Inventory Supply System for Paper Distributor

By

Mr. Attaphon O. Udomying

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
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Project Title	Inventory Supply System for Paper Distributor
Name	Mr. Attaphon O.Udomying
Project Advisor	Prof. Dr. Srisakdi Charmonman
Academic Year	March 1999

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 System.

Approval Committee:

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March 1999

ABSTRACT

Phian Chai (94) Co., Ltd. is one of the leading companies in the paper market. The company supplies every kind of paper and has built a fine reputation for more than 30 years. The thing that distinguishes the company from other wholesaler is that the company provides better services to customers. The company can support their customers on a timely schedule including the substitute of damage paper. From a fine reputation and the good customer service, the company is accepted by the industry.

The Inventory Supply System of Phian Chai (94) Co., Ltd. is to help the company's staff manage their jobs correctly and conveniently. The Phian Chai's Inventory Supply System provides every function concerning the entry of P/O, Receiving, Take Order and Delivery. It provides query facility in the form of built-in report production functions. These report contents and formats are designed specially to meet user requirement. The design process has applied normalization method as well as other methods to reduce the data duplication. And the company select PC platform for this system to be more flexible in developing and maintaining the system for future use. The system is designed as a Local Area Network with certain level of security by giving permission to group of user via setting password before entering the system.

This system development project helps the students not only apply their knowledge obtained during study into practice but also learn to adapt the computer information systems (CIS) to business world. This project is another CIS application for any related business. The project makes the students complete the CIS study in both theoretical and practical aspects.

ACKNOWLEDGEMENTS

The writer is grateful to many individuals who contributed to this system development project. First, he wishes to thank Prof. Dr. Srisakdi Charmonman, the project advisor, for his kind advice, counsel and valuable time that helped the writer complete this project in a limited timeframe. Thanks are also due to all MS(CIS) committee, faculty members and staff for their guidance and cooperation during his study at Assumption University.

The writer wishes to thank Phian Chai (94) Co., Ltd.'s Managing Director and staffs who made significant contribution to the success of this project. Special thanks are to his friends and his family who encouraged and supported him to complete this project.

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I. INTRODUCTION

1.1 Background of the Project

Phian Chai (94) Co., Ltd. is a wholesaler of all kinds of paper in the Thai market. Most of the products were purchased from local manufacturers and also imported from Japan, Indonesia, Korea, and Finland. Most customers are printing companies which have an exact schedule on launching their magazines. So time is the major factor of all distributors to distribute the products to the customers on time. The company can cope with the delivery schedule by expanding a branch located near the area where there are major customers but the overhead cost, including personnel, paper work, etc., have increased a lot.

The main activities of Phian Chai (94) Co., Ltd. are managing Delivery Order, Invoice Receipt, Purchase Order, Goods Received Note, Debit Note and Credit Note. Another division is the Finance and Administration which takes care of all the financial functions, accounting functions, stock control and all kinds of personnel activities. All kinds of documents from each department must be sent to the Finance and Administration division for the finance and accounting purpose such as stock control, VAT, Financial Report, Trial Balance, Profit and Loss, and Balance Sheet. The jobs normally involve a large amount of documenting. This division also has to keep the documents issued from each marketing division.

1.2 Objectives

The objectives of this project – Inventory Supply System are:

1) To study the existing system of Phian Chai (94) Co., Ltd.
2) To identify the real problem and user requirements,
3) To design a new system for Phian Chai (94) Co., Ltd.

4) To implement the new system using Microsoft Access working on network environment.

1.3 Scope

This project will cover major aspects which are related to the inventory of the company as follows:

1) Issue Purchase Order.
   - Select supplier to purchase.
   - Provide purchase history.
   - Record Purchase Order transaction.
2) Accept Order.
   - Inventory inquiry.
   - Record order from customer.
3) Issue Delivery Order
   - Checking on outstanding order
   - Record delivery transaction.
4) Manage Inventory Control.
   - Generate report for management.
5) On-line Transfer of Information.
6) Manage Stock taking Procedure.
   - Prepare Stock taking List.
   - Generate Stock taking Report.

II. THE EXISTING SYSTEM

2.1 Background of the Organization

Phian Chai (94) Co., Ltd. was established in May 1969 as a distributor of paper from local manufacturer, Japan, Finland, Indonesia and Korea. With the rapid growth of the Thai economy, the company sales volume is increased at an accelerated rate from 1990 until 1996. With the growth of the Thai Economy, there is a huge problem. That is the traffic which causes the company's inability to deliver the paper to the customer on time. And most of the printing companies have moved to a suburban colony with the lower cost of land and easier to expand. In 1995, the company set up a branch where most of the customers moved to in order to serve them on time.

Since 1995, the company management decided to have two more branches located nearby the major customers in order to cope with the timing problem. Then the two branches were set up at Bangna-Trad Rd., and Rama II Rd.. And the management still has a project to expand more branches in the near future. With the current situation, the company used the manual system to operate job function which takes time to check the status of stock and location. Even though the company can use its current resources to operate at a current number of order, but if the number of ordering increased with the increase in the number of branches in various locations, the company will find that with the current manual system, it is impossible to handle the orders. And without the on-line system, the company has a cost each time for using the telephone to the branch and checking the balance of stock before accepting the order.

In order to provide better service, the old manual system has to be displaced. The company should use the information system services to provide response to the customer on a timely basis and more comfortably.

The Phian Chai 94 Inventory Supply System can help the company to handle the increasing number of order with less time than the current system. The information will not only help utilize the company resource to effectively use but also give the information to management to analyze on a timely basis. The Inventory Supply System will also modernized the company and gain attention from customers, with quite a high initial cost but in the long run it will give more value to the company.

2.2 Existing Business Functions

The company is divided into 4 functions as follows:

1) Accounting and Finance Function

There are 2 areas under Accounting and Finance Function which are Cashier and Accounting. Cashier will be responsible for all money transaction. Accounting will be responsible for book keeping, auditing and budgeting.

2) Sales and Marketing Function

The Sales and Marketing Function is responsible for taking order from customer, issue purchase order and manage the company stock level.

3) Inventory Function

The Inventory Function is responsible for taking care of stock, delivery and receiving of stock.

4) Administrative Function

The Administrative Function is responsible for general administration i.e. filing, mailing, security, traffic, personnel and utilities.

2.3 Current Problems and Area for Improvements

As mentioned before, the Phian Chai (94) Co., Ltd. has to produce many business documents which the Accounting and Finance Department must process each document to produce the Financial Reports. The delay and missing documents caused

numerous problems to both Sales and Marketing, and Accounting and Finance Departments to complete the jobs. And with this manual system, it caused the expansion and growth of the company to be very limited. The current problems of the company are:

1. The High Workload

The Accounting and Finance Staffs have to manage all the documents from the Sales and Marketing Department.

2. Delay

Marketing delays in submitting the document and sometimes the documents are missing. This causes the Accounting and Finance job to be delayed.

3. Accuracy of Information

The high workload can cause mistakes in both Sales and Marketing Department, and Accounting and Finance Department. The Sales and Marketing Department may forget to submit the Purchase Order or the Warehouse forgot to submit a copy of the invoice to the Accounting Staff. This may cause the wrong figures in several reports which management used for analyze and planning.

4. Time Consumption

Mistakes occurred from both the Sales and Marketing, and Accounting and Finance Departments, sometimes take a lot of time to check out and correct. The Finance staff might have to spend quite a long time in collecting additional information or rechecking a bulk of document again and again. And the customers have to wait for response to their orders.

5. Stock Control

Mistakes in stock figures cause numerous problems to Sales and Marketing Department such as shortage of items being sold and the over stock of the unsold items.

6. Limited Expansion

Expansion and growth are already at their limits under the present system.

From the problem we described in the previous section, we will raise an area for Improvement, which will be the objective for this proposal, as follows:

1. Reduce the workload

The unnecessary jobs should be cut down, at least should be simplified. The new system should substitute the staff in doing some jobs.

2. Improve the information accuracy

There should be a new method of storing and managing information for more accuracy. The improved system should ensure that the information is always updated and allow the officers to get the right information.

3. Reduce the time in collecting information

Once the information is guaranteed for accuracy, the officers need not spend time in double checking the information. The information should be centralized and kept in the same storage for easier retrieval.

4. Shorten the delay time

The Sales and Marketing, and the Accounting and Finance Departments must cooperate more closely together and the new system has the document tracking capability in case Accounting and Finance Department can follow the documents produced by the Marketing Division. The customer needs not wait for the response and the Sales Division can serve more number of orders.

5. Improve stock control

The new system must have better stock control system to keep track of the balance of stock for better management and the lowest figures in the stock carrying cost.

6. Easy to Expand

This new system also helps to serve the management policy in order to have more branches at lower overhead cost.

2.4 The Existing System

Currently, there is no fully computerized system assisting the Sales and Marketing, and the Accounting and Finance Departments. The staff has to call to the warehouse in order to check the status of stock and it will take some time for the customer to wait for the order. The Head Office staff use the spreadsheet application on PC to store and produce the official documents and then send to the warehouse for delivery to customer. In particular, they use Excel to do this task and then print out, then one copy is sent to customer or supplier, one copy is kept in the department and another copy is sent to the Accounting and Finance Department. The Accounting and Finance Department receives information from marketing and post each concerned document into the G/L system. After every information is posted to the G/L system, the reports about financial status such as trial balance, profit and loss, balance sheet, Ledger card, and stock movement are prepared by hand.

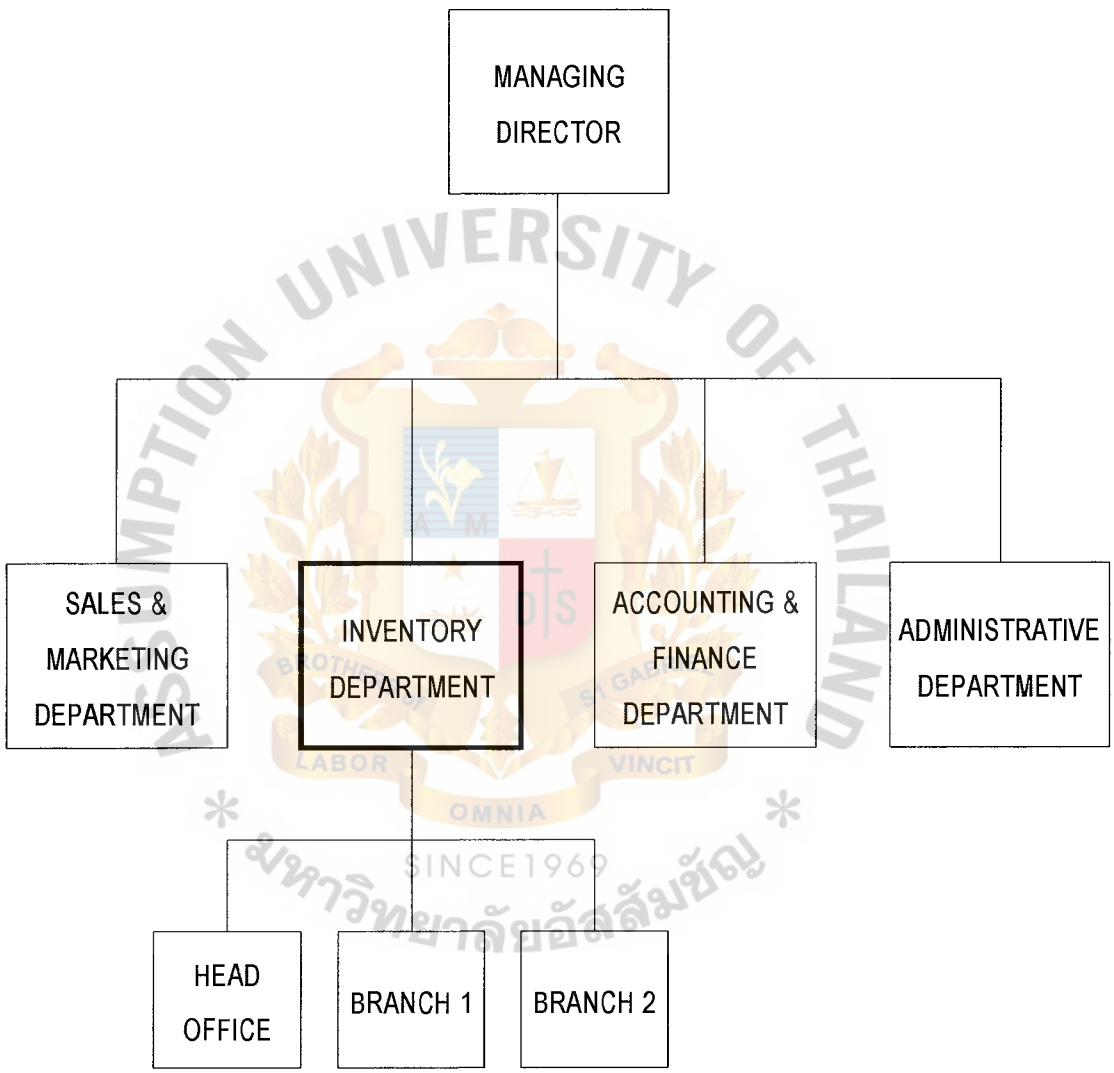

Figure 2.1. Organization Chart.

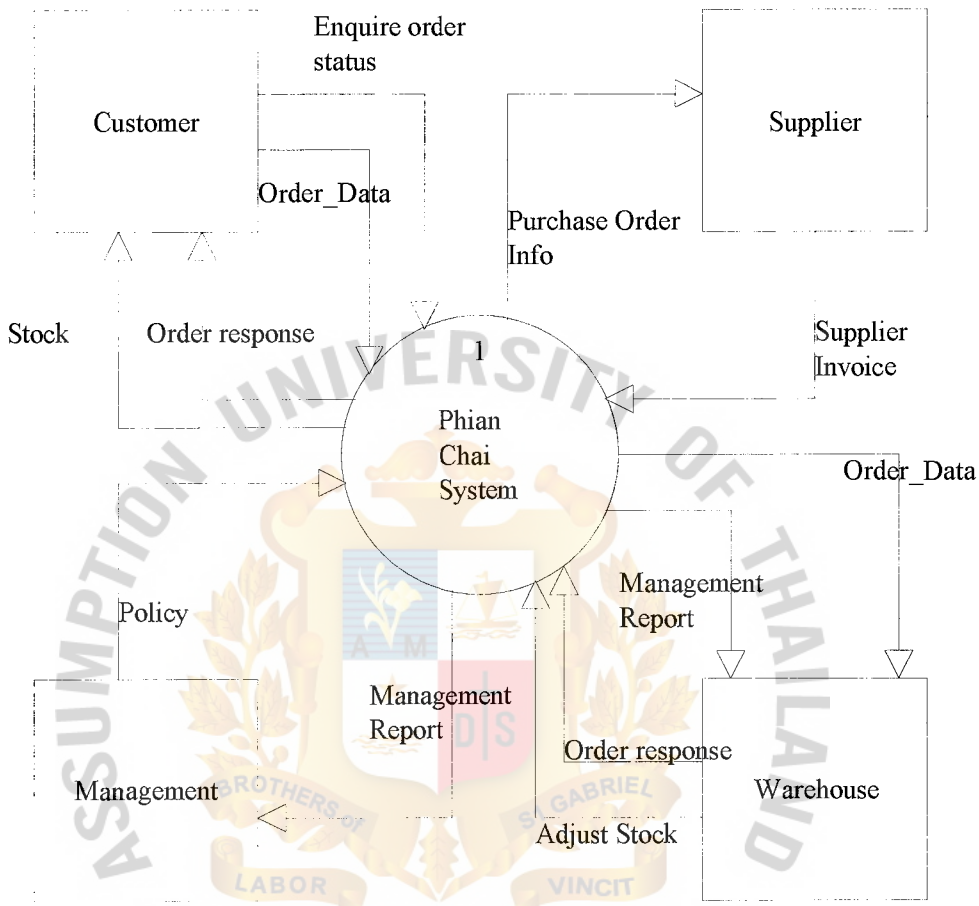

Figure 2.2. Context Diagram of the Existing System.

III. THE PROPOSED SYSTEM

3.1 User Requirement

The user requirements are obtained from the users themselves and the existing system evaluation. Actually, the existing system can serve the user requirements to some extent. But users and management still need to develop a new system which is easier to use and can produce faster information to management.

The purpose of Phian Chai 94 Inventory Supply System is to maintain information needed to control the inventory, which includes issue purchase order, inquiry on supplier and customer information, and accepting and delivery of order from customers. All the reports needed for controlling will be given to management on a timely basis.

3.2 System Analysis and Design

The details of system analysis and design of the Phian Chai 94 Inventory Supply System have been presented in graphical form which includes, Context Diagram, Level 0 and Level 1 of the Phian Chai 94 Inventory Supply System. The proposed system Context Diagram and Data Flow Diagram are presented in the follow pages:

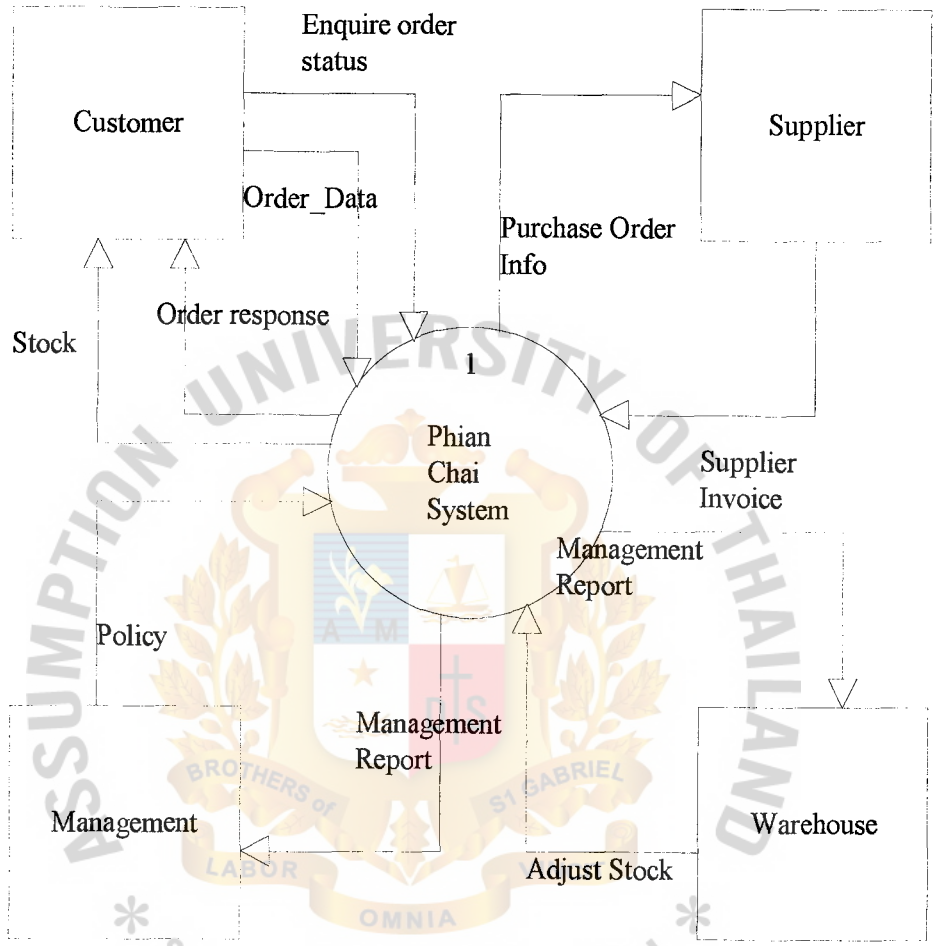

Figure 3.1. Context Diagram of the Proposed System.

