional accuracy within the Module. This was done by specifying the data group to send and receive among the modules.
- (2) Integrating data from each module and test if the system still functions as expected.

## Testing Result

Module: Sale

Function of this module:

- (1) Locate position of the required items and check if stock on hand is sufficient for the sale
- (2) Sale processing
- (3) Issue sale receipt
- (4) Sale journal entry
- (5) Update stock-on-hand and sale quantity

Table G.1. Testing Result Sale Module.

Test	Result
1. Input Item code - Item code not exist in database - Item code exists in database	- If the ID does not exist in database then the message “รหัสสินค้าตัวนี้ไม่มีค่ะ” will be shown on screen - The system allows the user to select the color and size of the item in database
2. Input the quantity (unit) - Require unit less than stock-on-hand unit - Require unit more than stock-on-hand unit - Require unit but negative value	- Able to make the sale transaction and issue the receipt - The system did not allow the sale transaction and prompt the message “สินค้าตัวนี้ไม่พอขายค่ะ” - The system will generate sale transaction for 1 unit
3. Input duplicate item code, i.e., same item key in one sale invoice	The system will sum the item with the same code and generate one sale transaction.
4. Test the effect of the function key	- Function Key to issue sale invoice: system printed the sale invoice to the printer correctly. - Function key to confirm: this will only work if all mandatory fields are completed - Function key to return to main menu: Once press this key, the system will return to the main menu waiting for the next command - Function key to cancel the sale transaction: this will work if there is at least one sale transaction
5. Test for issuing the receipt	- System generate and print the receipts correctly



**Module: Purchase Order**

Function of this module: Comprise all the items to be purchased and process purchase order transaction

Test Result: System prompt user to select from the existing list through the drop down menu. If the value was keyed incorrectly, the system will not accept that transaction.

**Module: Sales Representative Maintenance**

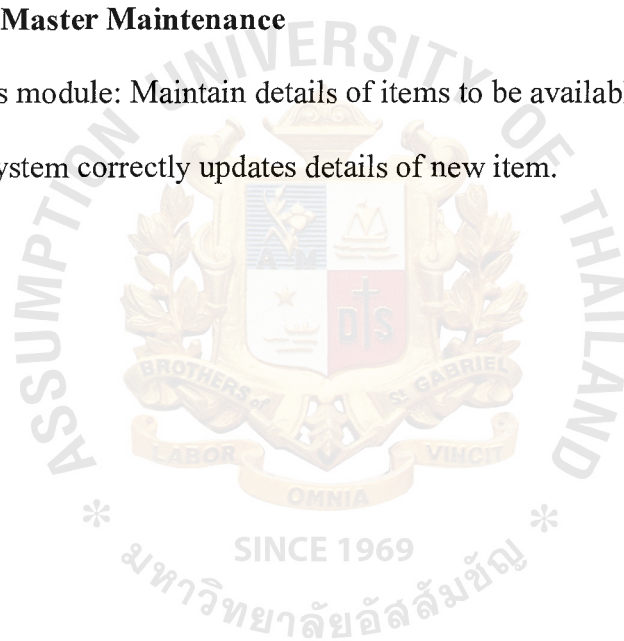
Function of this module: Maintain / Update details of sales representative.

Test Result: System will update if the record is new and reject if record already exists.

**Module: Item Master Maintenance**

Function of this module: Maintain details of items to be available for sale

Test Result: System correctly updates details of new item.