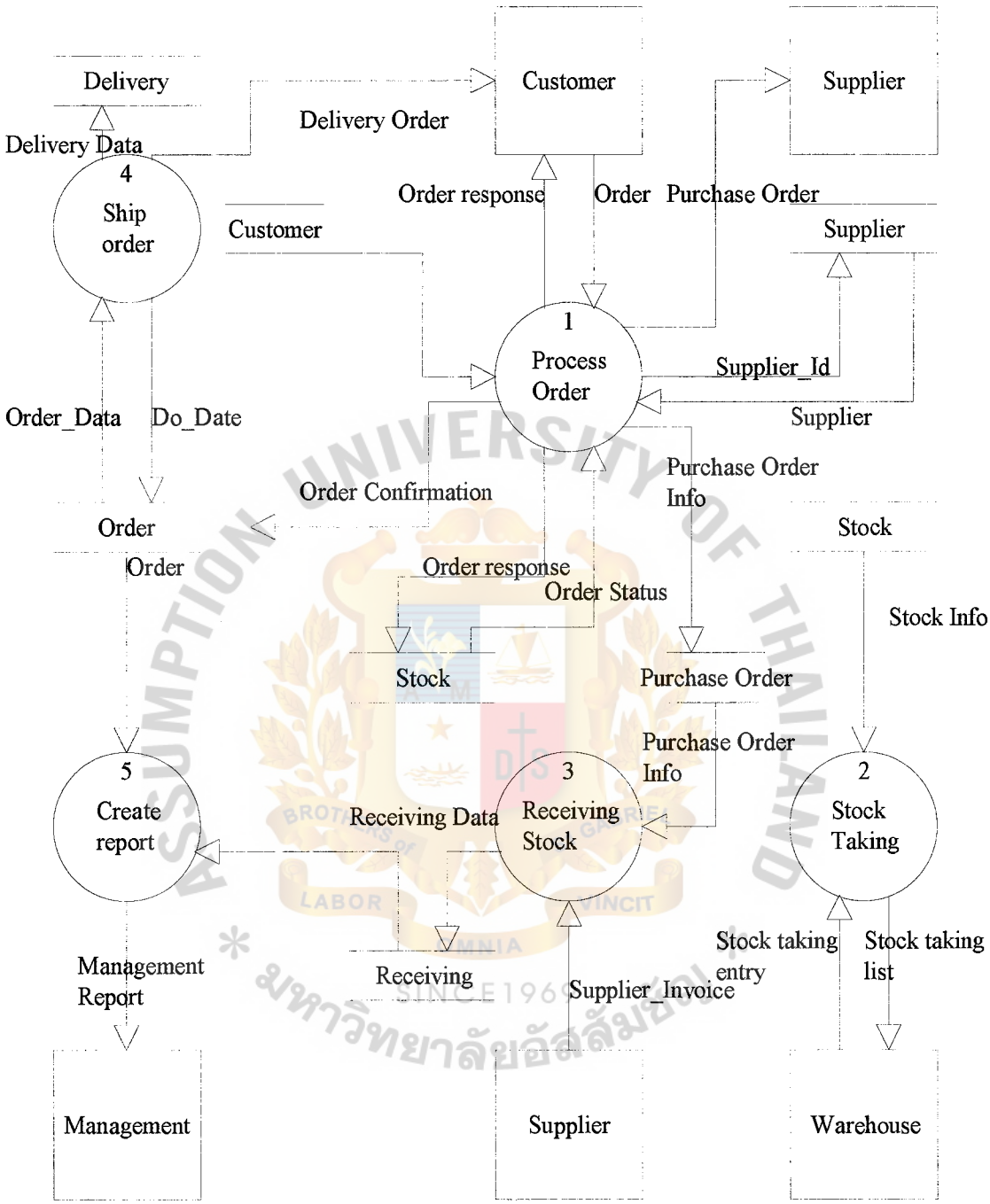

Figure 3.2. Level 0 – Data Flow Diagram.

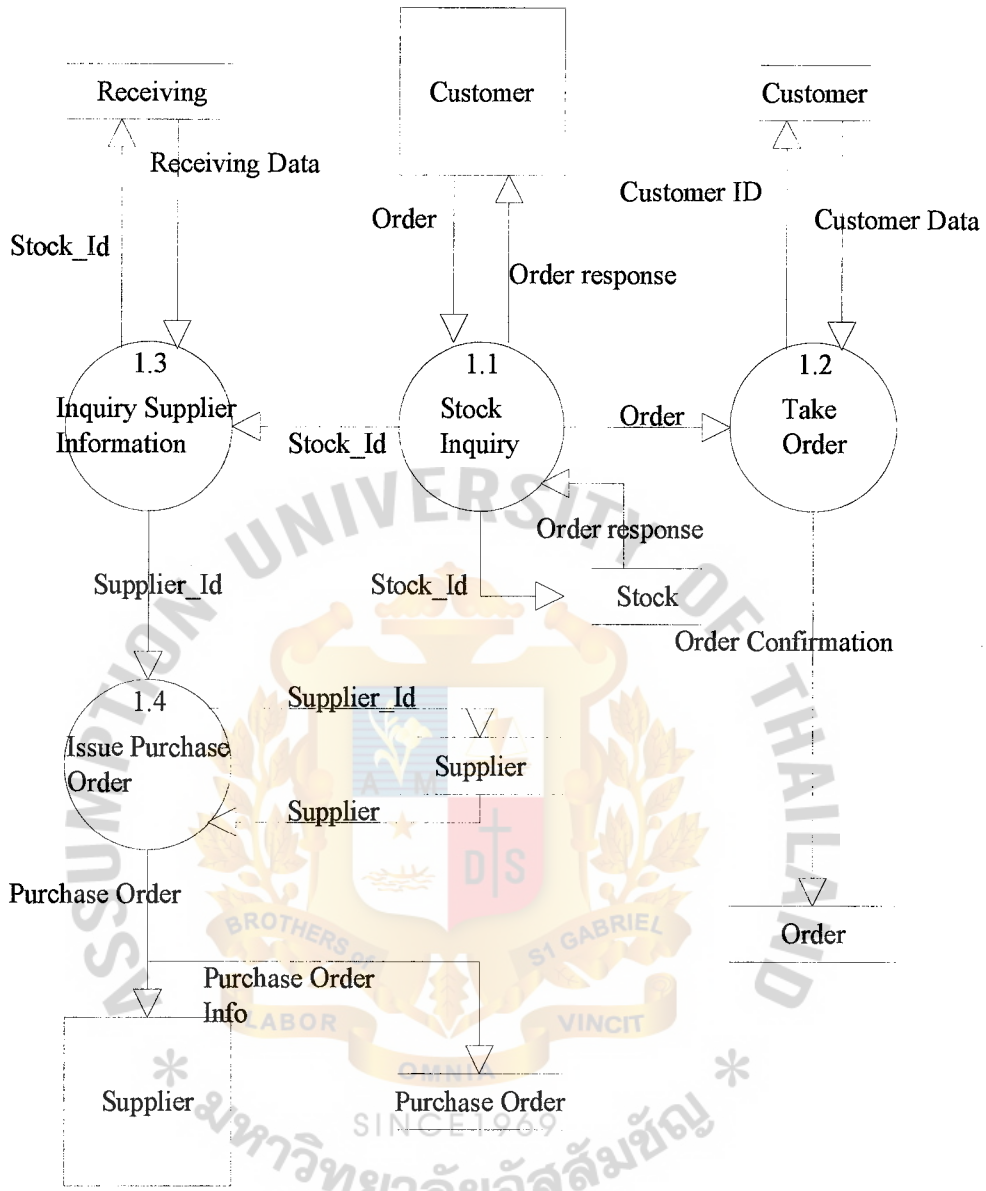

Figure 3.3. Level 1 – Take Order.

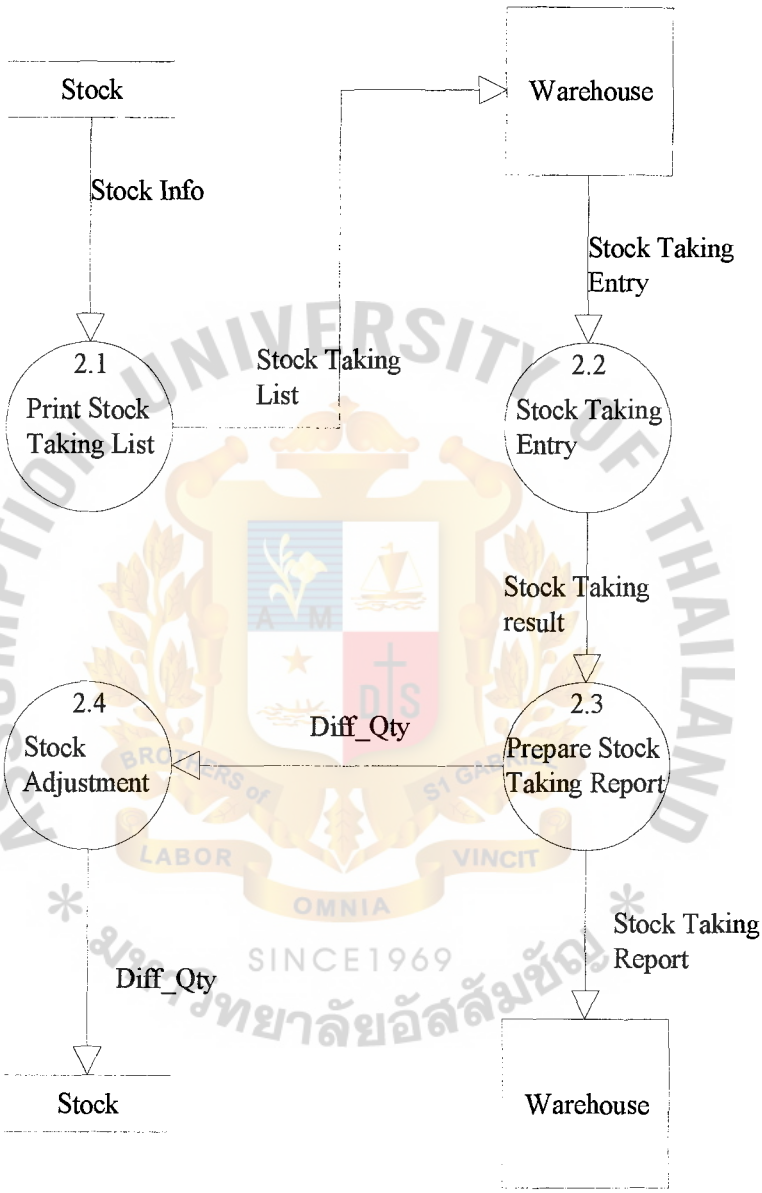

Figure 3.4. Level 1 – Stock Taking.

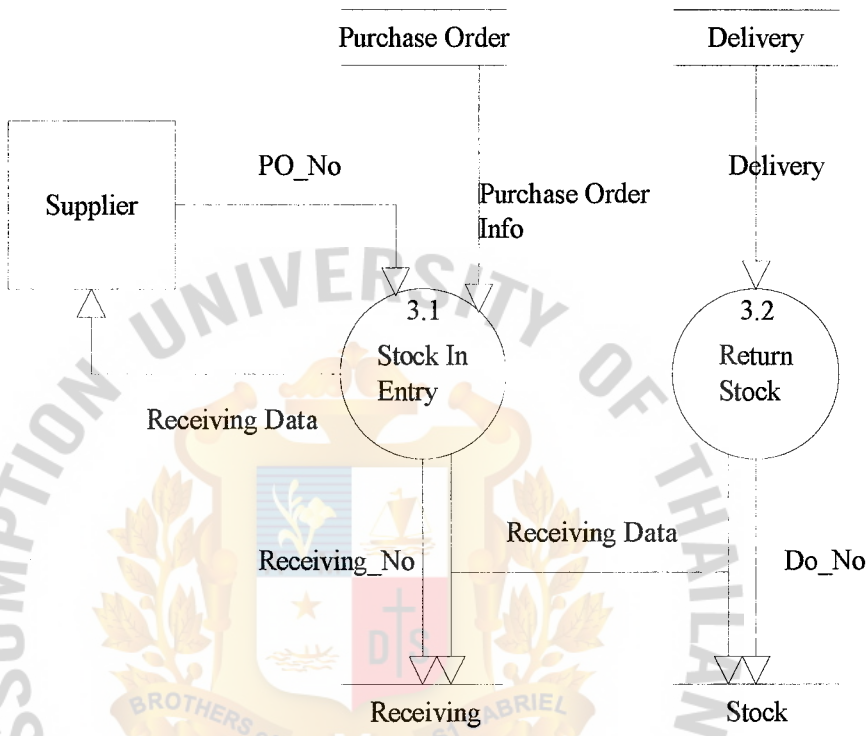

Figure 3.5. Level 1 – Receiving Stock.

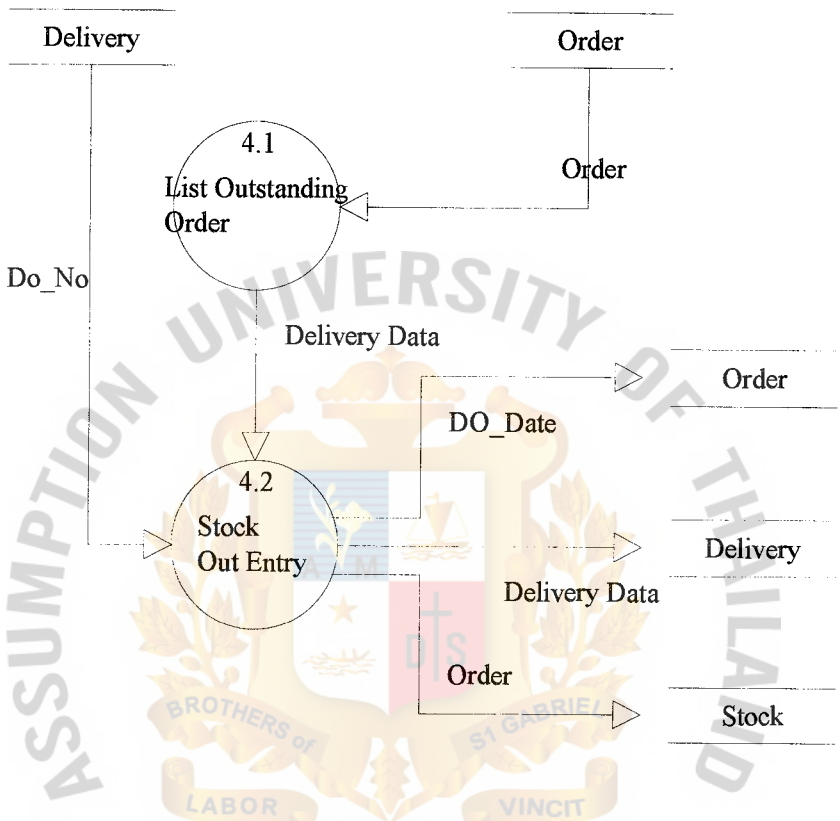

Figure 3.6. Level – Ship Order.

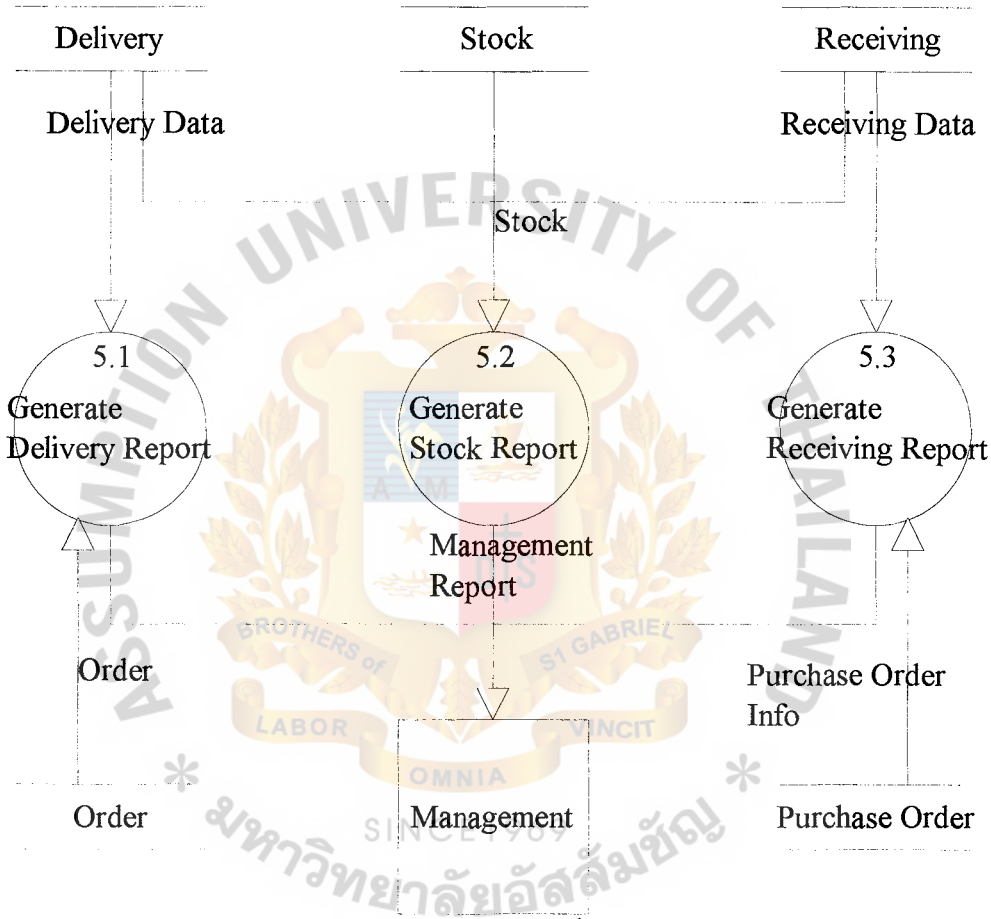

Figure 3.7. Level 1 – Generate Management Report.