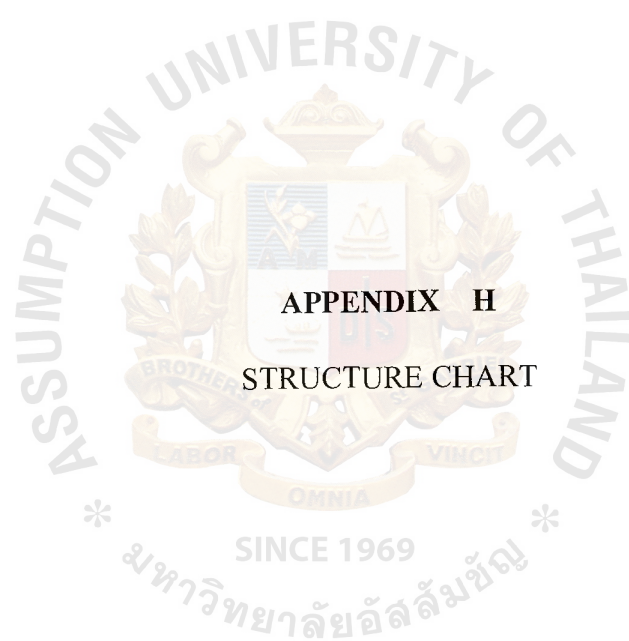


## Module: Goods Received

Function of this module: Check and receive the good sent to the shop.

Table G.2. Testing Result Goods Received.

Test	Result
1. Input the Purchase Order Number (PO No.) <ul style="list-style-type: none"><li>- PO No. does not exist in the system</li><li>- In-correct format PO No.</li><li>- Correct PO No. format</li></ul>	<ul style="list-style-type: none"><li>- If PO No. does not exist in database, then the message “ไม่พบสินค้าที่ยังไม่ได้ลงรายการ” will be shown on screen</li><li>- If incorrect format PO# was entered, system will show message “ไม่พบสินค้าที่ยังไม่ได้ลงรายการ”.</li><li>- The system will list the not-receive items in that PO</li></ul>
2. Test the effect of the function key	<ul style="list-style-type: none"><li>- Function Key to issue sale invoice: system printed the sale invoice to the printer correctly.</li><li>- Function key to confirm: this will only work if all mandatory fields are completed</li><li>- Function key to return to main menu: Once press this key, the system will return to the main menu waiting for the next command</li><li>- Function key to cancel the sale transaction: this will work if there is at least one sale transaction</li></ul>