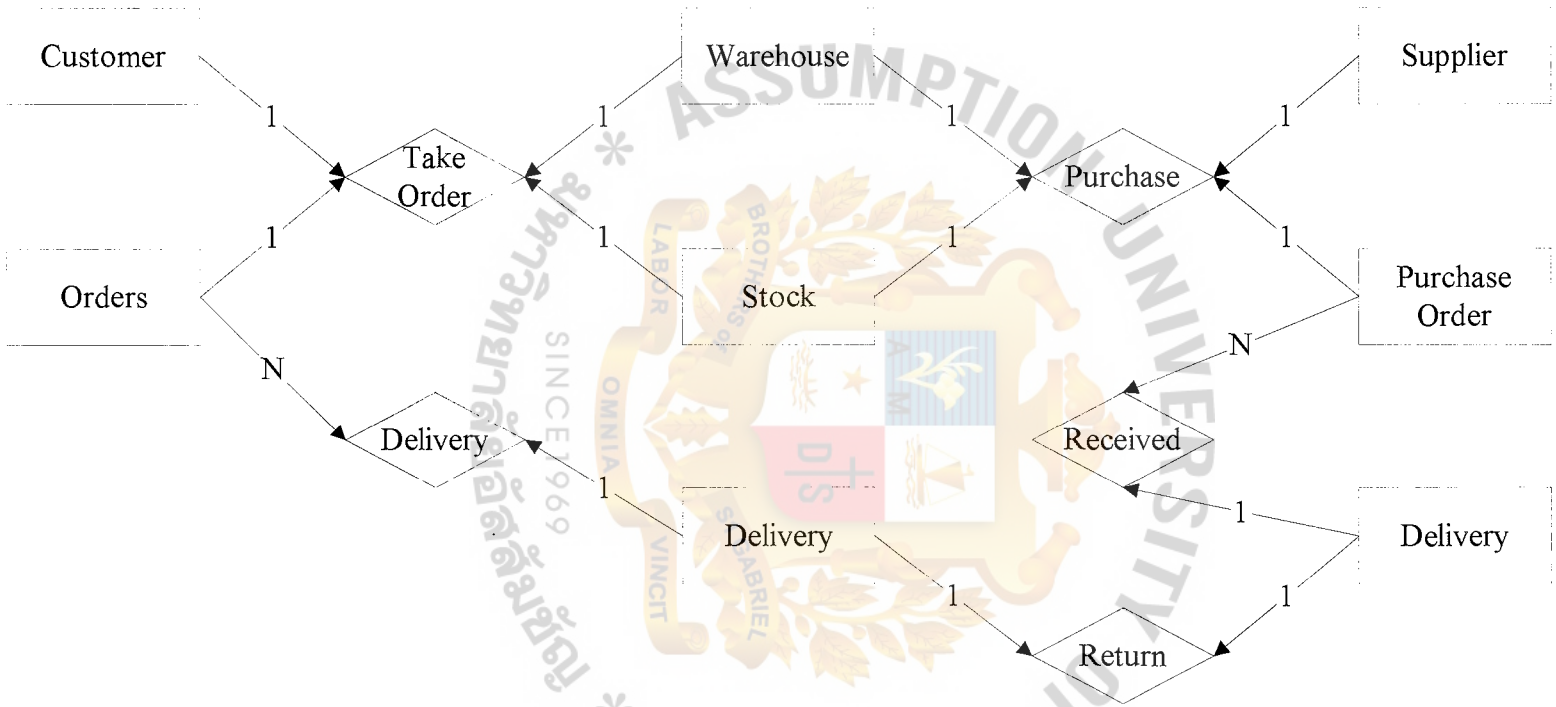

Figure 3.8. Entity Relationship Diagram.

File Layout

Table 3.1. File Layout – Item Master File (M01).

No	Field Name	Size	Type	Description
1.	Stock_Id*	5	Number	A Numeric Code to identifies each Stock.
2.	Stock_Desc	25	Text	Description of Stock
3.	Stock_UOM	5	Text	Unit of measurement of Stock

Table 3.2. File Layout – Stock Control File (S10).

No	Field Name	Size	Type	Description
1.	Doc_No*	8	Number	Unique number of document.
2.	Doc_Date	10	Date	Date of document.
3.	Stock_Id***	5	Number	Stock Code.
4.	Quantity	8	Number	Receiving quantity.
5.	Order_Qty	8	Number	Delivery quantity.
6.	R_Amt	12	Number	Receiving amount.
7.	Wh_Id**	1	Number	Unique Number of Warehouse.

Remark: * Primary Key.

** Foreign Key.

*** Indexed by.

Table 3.3. File Layout – Delivery Master File (M02).

No	Field Name	Size	Type	Description
1.	Do_No*	8	Number	Computer Generated No. of Do.
2.	Do_Date	10	Date	Computer Generated Date of Delivery
3.	Delivery_Flag	1	Text	S = Sales, T = Transfer

Table 3.4. File Layout – Order Master File (M05).

No	Field Name	Size	Type	Description
1.	Order_No*	8	Number	Computer Generated Number of Order.
2.	Order_Date	10	Date	Computer Generated Date of Order.
3.	Customer_Id**	5	Text	Unique Number of Customer.
4.	Stock_Id**	5	Number	Stock Code.
5.	Order_Qty	8	Number	Quantity Order From Customer.
6.	Unit_Price	8	Number	Price Charged for Single Unit of Stock.
7.	Order_Discount	2	Number	Percentage Discount Offer to Customer.
8.	Do_Amt	12	Number	Total Amount Charged per Order.
9.	Tax_Amt	11	Number	Tax Amount Charged per Order.
10.	Order_Amt	12	Number	The Amount Customer have to pay for.
11.	Payment_Term	2	Number	Term of Credit Give to Customer.
12.	Required_Date	10	Date	Date that Customer Required to Deliver.
13.	Do_No*	8	Number	Computer Generated No. of Do.
14.	Remark	1	Text	D = Delivery, C = Cancel, R = Return

Table 3.5. File Layout – Stock Balance File (S11).

No	Field Name	Size	Type	Description
1.	Stock_Id*	5	Number	Stock Code.
2.	End_Qty	8	Number	Ending Quantity.
3	Month*	10	Date	Month of update Ending quantity.
4.	Total_item_Amt	12	Number	Total Amount of Each Kind of Stock.
5.	Wh_Id*	1	Number	Unique Number of Warehouse.

Table 3.6. File Layout – Purchase-Order Master File (M04).

No	Field Name	Size	Type	Description
1.	PO_No*	8	Number	Computer Generated No. of PO.
2.	PO_Date	10	Date	Computer Generated Date of PO.
3.	Stock_Id**	5	Number	Stock code.
4.	Supplier_Id**	5	Text	Unique Number of Supplier.
5.	Quantity	8	Number	The No. of Unit that has been Ordered.
6.	Unit_cost	8	Number	The Charged For Single Unit of Stock.
7.	Discount	2	Number	Percentage Discount For Purchase Order.
8.	R_Amt	12	Number	Total cost of purchase stock.
9.	R_Tax_Amt	11	Number	Tax amount of purchase stock.
10.	Purchase_Amt	12	Number	Total amount of purchase order.
11.	Wh_Id**	1	Number	Unique Number of Warehouse.
12.	Required_Date	10	Date	Date which Requires Supplier to Deliver.
13.	Receiving_No	8	Number	Computer Generated No. of Receiving.
14.	Remark	1	Text	C = Cancel

Table 3.7. File Layout – Warehouse Master File (M06).

No	Field Name	Size	Type	Description
1.	Wh_Id*	1	Number	Identification of Phian Chai Warehouse.
2.	Wh_Name	20	Text	Name of Each Warehouse.
3.	Wh_Address_1	25	Text	Warehouse Address Part 1.
4.	Wh_Address_2	25	Text	Warehouse Address Part 2.
5.	Wh_Province	15	Text	Province where Warehouse is Located.
6.	Wh_Postcode	5	Number	Postcode of Warehouse.
7.	Wh_Manager	20	Text	Name of Manager of Warehouse.
8.	Wh_Tel	11	Text	Telephone Number of the Warehouse.
9.	Wh_Fax	11	Text	Fax Number of the Warehouse.

Table 3.8. File Layout – Supplier Master File (M07).

No	Field Name	Size	Type	Description
1.	Supplier_Id*	5	Text	Identification of Phian Chai Supplier.
2.	Supplier_Name	20	Text	Registered name of supplier.
3.	Sup_Address_1	25	Text	Supplier Address Part 1.
4.	Sup_Address_2	25	Text	Supplier Address Part 2.
5.	Sup_Province	15	Text	Province where Supplier is Located.
6.	Sup_Postcode	5	Number	Postcode of Supplier.
7.	Sup_Person	20	Text	Name of Person to Contact for Purchase.
8.	Sup_Tel	11	Text	Telephone Number of Supplier.
9.	Sup_Extention	4	Text	Internal Number of Supplier.
10.	Sup_Fax	11	Text	Fax Number of the Supplier.

Table 3.9. File Layout – Customer Master File (M08).

No	Field Name	Size	Type	Description
1.	Customer_Id*	5	Text	Identification of Phian Chai Customer.
2.	Cust_Name	20	Text	Registered name of Customer.
3.	Cust_Address_1	25	Text	Customer Address Part 1.
4.	Cust_Address_2	25	Text	Customer Address Part 2.
5.	Cust_Province	15	Text	Province where Customer is Located.
6.	Cust_Postcode	5	Number	Postcode of Customer.
7.	Wh_Id	1	Number	Identification of Phian Chai Warehouse.
8.	Cust_Person	20	Text	Contact Person for Taking Order.
9.	Cust_Tel	11	Text	Telephone Number of Customer.
10.	Cust_Extention	4	Text	Internal Number of Customer.
11.	Cust_Fax	11	Text	Fax Number of the Customer.

Table 3.10. File Layout – Receiving Master File (M03).

No	Field Name	Size	Type	Description
1.	Receiving_No*	8	Number	Computer Generated No. of Receiving.
2.	Receiving_Date	10	Date	Computer Generated Date of receiving.
3.	Receiving_Flag	1	Text	P = Purchase, R = Return, T = Transfer
4.	Do_No**	8	Number	Computer Generated No. of Do.

3.3 Hardware and Software Requirements

3.3.1 Hardware requirements

Description	Quantity
1) Computer Server	1 set
• Compaq Presario 2254 MMD K6 266 MMX, RAM 64 MB, HDD 3.2 GB, 14" Color Monitor, 3.5" 1.44 MB Diskette drive.	
2) UPS for server LINE CONDITIONER 1000 VA	1 set
3) Personal Computer	6 sets
• Compaq Presario 2254 MMD K6 266 MMX, RAM 32 MB, HDD 3.2 GB, 14" Color Monitor, 3.5" 1.44 MB Diskette drive,	
4) UPS for PC LINE CONDITIONER 500 VA	6 sets
5) Laser Printer – HP Laser-jet 6L Printer 1 MB RAM	1 set
6) Dot Matrix Printer EPSON LQ-2070	5 sets
7) LAN Card – for Fast Ethernet 100B PCI	5 sets
8) Bay Stack 10 base-T Hub 8 ports RJ45	1 set
9) Modem Acer 33.6 K	4 sets

3.3.2 Software Requirements

Description	Quantity
1) Network Operating System	
• Microsoft Windows NT Server version 4, 5 users	1 sets
• Microsoft Windows 98 (Pre-Install)	6 sets
2) Database Management System	
• Microsoft Access 97	7 sets
3) Anti Virus Software – Mcafee 3.14	7 sets

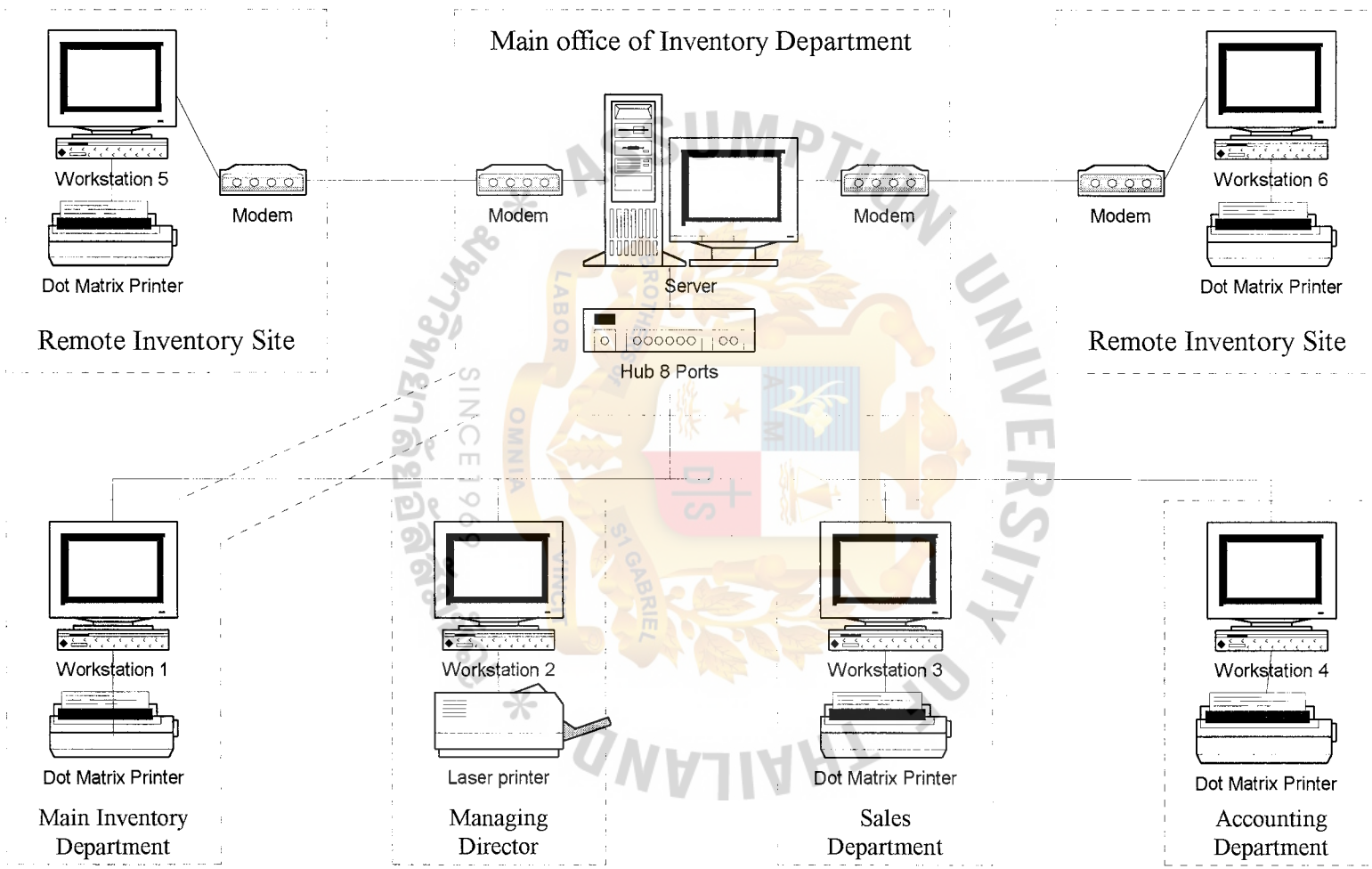

Figure 3.9. Hardware Configuration of the Proposed System.

3.4 Security and Controls

Inventory information is one of the valuable data that the company should keep as safe as possible. Only the Sales and Marketing Department can access the information. To maintain high quality of security, we focus on 3 interrelated aspects:

- Physical Security – the computer will be placed in a controlled access room in the Inventory and Marketing department which prohibit unauthorized persons from entering the room. The room will be locked after office hours. Data will be backed up onto diskette once a week and be kept in a cabinet of system support section, which is controlled by the Managing Director.
- Logical Security – As the system is installed in Local Area Networks, there are 2 levels of software access control. First, the user should have a password to access the LAN system. Data center will control issuing of authority to groups of people. Second, the security control of the Inventory Supply System will be set before users entering the system. The user is requested to key the user ID and the password. The users password will not be shown on the screen in order to prevent the others from seeing the password. Also, if someone enters the wrong password for more than 3 times, that user ID will be expired. We design password for 3 groups :
    1) System Admin. Group.
    2) Inventory Group.
    3) Marketing Group.

To prevent the programmer from seeing the data and for convenience in modifying the program, the database will be separately kept with transaction database and program. The programmer will correct the program and then install it without seeing the real data.

3.5 Cost/Benefit Analysis

Cost

The cost for implementation of the Inventory Supply System was initially high because all hard ware and software need to be newly purchased. The following costs will be included in comparing the cost and the benefits:

Table 3.11. Cost of Hardware and Software.

Description	Unit cost	Quantity	Cost
Hardware			
• Server	35,000	1	35,000
• Personnel Computer	30,000	6	180,000
• UPS for Server	3,900	1	3,900
• UPS for PC	2,900	6	17,400
• HP Laser jet 6L Printer	17,000	1	17,000
• Dot Matrix Printer EPSON LQ-2070	20,000	5	100,000
• Bay Stack 10 Base T Hub 8 Ports	2,000	1	2,000
• LAN car for Fast Ethernet 100 B PCI	1,000	5	5,000
• Modem	2,300	4	9,200
• Cabling	5,000		5,000
Software			
• Windows NT for server	35,600	1	35,600
• Microsoft Windows 98 (Pre-installed)			
• Microsoft Access 97	26,500	7	132,500
• Anti Virus Software		7	
Total Hardware and Software Cost			542,600

Table 3.12. Cost of Hardware and Software (Continue).

Description	Unit cost	Quantity	Cost
• Hardware Installation Charge			20,000
• Implementation Cost			100,000
Total Cost of investment			662,600
Annual Operating Cost			70,000

The formula of annual cost of the proposed system:

$$\text{Annual Cost} = \frac{\text{(Investment Cost + Implementation Cost)}}{\text{Estimated System Life In Year}} + \text{Annual Cost}$$

$$= (662{,}600 / 5) + 70{,}000$$

$$= 202{,}520 \text{ baht}$$

The start up cost that incurred for this project will be quite high. This includes time spent to gather system requirement, system design and development cost and in-house training cost. The annual operating cost is estimated to be 10% of the total investment cost. The total cost for 5 years will be 1,012,600 Baht.

Benefits

The tangible benefits of the system will be in the form of man hours saving from the manual operation like finding document, updating the transaction and manually preparing management report. The tangible saving cost for 5 years is 1,458,767 Baht. However, we will get more intangible benefits from the system i.e. more accurate and complete figures, timely and accessible of information.

Cost and benefit comparison

After comparing the cost and the tangible benefit, the payback period will be 3 years. The detail of cost and benefit comparison will be shown in the following section.

Table 3.13. Cost and Benefit Analysis, in baht.

Cost items	Year:				
	1999	2000	2001	2002	2003
Total Saving per year	264,000	277,200	291,060	305,613	320,893
Accumulative Saving	264,000	541,200	832,260	1,137,873	1,458,766
Investment Cost	732,600	70,000	70,000	70,000	70,000
Accumulative Cost	732,600	802,600	872,600	942,600	1,012,600
Yearly Profit	-468,600	207,200	221,060	235,613	250,893
Accumulative Profit	-468,600	-261,400	-40,340	195,273	446,166

Table 3.14. Manhour Cost, in baht.

Cost items	Year:				
	1999	2000	2001	2002	2003
Annual Salary	288,000	302,400	317,520	333,396	350,066
Bonus	48,000	50,400	52,920	55,566	58,344
Welfare and Staff's benefit	24,000	25,200	26,460	27,783	29,172
Total annual cost	360,000	378,000	396,900	416,745	437,582
Total annual working hour	7,200	7,200	7,200	7,200	7,200
Manhour cost (Baht)	50	53	55	58	61

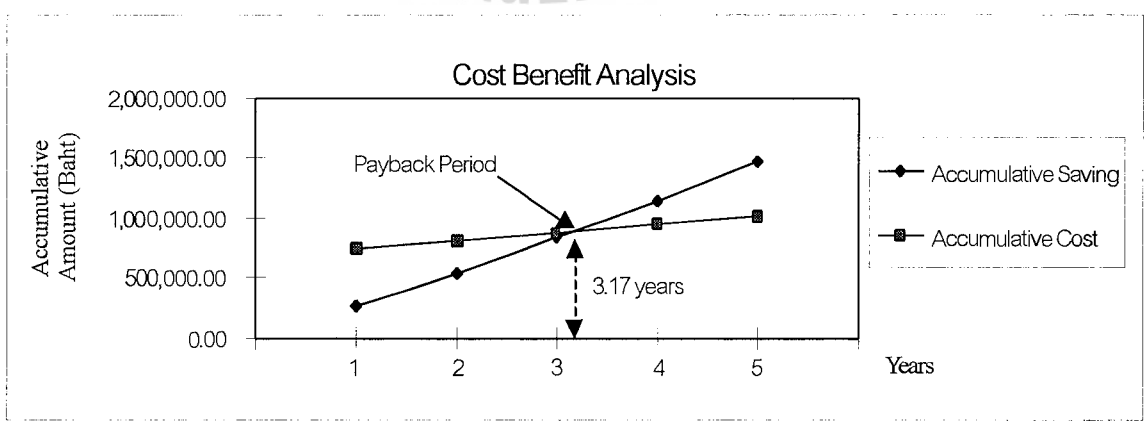

Figure 3.10. Cost and Benefit Analysis.

Table 3.15. Time Saving from Implementing the System.

Time saving items	Saving time (Min)	Quantity / warehouse	Total Quantity	Total (hours)
1) Time to accept order.	5	9,000	27,000	2,250
2) Time to issue Delivery Order.	2	4,500	13,500	450
3) Time to issue Purchase Order.	2	1,200	3,600	120
4) Time to update transaction.	2	10,200	30,600	1,020
5) Time to prepare report.	2,400	12	36	1,440
Total hour saving per year				5,280

Table 3.16. Accumulative Cost Comparison, in baht.

Cost items	Year:				
	1999	2000	2001	2002	2003
Existing System	360,000	378,000	396,900	416,745	437,582
Accumulative Cost	360,000	738,000	1,134,900	1,551,645	1,989,227
Proposed System	732,600	70,000	70,000	70,000	70,000
Accumulative Cost	732,600	802,600	872,600	942,600	1,012,600

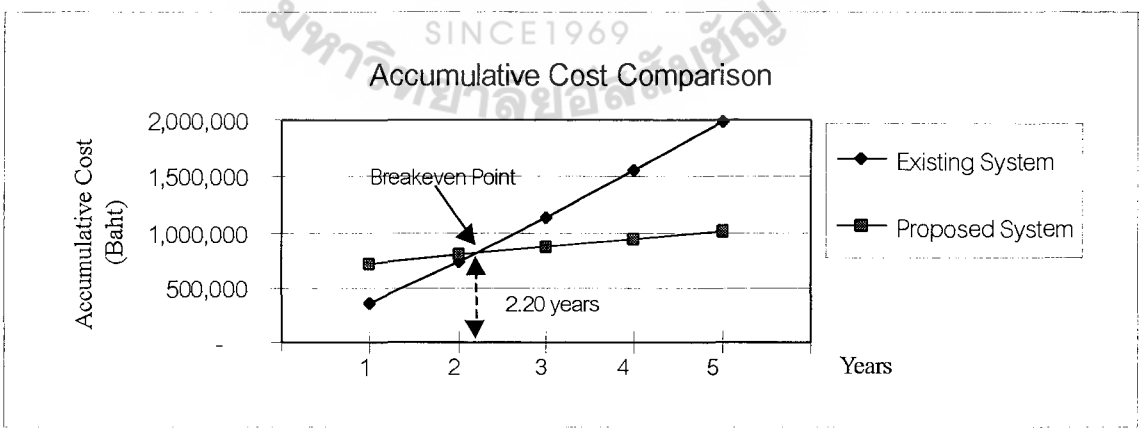

Figure 3.11. Accumulative Cost Comparison.

IV. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation Schedule / Resource Utilized

The project implementation schedule begins from gathering user requirement, system analysis and design, coding and testing up to data conversion and implementation, from September 1998 to March 1999, see detail in Figure no. 4.1. Project Implementation Plan.

All the system requirements, documentation of system analysis and design, and coding have already been shown in the previous section. The other areas that we would like to explain in our implementation plan are data conversion and user training.

The implementation plan, which included data conversion and user training, will be started by mid February 1999.

a) Data conversion

The data conversion approach that we proposed for this system is Parallel Systems Method. We proposed this method because this is the safest conversion approach, since it guarantees that, if the user is not familiar with the computerized system which may have many errors, the company will also not lose more time for getting information than with the manual system.

b) User training

The user of Phian Chai 94 Inventory Supply System are Sales Department and Inventory Department. The User training program will not only train how to use Inventory Supply System but also the overall operations of this system. This will help the user to understand the system clearly, to know what will be the effects to other departments if someone makes an error. The training also includes the normal operation of computer which will eliminate the resistance and make the user be more familiar with the computerized system.

Resource Utilization

During development, resource utilization comprises both intangible and tangible resource. Intangible resource includes the effort from Inventory Officer, Accounting Officer and Sales and Marketing Officer. These are measurable in man-hour, and computing facility for system developer. Tangible resource includes general office supplies.

4.2 Test Plan and Results

Testing is the critical process before live run of the system. During coding, the programmer will do code testing and examine the logic of the program or module. However, the user will be responsible for system testing to prove that there is no error in a program or if there is, the programmer will fix it before implementation.

Testing strategies

The test case is a set of data that the system will process as the normal output. The data are created with the express intent of determining whether the system will process them correctly.

- Code Test – the code testing strategy examines the logic of the program. The test cases have to be developed so the results in executing every instruction in the program are tested and included in every path of the program.
- Specification Test – The specification test is performed to state what the program should do and how it should perform under the various conditions.

We use live test data from the beginning to the end of the process. However, test data will be added to complete the whole system specification.

	Activities	Sep-98		Oct-98		Nov-98		Dec-98		Jan-99		Feb-99		Mar-99	
		1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-28	1-15	16-31
1	System Requirement														
	1.1 Personal Inteview														
	1.2 Identify area under study														
	1.3 Identify Objective														
	1.4 Identify Event-List of the system														
2	System Analysis and Design														
	2.1 Develop the logical DFD of the System														
	2.2 Design the Process Specification														
	2.3 Design File Structure of the System														
	2.4 Data Dictionary														
	2.5 Design Input & Output Screen														
	2.6 Design Report Layout														
	2.7 Design Structure Charts														
3	Coding & Testing														
	3.1 Programming														
	3.2 System Testing														
	3.3 User Acceptant Test														
4	Conversion and Implementation														
	4.1 Data Conversion														
	4.2 Documentation														
	4.3 User Training														

Figure 4.1. Project Implementation Plan.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The Phian Chai 94 Inventory Supply System has been proposed to develop and improve the performance of the company. Currently, the Inventory Staff faces a problem with updated data and controll all the delivery and receiving transaction. Therefore, with the way to improve the afore-mentioned areas, the Inventory Supply System project has been set up with the objectives to identify the real problem, estimate cost/benefit and establish the computerized system with integrated database to share between the Sales and Marketing section and the Inventory section.

The scope of the system covers customer order, issue purchase order, delivery of stock, receiving of stock and generating accurate information to management.

The system will be written using Microsoft Access 97, so that it can adapt to change easily. The system will be installed in local area network. There are 2 levels of security, one to enter LAN system and the second to enter the Inventory Supply System of which the users will be classified into 3 groups : administrative, Inventory Section and Sales and Marketing section. Each group has different privilege to access the screen and data.

The costs of hardware and software for the server, hub, LAN card, personal computer, and network system were initially high but in the long run after the third year, the company will save more.

For project implementation, we need 7 months before live run the system to gather requirement, system analysis and design, coding and testing and data conversion and user training. We use Parallel Systems Method for data conversion in order to better control the information. The user training will consist of 2 sessions, normal

operation of computer and Inventory Supply System. The above plan is necessary to accomplish the project goal within limited time frame.

The degree of achievement of the proposed system compared with the existing system can be seen on table 5.1. It shows that the proposed system reduces the time spent on each process a lot. This is because the proposed system takes much less time to retrieve the required information. It also has the capabilities to sort the information as required and calculate the number automatically. So, the information can be in the format that is easily used by the users.

Table 5.1. Comparison of the Degree of Achievement between the Proposed System and the Existing System.

Process	Proposed System (Time Spent)	Existing System (Time Spent)
Checking Order	3 mins.	8 mins.
Create Delivery Order	1 mins.	3 mins.
Create Purchase Order	1 mins.	3 mins.
Transaction Recording	1 mins.	3 mins.
Prepare Sales Report	5 mins.	15 hrs.
Prepare Purchase Report	5 mins.	8 hrs.
Prepare Stock Report	5 mins.	8 hrs.

5.2 Recommendations

After live run of the system, we recommend using bar code systems for identifying the stock to ensure accuracy of information. And the company should have one person to be responsible for project post-implementation in order to verify the actual benefits and costs occurred, assure that every thing is in shape and evaluate how much we can reach our goal. In addition, as we know, we cannot have a 100% bug free system. This person will be a coordinator among users and Managing Director. And this person should study the possibility of allowing customer to login to the system and place order automatically.

APPENDIX A

DATA DICTIONARY

DATA DICTIONARY

Adjust Stock = *Different in Quantity When Counting Updated to Stock Balance*

Beg_Qty_Wh_Id_1 = *Beginning Quantity of Warehouse 1*

Beg_Qty_Wh_Id_2 = *Beginning Quantity of Warehouse 2*

Beg_Qty_Wh_Id_3 = *Beginning Quantity of Warehouse 3*

CUSTOMER = {Customer}

Customer = *Phian Chai Customer*
@Customer_Id + Cust_Name + Cust_Address_1 + Cust_Address_2 + Cust_Province + Cust_Postcode + Cust_Person + Cust_Tel + Cust_Ext + Cust_Fax

DELIVERY = *Delivery Data*

Delivery Data = *Information When Delivery Stock*
@Do_No + Do_Date + Delivery_Flag + Order_No_1 + Order_No_2 + Order_No_3

Delivery Order = *Delivery Slip Which Contain Delivery Data*

Do_Cost_Amt = *Cost of Stock For Each Delivery Order*

Inquire Order Status = *Customer Asking for Stock for Placing an Order*

Last_Do_No = *Last Number of Issued Delivery Slip*

Last_Receiving_No = *Last Number of Issued Receiving Slip*

Management Report = *Data for Management of Phian Chai*

Month_of_Report = *Month that Present Report*

Monthly Do_Amt = *Total Amount of Sales in Each Period*

Monthly Pur_Amt = *Total Amount of Purchase in Each Period*

Monthly R_Amt = *Total Amount of Receiving Stock*

Monthly R_Tax_Amt = *Total Amount of Tax of Receiving Stock*

Monthly Tax_Amt = *Total Amount of Tax for Sales in Each Period*

Monthly Total = *Total Amount of Monthly Report*

ORDER = {Order_Data}

Order_Data = *Customer Order Information*

@Order_No + Order_Date + Customer_Id + Stock_Id +

Order_Qty + Unit_Price + Order_Discount + Do_Amt +

Tax_Amt + Order_Amt + Payment_Term + Required_Date +

Wh_Id

Order_Confirmation = *Marketing Accepted the Order from Customer*

Order Response = *Response to Customer Order*

Order Status = *Ending Balance of Stock Compare to Quantity Order*

Policy = *Requirement Set up by Management*

PURCHASE ORDER = {Purchase Order Info}

Purchase Order Info = *Purchase Order Infrmation*

@iPO_No + PO_Date + Stock_Id + Supplier_Id + Quantity +

Unit_Cost + Discount + Wh_Id

R_Unit_Cost = *The Net Cost Charged for Single Unit of Stock*

RECEIVING = {Receiving Data}

Receiving Data = *Information When Receiving Stock*

@Receiving_No + Receiving_Date + Receiving_Qty +

Unit_Cost + Wh_Id + R_Amt + R_Tax_Amt + Purchase_Amt +

Receiving_Flag + PO_No_1 + PO_No_2 + PO_No_3 + Do_No

Receiving Response = *Response to Receiving of Stock*

Return Info = *Information of Return from Customer*

Return Response = *Response to Return From Customer*

STOCK = {Stock Info}

Stock Info = *Information of Each Kind of Stock*

@Stock_Id + Stock_Desc + Stock_UOM

Stock Status = *Require of Stock to Accepted the Order from Customer*

Stock Taking Entry = *Actual Number of Stock When Counting*

Stock Taking List = *List of Available Stock at One Time*

Stock Taking Report = *Report Show Different between Count and Stock Record*

Stock Taking Result = *Result After the Company sets up Stock Taking*

Stock_Count_Id = *Unique Number of Stock From Counting*

SUPPLIER = {Supplier}

Supplier = *A Phian Chai Supplier*

@Supplier_Id + Supplier_Name + Sup_Address1 +

Sup_Address2 + Sup_Province + Sup_Postcode + Sup_Person +

Sup_Tel + Sup_Ext + Sup_Fax

Supplier Invoice = *Delivery Note Prepared by Supplier*

Today_Date = *Date Which Transaction Occur*

Total_180 = *Total Slow Moving Stock Within 180 Days*

Total_90 = *Total Slow Moving Stock Within 90 Days*

Total_Amt = *Total Amount for Each Period of Report*

Total_Diff = *Total Amount of Different When Prepare Stock Taking*

Total_In_Qty = *Total Quantity Received for Each Period*

Total_Out_Qty = *Total Quantity Delivery for Each Period*

Total_Qty_Wh_Id_1 = *Total Quantity of Stock in Warhouse 1*

Total_Qty_Wh_Id_2 = *Total Quantity of Stock in Warhouse 2*

Total_Qty_Wh_Id_3 = *Total Quantity of Stock in Warhouse 3*

Total_Slow_Moving = *Total Slow Moving Stock*

Total>180 = *Total Slow Moving Stock More Than 180 days*

WAREHOUSE = {Warehouse}

Warehouse = *Information of Each Warehouse*

@Wh_Id + Wh_Name + Wh_Address1 + Wh_Address2 +

Wh_Province + Wh_Postcode + Wh_Manager + Wh_Tel +

Wh_Fax

APPENDIX B

PROCESS SPECIFICATION

PROCESS SPECIFICATION

MODULE 1.1 : Stock Inquiry

Objectives : To inquire the balance of stock

Used : 1. Stock Control File S10-File

2. Stock Balance File S11-File

3. Item Master File M01-File

Returns : 1. Stock Status Screen

1. CALL E01 Screen;
2. GET Stock_Id;

    DO WHILE not EOF M01-File and M01-Stock_Id <> Stock_Id

        READ M01-File sequentially indexed by Stock_Id;

            IF M01-Stock_Id = Stock_Id

                READ M01-Stock_Desc;

            END IF;

    END DO;

3. I = 0;
4. Month_of_Report = Current_Month;
5. Beg_Qty_Wh_Id_1 = 0;
6. Beg_Qty_Wh_Id_2 = 0;
7. Beg_Qty_Wh_Id_3 = 0;
8. DO WHILE not EOF S11-File and S11-Stock_Id <> Stock_Id and S11-Month = Month_of_Report - 1

    READ S11-File sequentially;

    END DO;

    FOR I = 0; I < 3; I = I + 1 DO

IF Wh_Id = 1

THEN Beg_Qty_Wh_Id_1 = S11-End_Qty;

Total_Qty_Wh_Id_1 = Beg_Qty_Wh_Id_1;

END IF;

IF Wh_Id = 2

THEN Beg_Qty_Wh_Id_2 = S11-End_Qty;

Total_Qty_Wh_Id_2 = Beg_Qty_Wh_Id_2;

END IF;

IF Wh_Id = 3

THEN Beg_Qty_Wh_Id_3 = S11-End_Qty;

Total_Qty_Wh_Id_3 = Beg_Qty_Wh_Id_3;

END IF;

READ S11-File sequentially;

END FOR;

9. DO WHILE not EOF S10-File and S10-Stock_Id <> Stock_Id

READ S10-File Sequentially indexed by S10-Stock_Id

END DO

10. DO WHILE S10-Stock_Id = Stock_Id and S10-Date in Month_of_Report

IF S10-Quantity > 0 THEN

IF Wh_Id = 1

THEN Total_Qty_Wh_Id_1 = Total_Qty_Wh_Id_1 + Quantity;

END IF;

IF Wh_Id = 2

THEN Total_Qty_Wh_Id_2 = Total_Qty_Wh_Id_2 + Quantity;

END IF;

```
            IF Wh_Id = 3
                THEN Total_Qty_Wh_Id_3 = Total_Qty_Wh_Id_3+ Quantity;
            END IF;
        END IF;
        IF S10-Order_Qty > 0 THEN
            IF Wh_Id = 1
                THEN Total_Qty_Wh_Id_1 = Total_Qty_Wh_Id_1–Order_Qty;
            END IF;
            IF Wh_Id = 2
                THEN Total_Qty_Wh_Id_2 = Total_Qty_Wh_Id_2–Order_Qty;
            END IF;
            IF Wh_Id = 3
                THEN Total_Qty_Wh_Id_3 = Total_Qty_Wh_Id_3–Order_Qty;
            END IF;
        READ S10-File Sequentially indexed by S10-Stock_Id;
    END DO;
        Total_Qty = Total_Qty_Wh_Id_1+Total_Qty_Wh_Id_2+Total_Qty_Wh_Id_3;
        DISPLAY Stock_Id, M01-Stock_Desc, Total_Qty_Wh_Id_1,
        Total_Qty_Wh_Id_2, Total_Qty_Wh_Id_3, Total_Qty;
11. END.
```