**APPENDIX H**  
**STRUCTURE CHART**

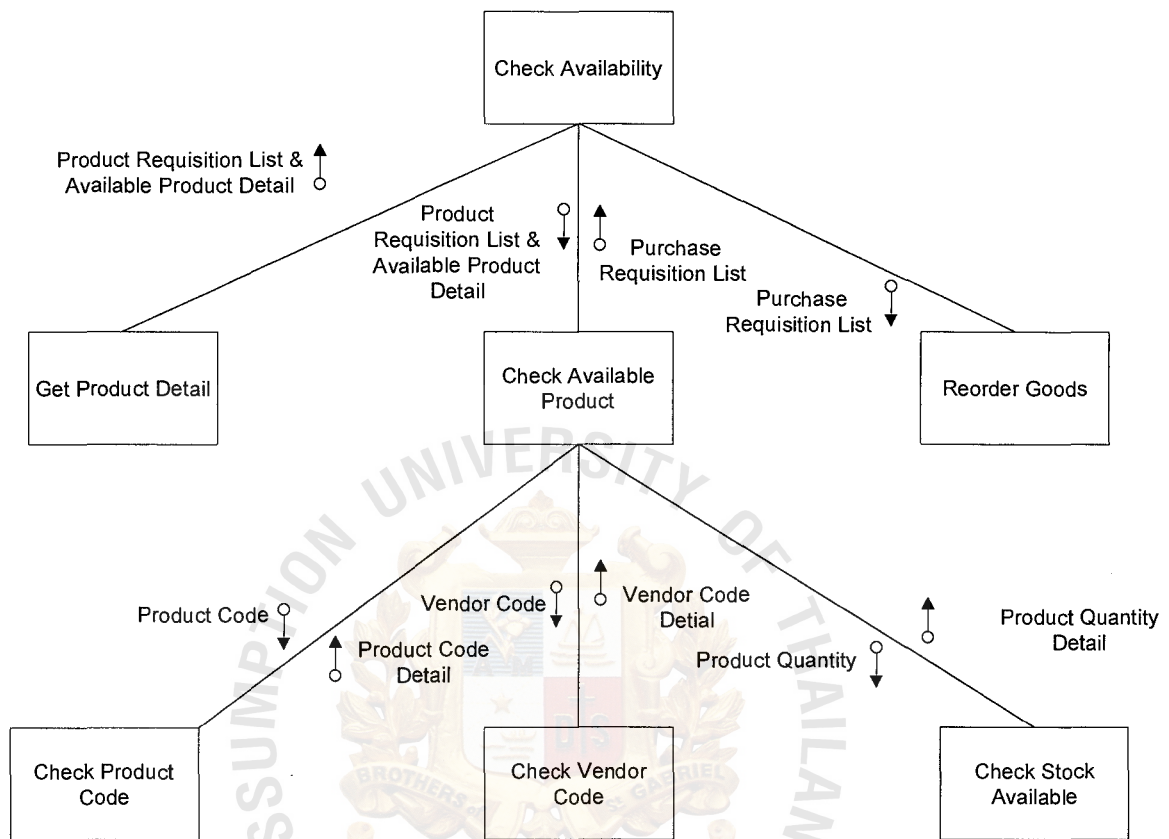


Figure H.1. Structure Chart of Process 1.0.

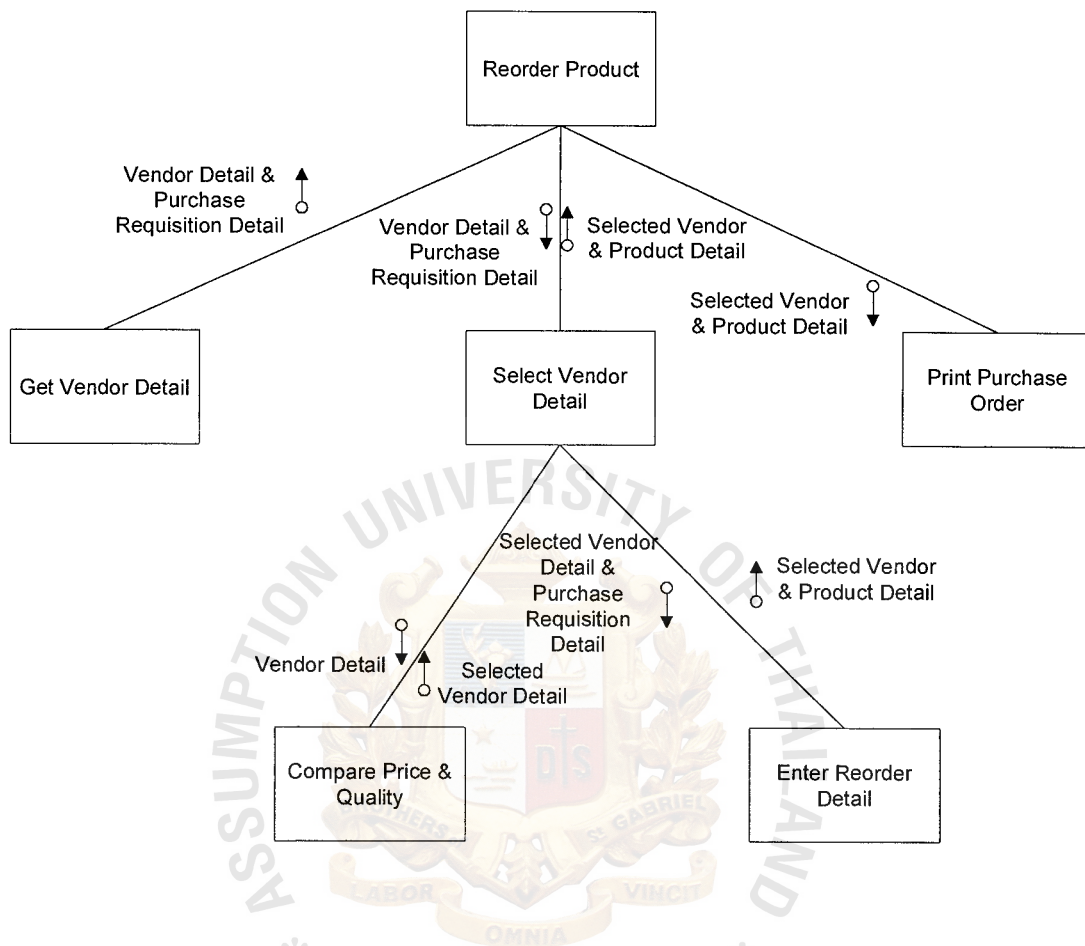


Figure H.2. Structure Chart of Process 2.0.



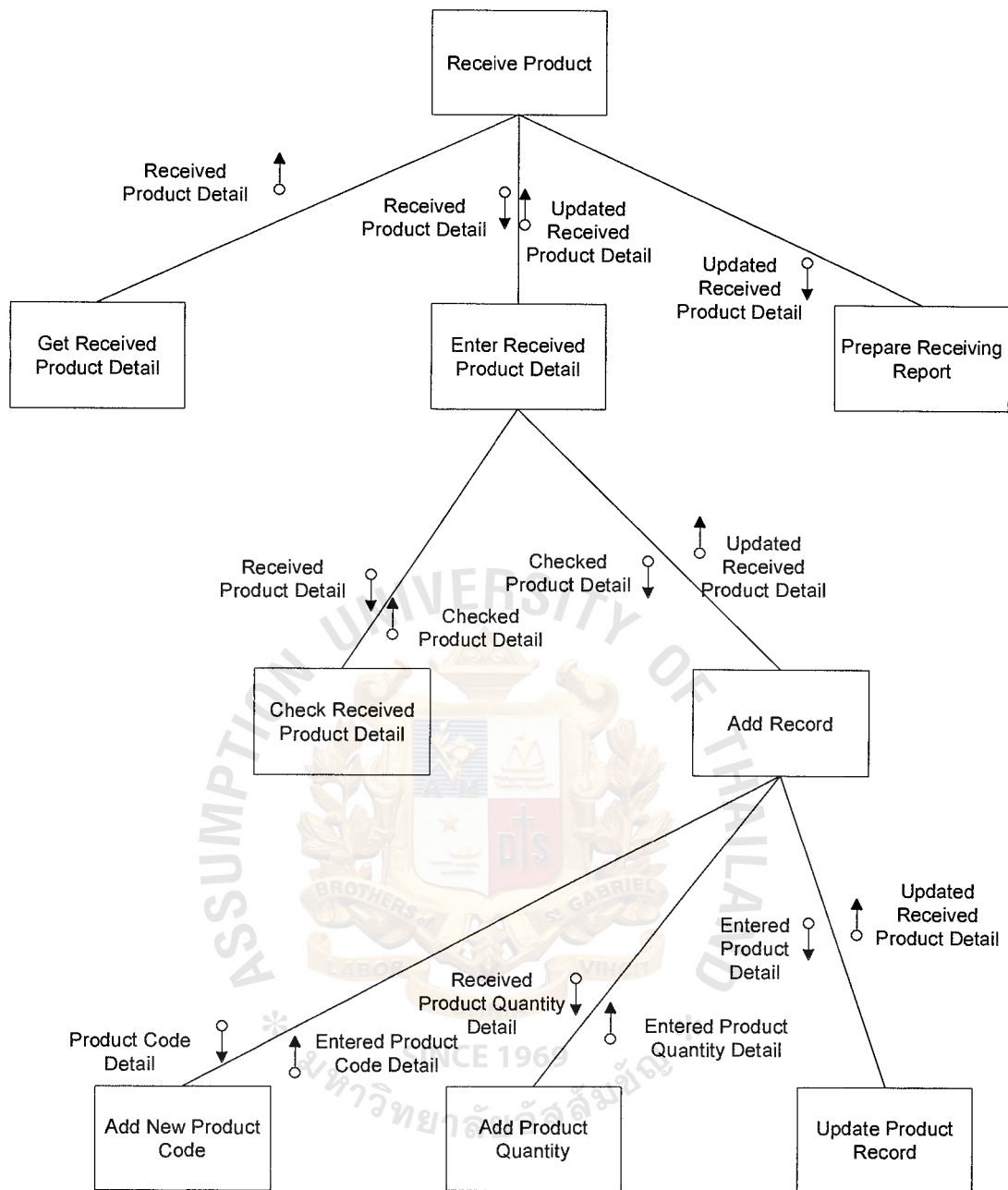


Figure H.3. Structure Chart of Process 3.0.