MODULE 1.2 : Take Order

Objectives : To receive order data from customers

Used : 1. Order Master File M05-File

2. Customer Master File M08-File

3. Item Master File M01-File

Returns : 1. Order Master File M05-File

1. CALL T21 Screen;
2. Order_No = Last Order_No + 1;
3. Order_Date = Today date;
4. GET Customer_Id, Stock_Id, Order_Qty, Unit_Price, Order_Discount, Payment_Term, Required_Date;
5. Do_Amt = (1 – (Unit_Price * Order_Discount)) * Order_Qty;
6. Tax_Amt = Do_Amt * ,1;
7. Order_Amt = Do_Amt + Tax_Amt;

```
DO WHILE not EOF M08-File and M08-Customer_Id <> Customer_Id
        READ M08-File sequentially;
            IF M08-Customer_Id = Customer_Id
                READ M08-Customer_Name, M08-Wh_Id;
            END IF;
END DO;
DO WHILE not EOF M01-File and M01-Stock_Id <> Stock_Id
        READ M01-File sequentially;
            IF M01-Stock_Id = Stock_Id
                READ M01-Stock_Desc;
            END IF;
```

END DO;

8. DISPLAY Customer_Name, Stock_Desc, Wh_Id, Order_Qty, Unit_Price, Order_Discount, Payment_Term, Required_Date, Do_Amt, Tax_Amt, Order_Amt;

   APPEND M05-File;

9. END.

MODULE 1.3 : Inquiry on Supplier Information

Objectives : To inquire on supplier information for placing order

Used : 1. Receiving Master File M03-File

2. Purchase Order Master File M04-File

3. Supplier Master File M07-File

4. Item Master File M01-File

Returns : 1. Supplier Status Screen

1. CALL E02 Screen;
2. GET Stock_Id;

DO WHILE not EOF M01-File and M01-Stock_Id <> Stock_Id

READ M01-File sequentially;

END DO;

GET M01-Stock_Desc;

3. DO WHILE not EOF M04-File and M04-Stock_Id <> Stock_Id

READ M04-File Sequentially;

IF M04-Stock_Id = Stock_Id and M04-Receiving_No > 0

DO WHILE not EOF M03-File & M04-Receiving_No <> M03-Receiving_No

READ M03-File sequentially;

END DO;

GET M03-Receiving_Date;

DO WHILE not EOF M07-File and M07-Supplier_Id <> M04-Supplier_Id

READ M07-File sequentially;

END DO;

READ M07-Supplier_Name;

END IF;

DISPLAY M03-Receiving_Date, M07-Supplier_Name, M01-Stock_Desc, M04-Unit_Cost, M03-Receiving_Qty, M03-R_Amt;

END DO;

4. END.

MODULE 1.4 : Issue Purchase Order

Objectives : To get information for placing Purchase Order

Used : 1. Purchase Order Master File M04-File

2. Supplier Master File M07-File

3. Item Master File M01-File

Returns : 1. Purchase Order Master File M04-File

1. CALL T31 Screen
2. PO_No = Last_PO_No + 1
3. PO_Date = Today_Date
4. Wh_Id = Default warehouse;
5. GET Supplier_Id, Stock_Id, Quantity, Unit_Cost, Discount, Required_Date;
6. R_Amt = (1 – (Unit_Cost * Discount)) * Quantity;
7. R_Tax_Amt = R_Amt * ,1;
8. Purchase_Amt = R_Amt + R_Tax_Amt;

```
DO WHILE not EOF M07-File and M07-Supplier_Id <> Supplier_Id
        READ M07-File sequentially;
            IF M07-Supplier_Id = Supplier_Id
                READ M07-Supplier_Name;
            END IF;
END DO;
DO WHILE not EOF M01-File and M01-Stock_Id <> Stock_Id
        READ M01-File sequentially;
            IF M01-Stock_Id = Stock_Id
                READ M01-Stock_Desc;
            END IF;
```

END DO;

9. DISPLAY Supplier_Name, Stock_Desc, Quantity, Unit_Cost, Discount, R_Amt, R_Tax_Amt, Purchase_Amt, Required_Date, Wh_Id;

   APPEND M04-File;

10. END.

MODULE 2.1 : Print Stock Taking List

Objectives : To Print Out Stock Taking List

Used : 1. Item Master File M01-File

2. Stock Balance File S11-File

3. Stock Control File S10-File

Returns : 1. Temp Stock Taking File S12-File

1. Open File;
2. CALL S01 Screen;
3. GET Wh_Id, Today_Date;
4. Month_of_Report = Current_Month;
5. DO WHILE not EOF M01-File

READ M01-File sequentially indexed by Stock_Id;

DO WHILE not EOF S11-File and S11-Stock_Id <> M01-Stock_Id

READ S11-File Sequentially indexed by Stock_Id;

END DO;

IF M01-Stock_Id = S11-Stock_Id and S11-Month =

Month_of_Report – 1;

GET S11-Stock_Id, S11-End_Qty, S11-Total_Item_Amt, M01-

Stock_UOM;

Total_item_Qty = S11-End_Qty;

Total_item_Amt = S11-Total_item_Amt;

Unit_Cost = Total_item_Amt / Total_item_Qty;

6. DO WHILE not EOF

READ S10-File sequentially indexed by Stock_Id;

IF M01-Stock_Id = S10-Stock_Id and S10-Wh_Id = Wh_Id and S10-Date in Month_of_Report THEN

Total_Item_Qty = Total_Item_Qty+S10-Quantity–S10-Order_Qty;

Do_Cost_Amt = Unit_Cost * S10-Order_Qty;

Total_Item_Amt = Total_Item_Amt + S10-R_Amt – Do_Cost_Amt;

Unit_Cost = Total_Item_Amt / Total_Item_Qty;

END IF;

END DO;

APPEND S12-File Stock_Id, Stock_Desc, Unit_Cost, Total_Item_Qty, Stock_UOM;

END DO;

7. PRINT Head;
8. PRINT S12-Stock_Id, S12-Stock_Desc, S12-Stock_UOM;
9. Close File;
10. END

MODULE 2.2 : Stock Taking Entry

Objectives : To Update Actual Stock Count

Used : 1. Stock Taking File S12-File

Returns : 1. Stock Taking File S12-File

1. Open File;
2. CALL S02 Screen;
3. GET Stock_Count_Id, Count_Qty;

   READ S12-File sequentially;

   IF S12-Stock_Id = Stock_Count_Id

   THEN Diff_Qty = Count_Qty – S11-Total_Item_Qty;

   Diff_Amt = Diff_Qty * Unit_Cost;

   UPDATE S12-Count_Qty, S12-Diff_Qty, S12-Diff_Amt;

   END IF;
4. Close File.

MODULE 2.3 : Prepare Stock Taking Report

Objectives : To print out Stock Taking Report

Used : 1. Stock Taking Files S12-File

Returns : 1. Print Files

1. Open File;
2. Total Diff = 0;
3. PRINT Head;
4. DO WHILE not EOF

    READ S12-File Sequentially;

        PRINT Stock_Id, Stock_Desc, Stock_UOM, Unit_Cost,

        Total_Item_Qty, Count_Qty, Diff_Qty, Diff_Amt;

        Total Diff = Total Diff + Diff_Amt;

    END DO;
5. PRINT Total Diff;
6. Close File.

MODULE 2.4 : Stock Adjustment

Objectives : To adjust the differences when counting to Stock Control File

Used : 1. Stock Taking File S11-File

2. Stock Control File S10-File

Returns : 1. Stock Control File S10-File

1. CALL E05 Screen;
2. GET Wh_Id;
3. DO WHILE not EOF

READ S11-File sequentially;

IF S11-Diff_Qty > 0 and S11-Wh_Id = Wh_Id

DO WHILE not EOF S10-File & S10-Stock_Id <> S11-Stock_Id

READ S10-File sequentially;

END DO;

Doc_No = 0

S10-Doc_Date = Today_Date;

S10-Stock_Id = S11-Stock_Id

S10-Quanaity = S11-Diff_Qty

S10-R_Amt = S11-Diff_Amt

APPEND Doc_No, Doc_Date, Stock_Id, Quantity, R_Amt,

Wh_Id;

END IF;

END DO;

6. Close File.

MODULE 3.1 : Stock In Entry

Objectives : To add purchase data to Receiving Master File

Used : 1. Receiving Master File M03-File

2. Purchase Order Master File M04-File

3. Supplier Master File M07-File

4. Item Master File M01-File

Returns : 1. Receiving Master File M03-File

2. Purchase Order Master File M04-File

3. Stock Control File S10-File

1. Open File;
2. DO WHILE not EOF M03-File

   READ M03-File sequentially;

   END DO;
3. Receiving_No = Last_Receiving_No + 1;
4. Receiving_Date = Today_Date;
5. Wh_Id = Default Warehouse;
6. CALL T01 Screen;
7. GET Receiving_Flag;

   CALL T02 Screen;

   GET PO_No;

   DO WHILE not EOF M04-File

   READ M04-File Sequentially indexed by PO_No;

   IF M04-PO_No = PO_No

   DO WHILE not EOF M07-File and M07-Supplier_Id <> M04-Supplier_Id

READ M07-File sequentially indexed by Supplier_Id;

IF M07-Supplier_Id = M04-Supplier_Id

READ M07-Supplier_Name;

END IF;

END DO;

DO WHILE not EOF M01-File & M01-Stock_Id <> M04-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M04-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

DISPLAY M04-PO_No, M04-PO_Date, M07-Supplier_Name, M01-Stock_Desc, M04-Quantity, M04-R_Amt;

END IF;

END DO;

PRINT M03-Receiving_No, M03-Receiving_Date, M07-Supplier_Name, M01-Stock_Desc, M04-Quantity, M04-R_Amt;

APPEND M03-File, S10-File;

UPDATE M04-Remark = R;

8. Close File.

MODULE 3.2 : Return Stock

Objectives : To add return data to Receiving Master File

Used : 1. Receiving Master File M03-File

2. Delivery Master File M02-File

3. Order Master File M05-File

4. Customer Master File M08-File

5. Item Master File M01-File

Returns : 1. Receiving Master File M03-File

2. Order Master File M05-File

3. Stock Control File S10-File

1. Open File;
2. DO WHILE not EOF M03-File

   READ M03-File sequentially;

   END DO;
3. Receiving_No = Last_Receiving_No + 1;
4. Receiving_Date = Today_Date;
5. Wh_Id = Default Warehouse;
6. CALL T01 Screen;
7. GET Receiving_Flag;

   CALL T03 Screen;

   GET Do_No;
8. DO WHILE not EOF M02-File and M02-Do_No <> Do_No

   READ M02-File sequentially;

   END DO

   DO WHILE not EOF M05-File indexed by Order_No

READ M05-File sequentially;

IF M05-Do_No = M02-Do_No

DO WHILE not EOF M08-File and M08-Customer_Id <> M05-Customer_Id

READ M08-File sequentially;

IF M08-Customer_Id = M05-Customer_Id

READ M08-Customer_Name, M08-Wh_Id;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M05-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M05-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

DISPLAY M08-Customer_Name, M01-Stock_Desc, M05-Order_Qty, M05-Do_Amt;

END IF;

END IF;

END DO;

PRINT M03-Receiving_No, M03-Receiving_Date, M08-Customer_Name, M01-Stock_Desc, M05-Order_Qty, M05-Do_Amt;

APPEND M03-File, S10-File;

UPDATE M05-Remark = R;

9. Close File.

MODULE 4.1 : List Outstanding Order

Objectives : List all un-delivery order

Used : 1. Delivery Master File M02-File

2. Order Master File M05-File

Returns : 1. Outstanding Order Screen

1. Open File;
2. CALL T11 Screen;
3. DO WHILE not EOF M05-File

READ M05-File Sequentially indexed by Order_No;

IF M05-Do_No = O

IF Required_Date <= Today_Date

DISPLAY M05-Order_No, M05-Customer_Id, M05-Stock_Id,

M05-Order_Qty, M05-Required_Date;

END IF;

END IF;

END DO;

4. Close File.

MODULE 4.2 : Stock Out Entry

Objectives : To add delivery data to Delivery Master File

Used : 1. Delivery Master File M02-File

2. Order Master File M05-File

Returns : 1. Delivery Master File M02-File

2. Order Master File M05-File

3. Stock Control File S10-File

1. Open File;
2. CALL T11 Screen;
3. GET Order_No;
4. READ M02-File indexed by Do_No;

   Do_No = Last_Do_no = 1;

   Do_Date = Today_Date;

   Wh_Id = Default Warehouse;
5. DO WHILE not EOF M05-File

   READ M05-File Sequentially;

   IF M05-Order_No = Order_No

   DO WHILE not EOF M08-File and M08-Customer_Id <> M05-Customer_Id

   READ M08-File sequentially;

   IF M08-Customer_Id = M05-Customer_Id

   READ M08-Customer_Name, M08-Wh_Id;

   END IF;

   END DO;

   DO WHILE not EOF M01-File and M01-Stock_Id <> M05-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M05-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

DISPLAY M02-Order_No, M02-Order_Date, M08-Customer_Name,

M01-Stock_Desc, M05-Order_Qty, M05-Do_Amt;

END IF;

END DO;

UPDATE M05-File;

APPEND S10-File, M02-File;

PRINT (Delivery Data);

6. Close File.

MODULE 5.1 : Generate Delivery Report

Objectives : To Summary Delivery of Stock

Used : 1. Delivery Master File M02-File

2. Order Master File M05-File

3. Customer Master File M08-File

4. Item Master File M01-File

Returns : 1. Print File

1. Open File;
2. CALL R02 Screen;
3. GET Month_of_Report, Delivery_Flag, Wh_Id;
4. Monthly Do_Amt = 0;
5. Monthly Tax_Amt = 0;
6. Monthly Total = 0;
7. PRINT Head;
8. DO WHILE not EOF M02-File

READ M02-File sequentially;

READ M02-Order_No;

IF M02-Do_Date in Month_of_Report & M02-Delivery_Flag = Delivery_Flag

DO WHILE not EOF M05-File indexed by Order_No

READ M05-File sequentially;

IF M05-Do_No = M02-Do_No

Unit Price = M05-Do_Amt / Order_Qty;

DO WHILE not EOF M08-File and M08-Customer_Id <> M05-Customer_Id

READ M08-File sequentially;

```
                    IF M08-Customer_Id = M05-Customer_Id
                        READ M08-Customer_Name, M08-Wh_Id;
                    END IF;
                END DO;
                IF M08-Wh_Id = Wh_Id THEN
                DO WHILE not EOF M01-File and M01-Stock_Id <> M05-
                Stock_Id
                    READ M01-File sequentially;
                        IF M01-Stock_Id = M05-Stock_Id
                            READ M01-Stock_Desc;
                        END IF;
                END DO;
                PRINT M02-Do_No, M02-Do_Date, M08-Customer_Name,
                M01-Stock_Desc, M05-Order_Qty, Unit Price, M05-Do_Amt,
                M05-Tax_Amt, M05-Order_Amt);
                    Monthly Do_Amt  = Monthly Do_Amt + M05-Do_Amt;
                    Monthly Tax_Amt = Monthly Tax_Amt + M05-
                    Tax_Amt;
                    Monthly Total = Monthly Total + M05-Order_Amt;
                END IF;
            END DO;
        END IF;
    END DO;
```

9. PRINT Monthly Do_Amt, Monthly Tax_Amount, Monthly Total;
10. Close File

MODULE 5.2 : Generate Stock Movement Report

Objectives : To show the movement of Stock.

Used : 1. Stock Control File S10-File

2. Stock Balance File S11-File

3. Item Master File M01-File

Returns : 1. Print File

1. Open File;
2. CALL R01 Screen;
3. GET Wh_Id, Month_of_Report;
4. PRINT Head;
5. DO WHILE not EOF M01-File

READ M01-File sequentially indexed by Stock_Id;

DO WHILE not EOF S11-File and S11-Stock_Id <> M01-Stock_Id

READ S11-File sequentially indexed by Stock_Id;

END DO;

IF M01-Stock_Id = S11-Stock_Id and S11-Month =

Month_of_Report – 1;

GET S11-Stock_Id, S11-End_Qty, S11-Total_Item_Amt, M01-

Stock_UOM;

Total_item_Qty = S11-End_Qty;

Total_item_Amt = S11-Total_item_Amt;

Unit_Cost = Total_item_Amt / Total_item_Qty;

6. DO WHILE not EOF S10-File

READ S10-File sequentially indexed by Stock_Id;

IF M01-Stock_Id = S10-Stock_Id and S10-Wh_Id = Wh_Id and S10-Date in Month_of_Report THEN

Total_Item_Qty = Total_Item_Qty + S10-Quantity – S10-Order_Qty;

Do_Cost_Amt = Unit_Cost * S10-Order_Qty;

Total_Item_Amt = Total_Item_Amt + S10-R_Amt – Do_Cost_Amt;

Unit_Cost = Total_Item_Amt / Total_Qty;

PRINT S10-Doc_No, S10-Doc_Date, S10-Quantity, S10-Order_Qty, Unit_Cost, Total_item_Qty, Total_item_Amt;

END IF;

END DO;

PRINT Total_item_Qty, Unit_Cost, Total_Item_Amt;

Total_Amt = Total_Amt + Total_item_Amt;

END DO;

PRINT Total_Amt;

UPDATE S11-Stock_Id, S11-End_Qty, S11-Month, S11-Total_item_Amt, S11-Wh_Id;

7. Close File;
8. END.

MODULE 5.3 : Generate Receiving Report

Objectives : To summarize Receiving of Stock

Used : 1. Receiving Master File M03-File

2. Purchase Order Master File M04-File

3. Supplier Master File M07-File

4. Item Master File M01-File

Returns : 1. Print File

1. Open File;
2. CALL R03 Screen;
3. GET Month_of_Report, Receiving_Flag, Wh_Id;
4. Monthly R_Amt = 0;
5. Monthly R_Tax_Amt = 0;
6. Monthly Purchase_Amt = 0;
7. PRINT Head;
8. DO WHILE not EOF M03-File

READ M03-File sequentially;

READ M03-Receiving_No, M03-Do_No;

IF M03-Receiving_Date in Month_of_Report and M03-Receiving_Flag = Receiving_Flag

DO WHILE not EOF M04-File

READ M04-File sequentially indexed by PO_No;

IF M04-Wh_Id = Wh_Id

IF M03-Receiving_No = M04-Receiving-No

DO WHILE not EOF M07-File and M07-Supplier_Id <> M04-Supplier_Id

READ M07-File sequentially indexed by Supplier_Id;

IF M07-Supplier_Id = M04-Supplier_Id

READ M07-Supplier_Name;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M04-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M04-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

Unit Cost = R_Amt / Quantity;

PRINT M03-Receiving_No, M03-Receiving_Date, M07-Supplier_Name, M01-Stock_Desc, M04-Quantity, Unit Cost, M04-R_Amt, M04-R_Tax_Amt, M04-Purchase_Amt;

Monthly R_Amt = Monthly R_Amt + R_Amt;

Monthly R_Tax_Amt = Monthly R_Tax_Amt;

Monthly Purchase_Amt = Monthly Purchase_Amt + Purchase_Amt;

END IF;

END IF;

END DO;

END IF;

END DO;

9. PRINT Monthly R_Amt, Monthly R_Tax_Amt, Monthly Purchase_Amt;

10. Close File.

MODULE 5.4 : Generate Return Report

Objectives : To summarize Receiving of Stock

Used : 1. Receiving Master File M03-File

2. Delivery Master File M02-File

3. Order Master File M05-File

4. Customer Master File M08-File

5. Item Master File M01-File

Returns : 1. Print File

1. Open File;
2. CALL R03 Screen;
3. GET Month_of_Report, Receiving_Flag, Wh_Id;
4. Monthly Do_Amt, Monthly Tax_Amt, Monthly Total = 0;
5. PRINT Head;
6. DO WHILE not EOF M03-File

READ M03-File sequentially;

READ M03-Receiving_No, M03-Do_No;

IF M03-Receiving_Date in Month_of_Report & M03-Receiving_Flag = Receiving_Flag

DO WHILE not EOF M02-File and M03-Do_No <> M02-Do_No

READ M02-File sequentially indexed by Do_No;

END DO

DO WHILE not EOF M05-File indexed by Order_No

READ M05-File sequentially;

IF M05-Do_No = M02-Do_No

DO WHILE not EOF M08-File & M08-Customer_Id <> M05-Customer_Id

READ M08-File sequentially;

IF M08-Customer_Id = M05-Customer_Id

READ M08-Customer_Name, M08-Wh_Id;

END DO;

IF M08-Wh_Id = Wh_Id

DO WHILE not EOF M01-File and M01-Stock_Id <> M05-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M05-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

Unit Price = Do_Amt / Order_Qty;

PRINT M03-Receiving_No, M03-Receiving_Date, M08-Customer_Name, M01-Stock_Desc, M05-Order_Qty, Unit Price, M05-Do_Amt, M05-Tax_Amt, M05-Order_Amt;

Monthly Do_Amt = Monthly Do_Amt + Do_Amt;

Monthly Tax_Amt = Monthly Tax_Amt + Tax_Amt;

Monthly Total = Monthly Total + Order_Amt;

END IF;

END IF;

END DO;

END IF;

END DO;

7. PRINT Monthly Do_Amt, Monthly Tax_Amount, Monthly Total;
8. Close File.

MODULE 5.5 : Prepare Stock Summary Report

Objectives : To Find Out Ending Balance of Stock.