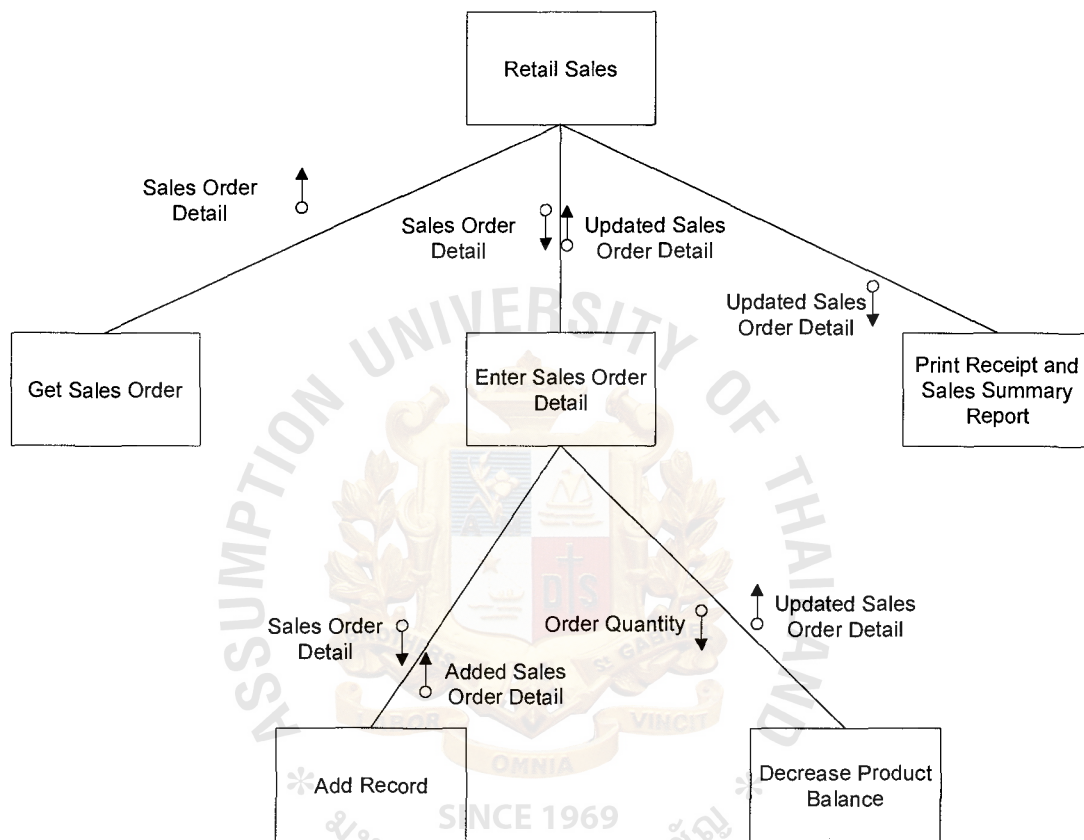


Figure H.4. Structure Chart of Process 4.0.

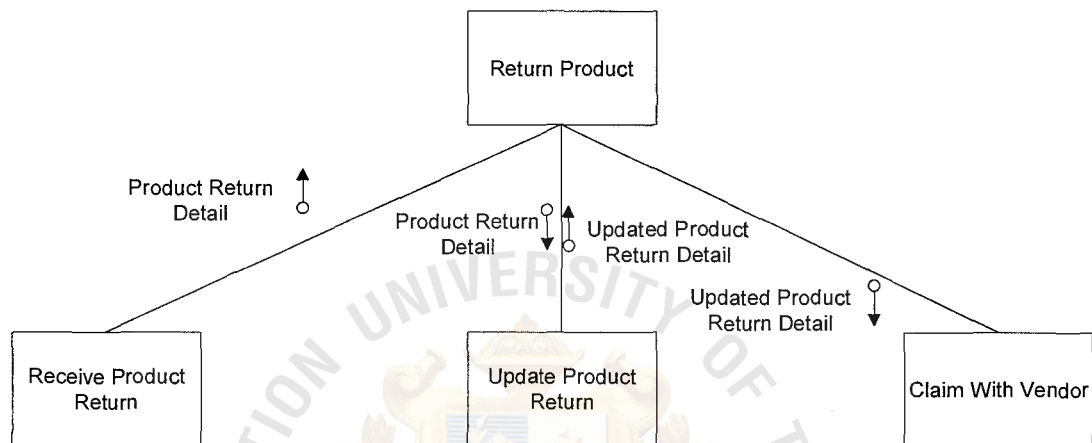


Figure H.5. Structure Chart of Process 5.0.

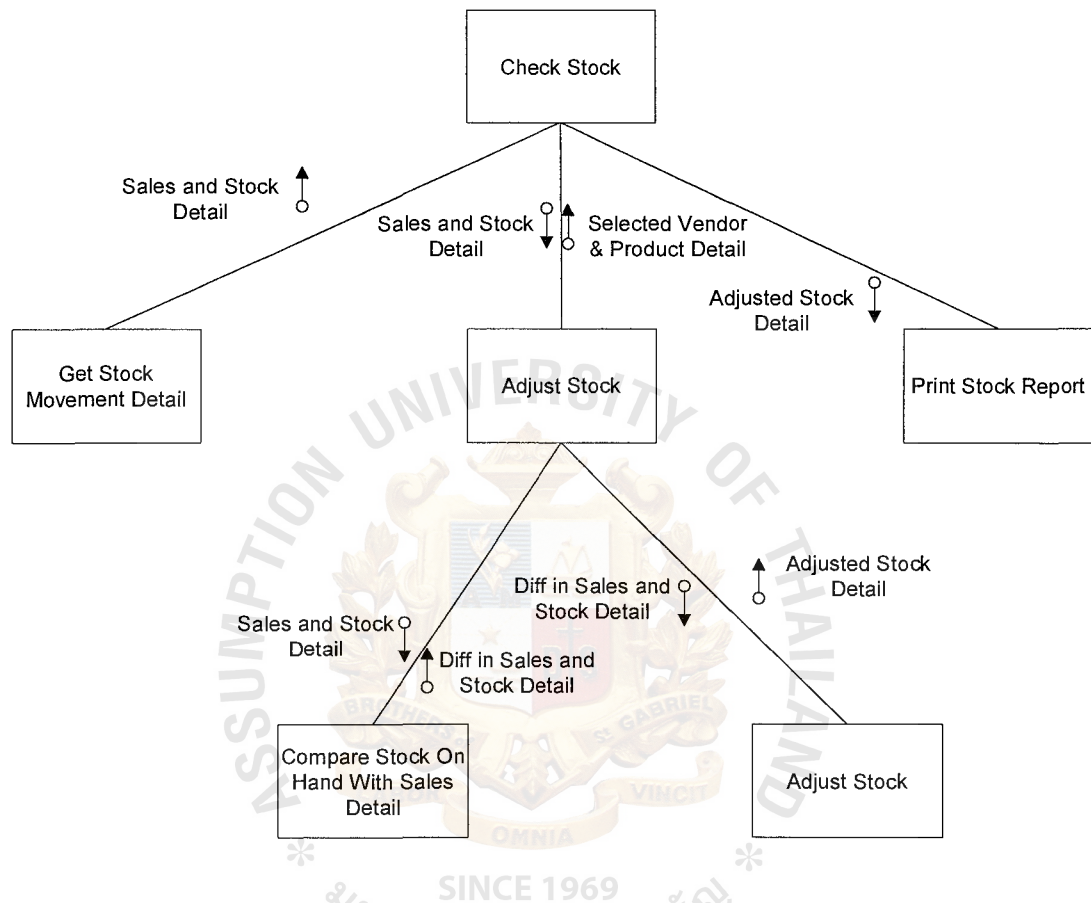


Figure H.6. Structure Chart of Process 6.0.

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