Used : 1. Stock Balance File S11-File

2. Stock Control File S10-File

3. Item Master File M01-File

Returns : 1. Print File

1. Open File;
2. CALL R04 Screen;
3. Total_Out_Qty, Total_In_Qty = 0;
4. GET Wh_Id, Month_of_Report;
5. PRINT Head;
6. DO WHILE not EOF M01-File

READ M01-File sequentially indexed by Stock_Id;

DO WHILE not EOF and M01-Stock_Id <> S11-Stock_Id

READ S11-File sequentially indexed by Stock_Id;

END DO;

IF M01-Stock_Id = S11-Stock_Id & S11-Month = Month_of_Report – 1;

GET S11-Stock_Id, S11-End_Qty, S11-Total_Item_Amt, M01-Stock_UOM;

Total_Item_Amt = S11-Total_item_Amt;

Unit_Cost = Total_item_Amt / Total_item_Qty;

Total_Amt = 0;

END IF;

END DO;

7. DO WHILE not EOF S10-File

READ S10-File sequentially indexed by Stock_Id;

IF M01-Stock_Id = S10-Stock_Id and S10-Wh_Id = Wh_Id and S10-Date in Month_of_Report THEN

Total_Out_Qty = Total_Out_Qty + S10-Order_Qty;

Total_In_Qty = Total_In_Qty + S10-Quantity;

Do_Cost_Amt = Unit_Cost * S10-Order_Qty;

Total_Item_Amt = Total_item_Amt + S10-R_Amt – Do_Cost_Amt;

END IF;

END DO;

Total_item_Qty = S11-End_Qty + Total_In_Qty – Total_Out_Qty;

8. PRINT Stock_Id, Stock_Desc, S11-End_Qty, Total_In_Qty, Total_Out_Qty, Total_item_Qty, Unit Cost, Total_Item_Amt;
9. Total_Amt = Total_Amt + Total_Item_Amt;

END DO;

10. PRINT Total_Amt;
11. Close File.

MODULE 5.6 : Prepare Slow Moving Stock Report

Objectives : To report management on the slow moving stock

Used : 1. Stock Control File S10-File

2. Stock Balance File S11-File

3. Order Master File M05-File

4. Item Master File M01-File

Returns : 1. Print File

1. CALL R05 Screen;
2. GET Wh_Id, Month_of_Report;
3. PRINT Head;
4. Total_90, Total_180, Total>180 = 0;
5. Total_Slow-Moving = 0;
6. DO WHILE not EOF

   READ S11-File Sequentially;

   READ Stock_Id, Total_item_Qty, Total_item_Amt;

   Unit Cost = Total_item_Amt / Total_item_Qty;

   DO WHILE not EOF M01-File and M01-Stock_Id <> S11-Stock_Id

   READ M01-File sequentially;

   READ M01-Stock_Desc;

   END DO;
7. DO WHILE not EOF S10-File and S10-Stock_Id <> S11-Stock_Id

   READ S10-File Sequentially indexed by Stock_Id;

   END DO;
8. DO WHILE not EOF S10-File and S10-Stock_Id = S11-Stock_Id

   READ S10-File Sequentially indexed by Stock_Id;

Last_Date = S10-Date;

END DO;

9. IF Last_Date < Month_of_Report -180

Total>180 = Total>180 + Total_item_Amt;

END IF;

IF Month_of_Report – 180 < Last_Date < Month_of_Report - 90

Total_180 = Total_180 + Total_item_Amt;

END IF;

IF Month_of_Report – 90 < S10-Date < Month_of_Report

Total_90 = Total_90 + Total_item_Amt;

END IF;

PRINT S11-Stock_Id, M01-Stock_Desc, S11-Total_item_Qty, Unit Cost, S11-Total_item_Amt;

Total_Amt = Total_Amt + Total_item_Amt;

END DO;

Total_Slow-Moving = Total_90 + Total_180 + Total>180;

10. PRINT Total_90, Total_180, Total>180, Total_Slow-Moving;

11. Close File.

MODULE 5.7 : Prepare Purchase Order Status Report

Objectives : To report on the Outstanding Purchase Order

Used : 1. Purchase Order Master File M04-File

2. Supplier Master File M07-File

3. Item Master File M01-File

Returns : 1. Print File

1. CALL R06 Screen;
2. GET Wh_Id;
3. PRINT Head;
4. I = 0;
5. DO WHILE not EOF

READ M04-File sequentially;

IF M04-Remark = O

DO WHILE not EOF M07-File and M07-Supplier_Id <> M04-Supplier_Id

READ M07-File sequentially;

IF M07-Supplier_Id = M04-Supplier_Id

READ M07-Supplier_Name;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M04-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M04-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

PRINT M04-PO_No, M04-PO_Date, M04-Stock_Desc, M04-Supplier_Name,

M04-Quantity, M04-UnitCost, M04-R_Amt, M04-Wh_Id;

I = I + 1;

END IF;

END DO;

PRINT "Total number of Undelivery Purchase Order" I;

6. Close File.

MODULE : Prepare Outstanding Customer Order Report

Objectives : To report on un-delivered order.

Used : 1. Order Master File M05-File

2. Customer Master File M08-File

3. Item Master File M01-File

Returns : 1. Print File

1. CALL R07 Screen;
2. GET Wh_Id;
3. PRINT Head;
4. I = 0;
5. DO WHILE not EOF

READ M05-File sequentially;

IF M05-Do_No = O and M05-Remark <> R

DO WHILE not EOF M08-File and M08-Customer_Id <> M05-Customer_Id

READ M08-File sequentially;

IF M08-Customer_Id = M05-Customer_Id

READ M08-Customer_Name;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M05-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M05-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

Unit Price = Do_Amt / Order_Qty;

PRINT M05-Order_No, M05-Order_Date, M01-Stock_Desc, M05-Customer_Name, M05-Order_Qty, Unit Price, M05-Do_Amt, M05-Required_Date, M05-Wh_Id;

I = I + 1;

END IF;

END DO;

PRINT "Total number of Undelivery Order" I;

6. Close File.

MODULE : Order Status Inquiry

Objectives : To inquire the status of Order From Customer

Used : 1. Order Master File M05-File

2. Delivery Master File M02-File

3. Customer Master File M08-File

4. Item Master File M01-File

Returns : 1. Order Status Screen

1. CALL E03 Screen;
2. GET Order_No;
3. DO WHILE not EOF M05-File and M05-Order_No <> Order_No

READ M05-File sequentially;

IF M05-Order_No = Order_No

DO WHILE not EOF M08-File and M08-Customer_Id <> M05-Customer_Id

READ M08-File sequentially;

IF M08-Customer_Id = M05-Customer_Id

READ M08-Customer_Name;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M05-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M05-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

DO WHILE not EOF M02-File and M02-Do_No <> M05-Do_No

READ M02-File sequentially;

END DO;

IF M02-Order_No = Order_No

READ M02-Delivery_Date;

END IF;

END IF;

END DO;

4. DISPLAY M05-Order_No, M05-Order_Date, M08_Customer_Name, M01-Stock_Desc, M05-Order_Qty, M02-Delivery_Date;
5. END.

MODULE : Purchase Status Inquiry

Objectives : To inquire the Status of Purchase Order

Used : 1. Receiving Master File M03-File

2. Purchase Order Master File M04-File

3. Supplier Master File M07-File

4. Item Master File M01-File

Returns : 1. Purchase Order Status Screen

1. CALL E04 Screen;
2. GET PO_No;
3. DO WHILE not EOF M04-File and M04-PO_No <> PO_No

READ M04-File sequentially

IF M04-PO_No = PO_No and M04-Remark = R

DO WHILE not EOF M07-File and M07-Supplier_Id <> M04-Supplier_Id

READ M07-File sequentially;

IF M07-Supplier_Id = M04-Supplier_Id

READ M07-Supplier_Name;

END IF;

END DO;

DO WHILE not EOF M01-File and M01-Stock_Id <> M04-Stock_Id

READ M01-File sequentially;

IF M01-Stock_Id = M04-Stock_Id

READ M01-Stock_Desc;

END IF;

END DO;

DO WHILE not EOF M03-File and M03-Receiving_No <> M04-Receiving_No

READ M03-File sequentially;

IF M04-Receiving_No = M03-Receiving_No

READ M03-Receiving_Date

END IF

END DO

END IF

END DO

6. DISPLAY M04-PO_No, M04-PO_Date, M07_Supplier_Name, M01-Stock_Desc, M04-Quantity, M03-Receiving_Date;
7. END

APPENDIX C

SCREEN LAYOUT

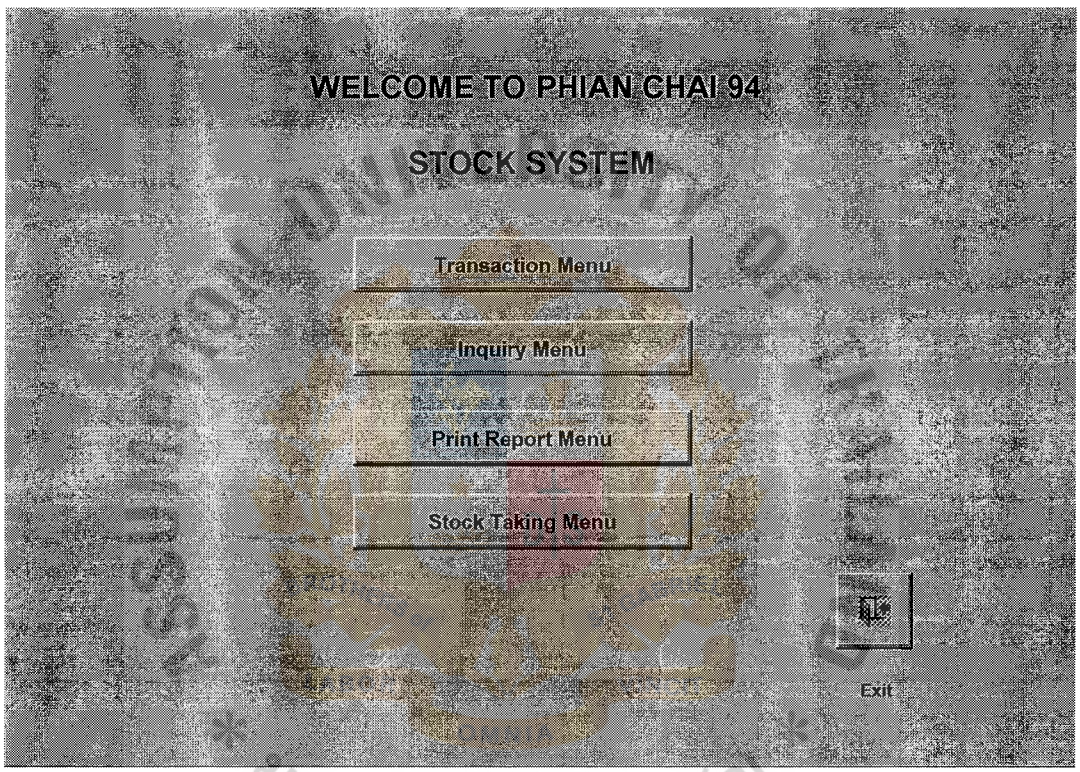

Figure C.1. Main Menu Screen.

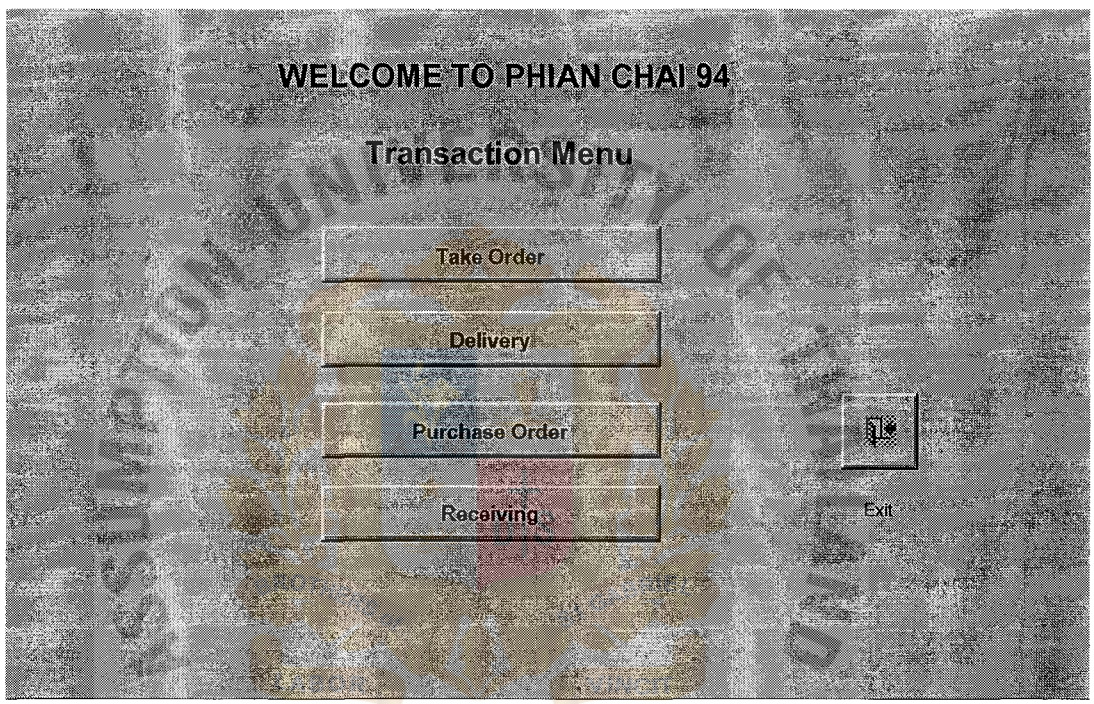

Figure C.2. Transaction Menu Screen.

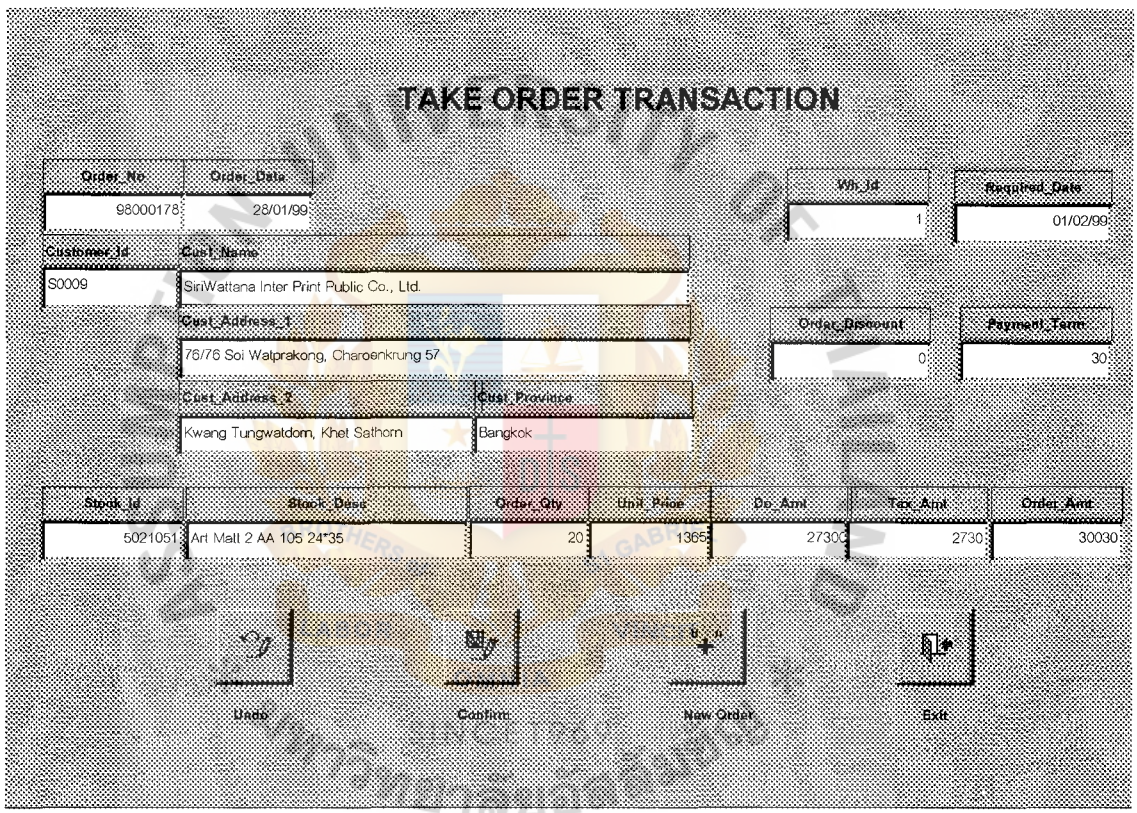

Figure C.3. Take Order Transaction Screen.

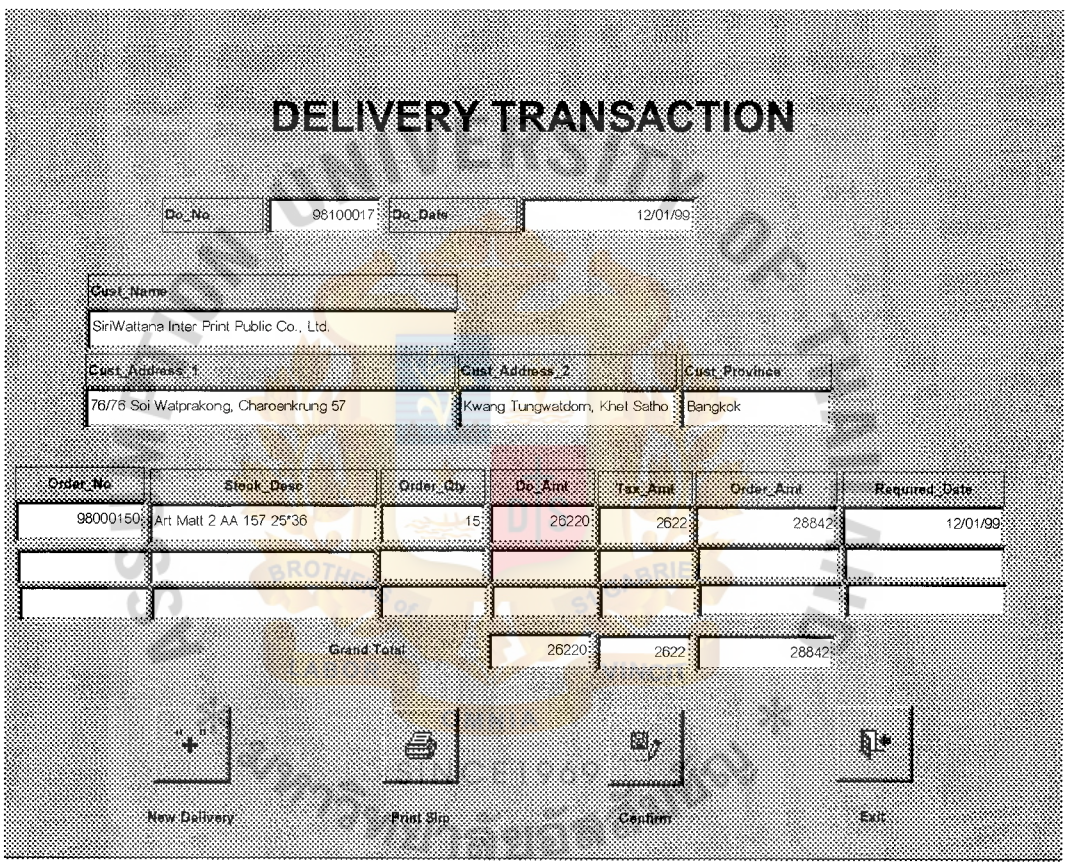

Figure C.4. Delivery Transaction Screen.

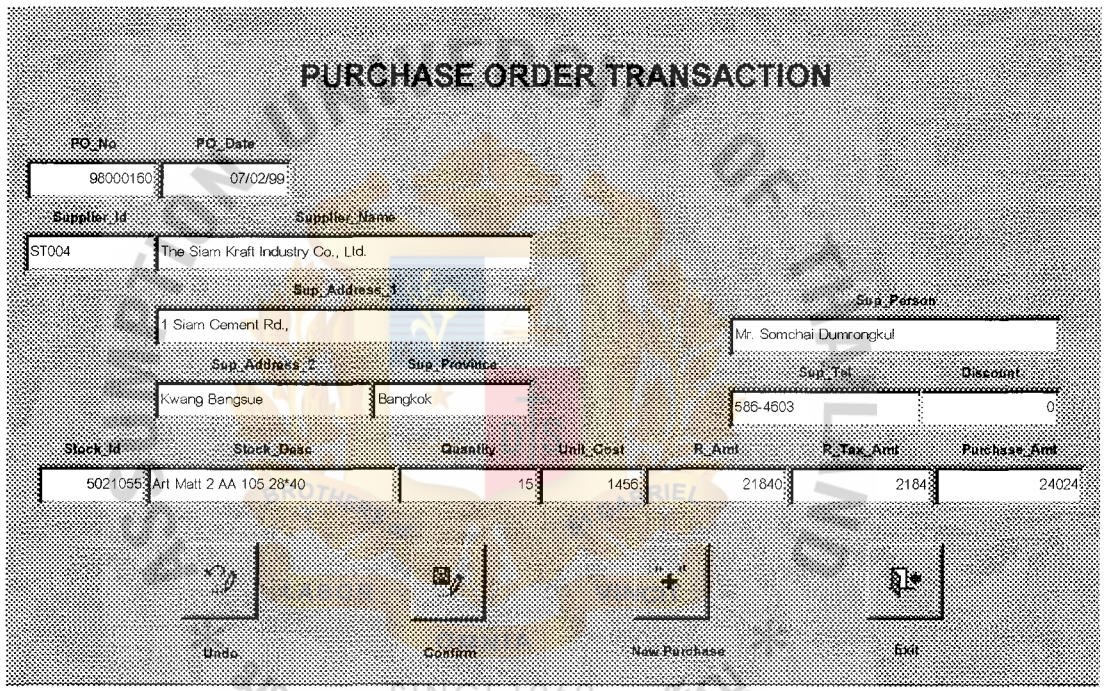

Figure C.5. Purchase Order Transaction Screen.

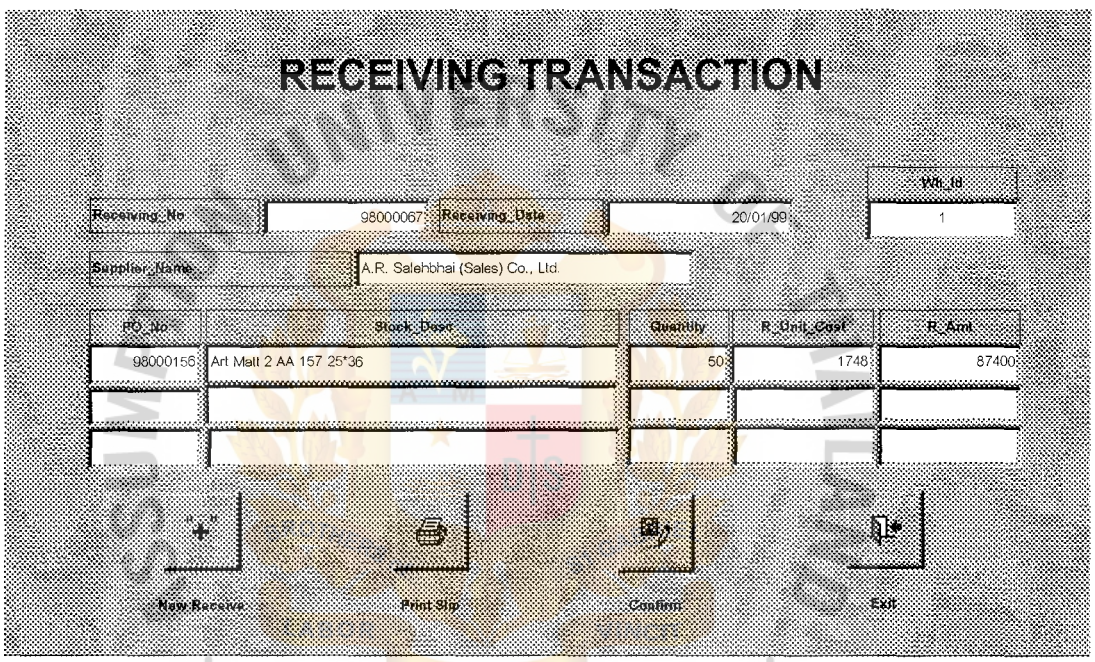

Figure C.6. Receiving Transaction Screen.

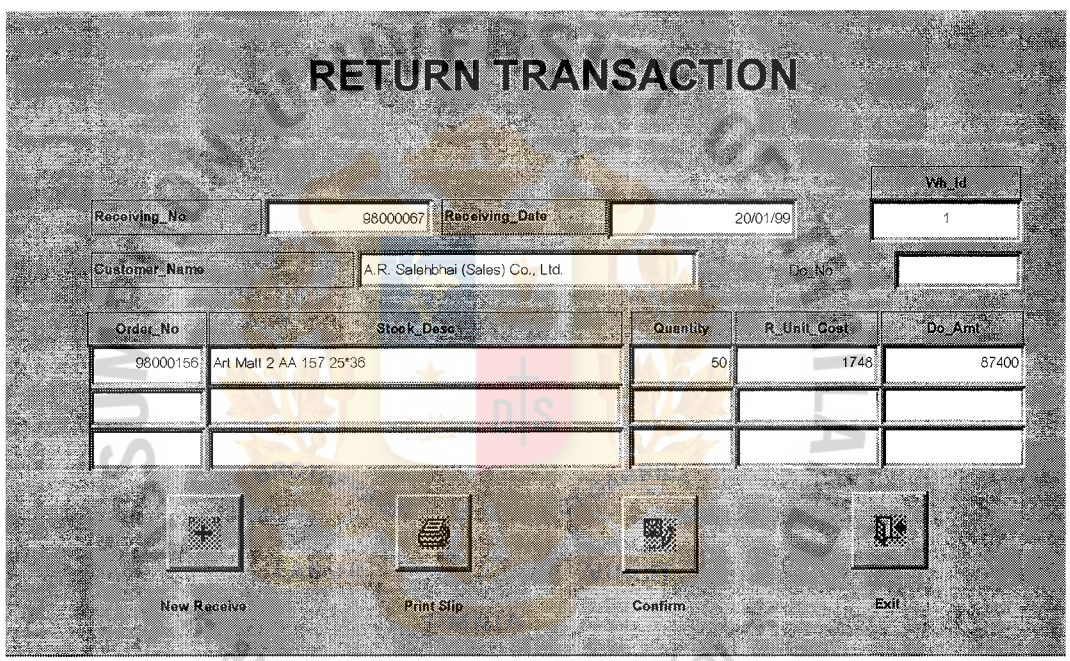

Figure C.7. Return Transaction Screen.

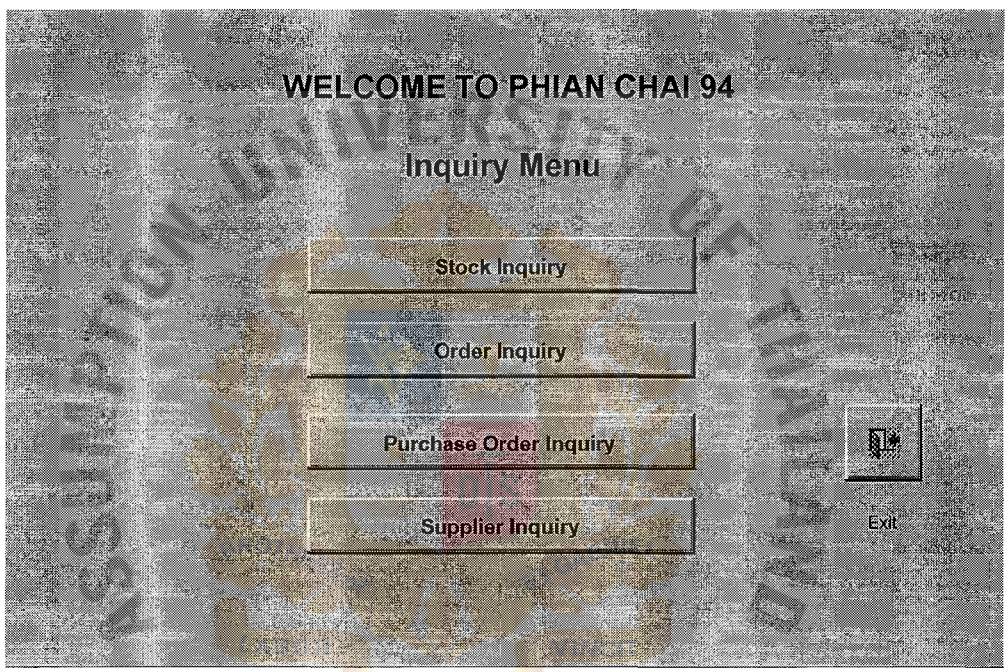

Figure C.8. Inquiry Menu Screen.

Figure C.9. Stock Inquiry Screen.

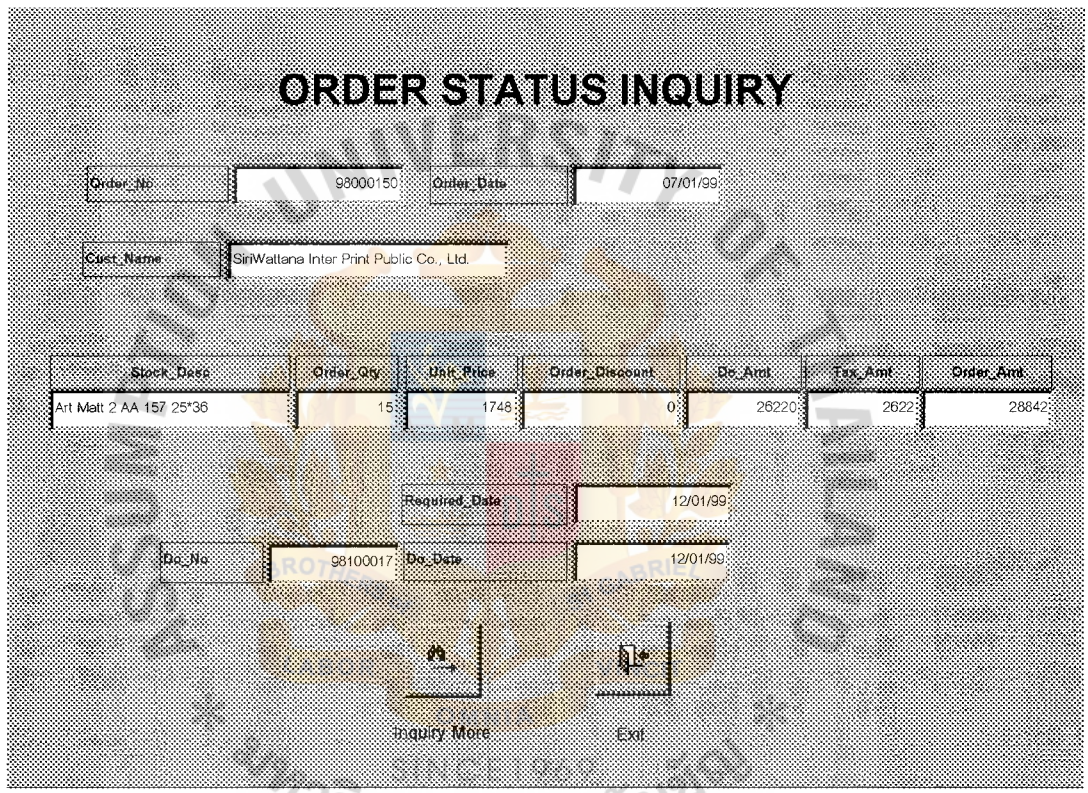

Figure C.10. Order Status Screen.

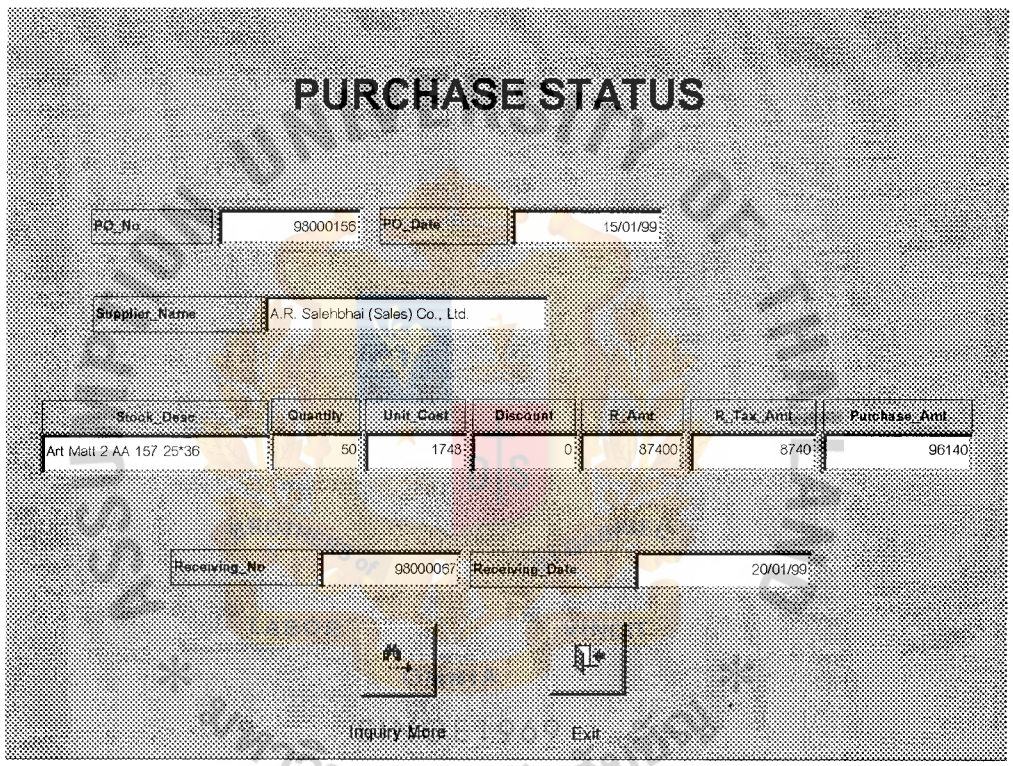

Figure C.11. Purchase Status Screen.

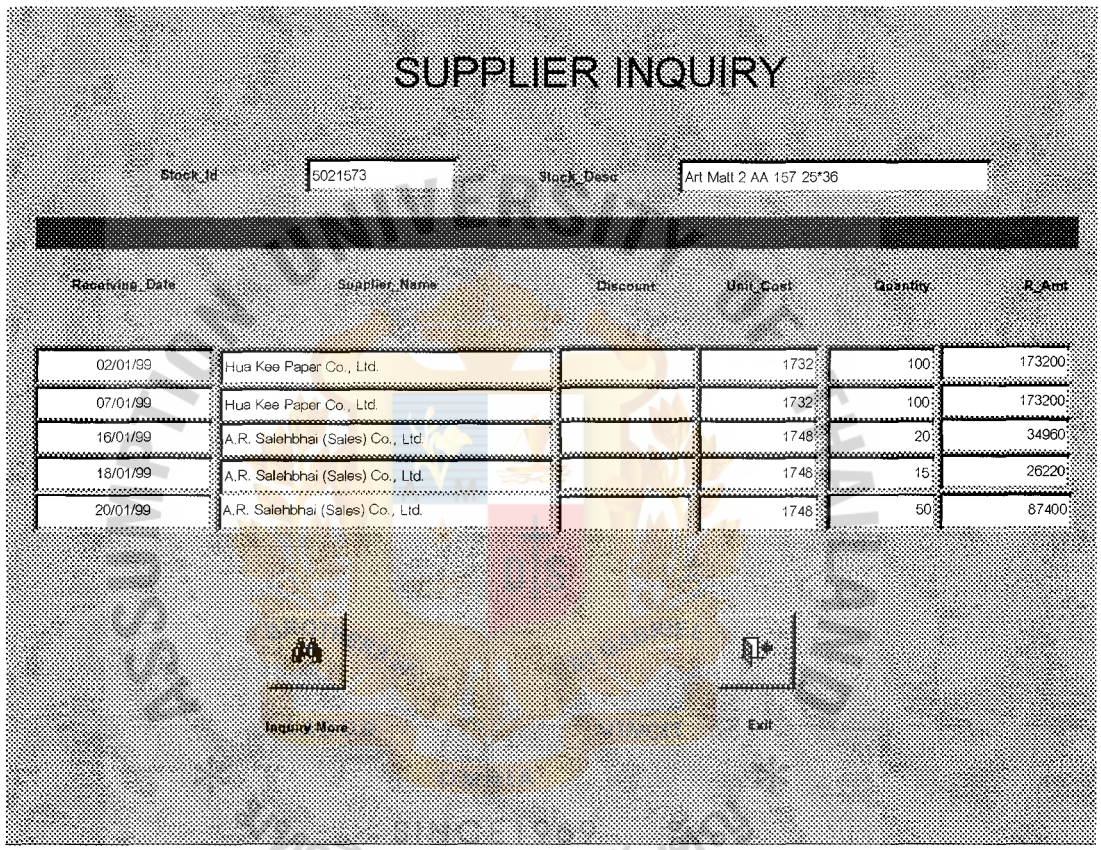

Figure C.12. Supplier Inquiry Screen.

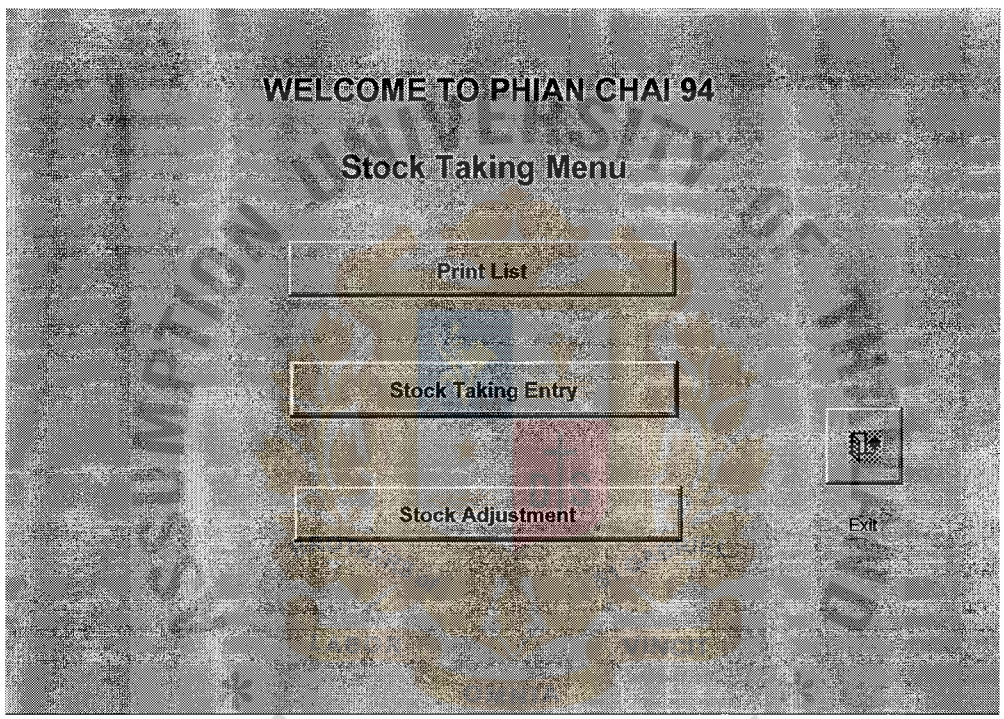

Figure C.13. Stock Taking Menu Screen.

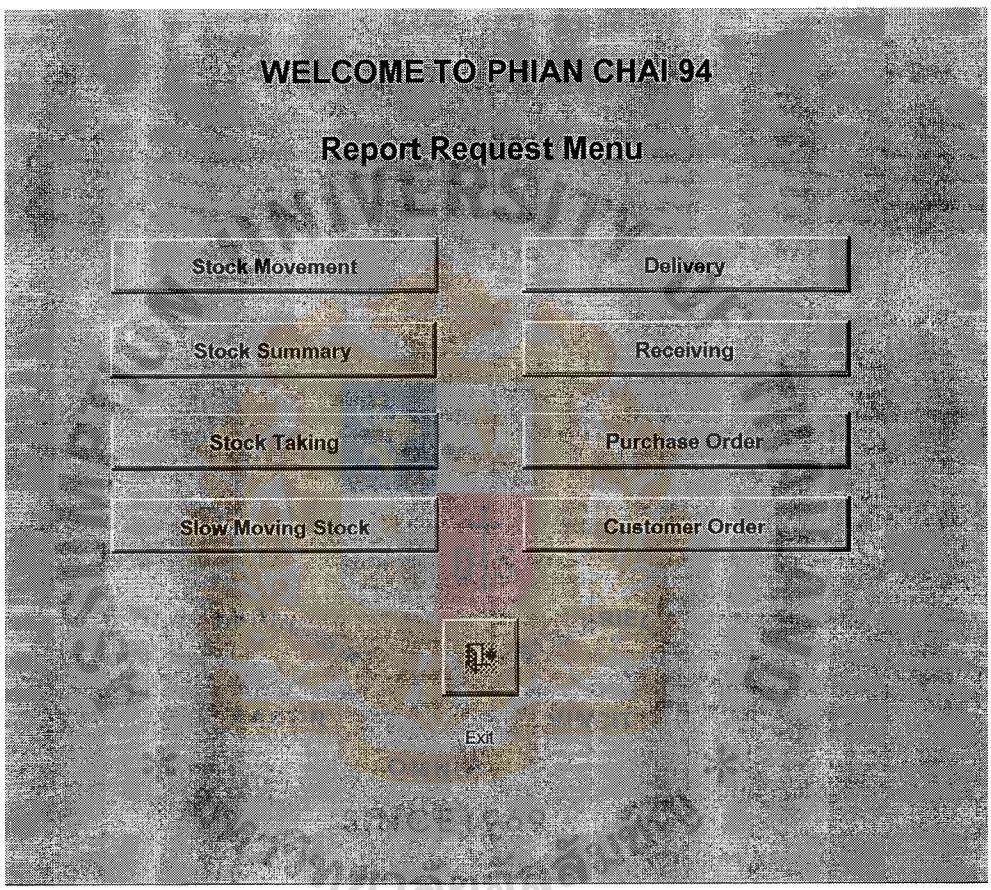

Figure C.14. Report Request Menu Screen.

APPENDIX D

REPORT FORMAT

Phian Chai 94 Co., Ltd. Receiving Report For the Month of : January 1999 Unit : Baht

Receiving No	Receiving Date	Supplier Name	Stock Description	Quantity	Unit Cost	Amount	Tax	Total Amount	Warehouse
98100060	08/01/99	C.A.P. Paper Co., Ltd.	Art Matt 2 AA 128 31*43	3.00	2,112.00	6,336.00	633.60	6,969.60	1
98100061	09/01/99	Tenma Paper Mills (Thailand	Art Matt 2 AA 105 24*35	1.00	1,092.00	1,092.00	109.20	1,201.20	1
98100061	09/01/99	Tenma Paper Mills (Thailand	Art Matt 2 AA 105 25*36	39.00	1,168.00	45,552.00	4,555.20	50,107.20	1
98100062	09/01/99	Tenma Paper Mills (Thailand	Art Matt 2 AA 105 31*43	5.00	1,732.00	8,660.00	866.00	9,526.00	1
98100062	09/01/99	Tenma Paper Mills (Thailand	Art Matt 2 AA 105 25*36	3.40	1,168.00	3,971.20	397.12	4,368.32	1
98100063	09/01/99	Rean Thai Boonyakit Co., Lt	Art Matt 2 AA 128 25*36	5.50	1,428.00	7,854.00	785.40	8,639.40	1
98100064	09/01/99	Saeng Fah Paper & Stationer	Art Matt 2 AA 128 31*43	41.00	2,112.00	86,592.00	8,659.20	95,251.20	1
98100065	10/01/99	Tenma Paper Mills (Thailand	Art Matt 2 AA 157 25*36	13.00	1,748.00	22,724.00	2,272.40	24,996.40	1
98100066	10/01/99	Hua Kee Co., Ltd.	Art Matt 2 AA 105 28*40	3.50	1,456.00	5,096.00	509.60	5,605.60	1
98100066	10/01/99	Hua Kee Co., Ltd.	Art Matt 2 AA 157 25*36	0.25	1,748.00	437.00	43.70	480.70	1
98100067	10/01/99	Hua Kee Co., Ltd.	Art Matt 2 AA 128 25*36	3.00	1,428.00	4,284.00	428.40	4,712.40	1
98100067	10/01/99	Hua Kee Co., Ltd.	Art Matt 2 AA 105 31*43	1.50	1,732.00	2,598.00	259.80	2,857.80	1
98100068	10/01/99	Hua Kee Co., Ltd.	Art Matt 2 AA 128 31*43	0.75	2,112.00	1,584.00	158.40	1,742.40	1
Grand Total						196,780.20	19,678.02	216,458.22	

Figure D.1. Receiving Report.

Phian Chai 94 Co., Ltd. Delivery Report For the Month of : January 1999 Unit : Baht

DO No	DO No	Customer Name	Stock Description	Quantity	Unit Price	Amount	Tax	Total Amount	Warehouse
98100010	04/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 157 25*36	0.60	2,185.00	1,311.00	131.10	1,442.10	1
98100011	05/01/99	Sahapan Paper Co., Ltd.	Art Matt 2 AA 128 31*43	0.40	2,640.00	1,056.00	105.60	1,161.60	1
98100011	05/01/99	Sahapan Paper Co., Ltd.	Art Matt 2 AA 157 24*35	4.60	2,040.00	9,384.00	938.40	10,322.40	1
98100012	08/01/99	Sahachai Pattanapan Co., Ltd	Art Matt 2 AA 128 25*36	1.00	1,785.00	1,785.00	178.50	1,963.50	1
98100013	09/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 105 25*36	1.20	1,460.00	1,752.00	175.20	1,927.20	1
98100013	09/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 105 31*43	2.50	2,165.00	5,412.50	541.25	5,953.75	1
98100014	11/01/99	Sahachai Pattanapan Co., Ltd	Art Matt 2 AA 105 24*35	7.00	1,365.00	9,555.00	955.50	10,510.50	1
98100015	11/01/99	Rean Thai Benjakit Co., Ltd.	Art Matt 2 AA 157 24*35	10.00	2,040.00	20,400.00	2,040.00	22,440.00	1
98100016	11/01/99	Thai Siri Paper Co., Ltd.	Art Matt 2 AA 128 25*36	1.00	1,785.00	1,785.00	178.50	1,963.50	1
98100017	12/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 157 25*36	1.20	2,185.00	2,622.00	262.20	2,884.20	1
98100017	12/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 128 31*43	100.00	2,640.00	264,000.00	26,400.00	290,400.00	1
Grand Total						319,062.50	31,906.25	350,968.75	

Figure D.2. Delivery Report.

Phian Chai 94 Co., Ltd. Outstanding Purchase Order Report For the Month of : January 1999 Unit : Baht

PO No	PO Date	Supplier Name	Stock Description	Quantity	Unit Cost	Amount	Require Date	Warehouse
98000160	07/02/99	Hua Kee Co., Ltd.	Art Matt 2 AA 105 25*36	2.00	1,168.00	2,336.00	09/02/99	1
98000161	07/02/99	Lim Panich Ltd., Part.	Art Matt 2 AA 128 31*43	1.00	2,112.00	2,112.00	12/02/99	1
98000162	07/02/99	T. Kijviboon Trading Ltd.	Art Matt 2 AA 157 24*35	11.00	1,632.00	17,952.00	11/02/99	1
98000163	08/02/99	Thai Soon Heng R.O.P.	Art Matt 2 AA 105 31*43	6.00	1,732.00	10,392.00	09/02/99	1
98000164	08/02/99	The Siam Kraft Industry Co., Ltd.	Art Matt 2 AA 128 25*36	1.60	1,428.00	2,284.80	11/02/99	1
98000165	08/02/99	Tenma Paper Mills (Thailand) Co., L	Art Matt 2 AA 157 24*35	3.40	1,632.00	5,548.80	11/02/99	1
98000166	08/02/99	Hua Kee Co., Ltd.	Art Matt 2 AA 128 25*36	1.00	1,428.00	1,428.00	12/02/99	1
98000167	08/02/99	A.R. Salehbhai (Sales) Co., Ltd.	Art Matt 2 AA 157 24*35	1.50	1,632.00	2,448.00	09/02/99	1
98000168	08/02/99	Hua Kee Co., Ltd.	Art Matt 2 AA 105 28*40	7.00	1,456.00	10,192.00	09/02/99	1
98000169	08/02/99	A.R. Salehbhai (Sales) Co., Ltd.	Art Matt 2 AA 105 28*40	0.50	1,456.00	728.00	10/02/99	1
98000170	08/02/99	Rean Thai Boonyakit Co., Ltd.	Art Matt 2 AA 128 24*35	2.00	1,332.00	2,664.00	12/02/99	1
Grand Total						58,085.60		

Figure D.3. Outstanding Purchase Order Report.

Phian Chai 94 Co., Ltd. Outstanding Order Report For the Month of : January 1999 Unit : Baht

Order No	Order Date	Customer Name	Stock Description	Order Quantity	Unit Price	Order Amount	Required Date	Warehouse
98000178	28/01/99	Sawangsilp Printing Co., Ltd.	Art Matt 2 AA 105 24*35	1.40	1,365.00	1,911.00	01/02/99	1
98000179	28/01/99	A.R. Salehbhai (Sales) Co., Lt	Art Matt 2 AA 128 24*35	0.50	1,665.00	832.50	01/02/99	1
98000180	28/01/99	Sarmsan Printing Co., Ltd.	Art Matt 2 AA 105 28*40	2.00	1,820.00	3,640.00	01/02/99	1
98000181	28/01/99	M Corporate Graphic Co., Ltd.	Art Matt 2 AA 157 24*35	1.00	2,040.00	2,040.00	01/02/99	1
98000182	28/01/99	Bright Net Group Co., Ltd.	Art Matt 2 AA 105 31*43	1.20	2,165.00	2,598.00	01/02/99	1
98000183	28/01/99	S&P Intergroup Co., Ltd.	Art Matt 2 AA 105 28*40	3.00	1,820.00	5,460.00	01/02/99	1
98000184	29/01/99	Ruam Jarlearn Paper Co., Ltd.	Art Matt 2 AA 157 25*36	3.00	2,185.00	6,555.00	02/02/99	1
98000185	29/01/99	Act Mee Printing Co., Ltd.	Art Matt 2 AA 157 25*36	1.50	2,185.00	3,277.50	02/02/99	1
98000185	29/01/99	Grand Inter Print Co., Ltd.	Art Matt 2 AA 157 24*35	0.60	2,040.00	1,224.00	02/02/99	1
98000185	29/01/99	Grand Inter Print Co., Ltd.	Art Matt 2 AA 157 25*36	3.00	2,185.00	6,555.00	02/02/99	1
98000185	29/01/99	Krung Thai Paper Co., Ltd.	Art Matt 2 AA 128 25*36	5.00	1,785.00	8,925.00	02/02/99	1
98000185	29/01/99	Thai Siri Paper Co., Ltd.	Art Matt 2 AA 157 24*35	0.50	2,040.00	1,020.00	02/02/99	1
Grand Total						44,038.00		

Figure D.4. Outstanding Order Report.

Phian Chai 94 Co., Ltd. Stock Summary Report For the Month of : January 1999 Unit : Baht

Stock Id	Stock Description	Beg Balance	Total In	Total Out	End Balance	Unit Cost	Total Amount
5021051	Art Matt 2 AA 105 24*35	80.00	14.25	61.40	32.85	1,092.00	35,872.20
5021053	Art Matt 2 AA 105 25*36	70.00	52.50	66.85	55.65	1,168.00	64,999.20
5021055	Art Matt 2 AA 105 28*40	300.00	15.20	241.70	73.50	1,456.00	107,016.00
5021057	Art Matt 2 AA 105 31*43	147.00	55.90	127.45	75.45	1,732.00	130,679.40
5021281	Art Matt 2 AA 128 24*35	236.00	26.30	72.30	190.00	1,332.00	253,080.00
5021283	Art Matt 2 AA 128 25*36	424.00	82.70	214.90	291.80	1,428.00	416,690.40
5021287	Art Matt 2 AA 128 31*43	350.00	120.05	427.10	42.95	2,112.00	90,710.40
5021571	Art Matt 2 AA 157 24*35	57.00	180.00	160.55	76.45	1,632.00	124,766.40
5021573	Art Matt 2 AA 157 25*36	14.00	209.85	102.75	121.10	1,748.00	211,682.80
5021577	Art Matt 2 AA 157 31*43	67.00	1.00	7.40	60.60	2,592.00	157,075.20
Grand Total							1,592,572.00

Figure D.5. Stock Summary Report.

Phian Chai 94 Co., Ltd. Stock Movement Report For the Month of : January 1999 Unit : Baht

Doc No	Doc Date	Stock Description	Stock In	Unit Cost	Amount	Stock Out	Unit Cost	Amount	Balance	Unit Cost	Item Amount
		Art Matt 2 AA 105 24*35							80.00	1,092.00	87,360.00
98100061	09/01/99	Art Matt 2 AA 105 24*35	1.00	1,092.00	1,092.00			-	81.00	1,092.00	88,452.00
98100014	11/01/99	Art Matt 2 AA 105 24*35			-	7.00	1,092.00	7,644.00	74.00	1,092.00	80,808.00
98100088	12/01/99	Art Matt 2 AA 105 24*35	0.25	1,092.00	273.00			-	74.25	1,092.00	81,081.00
98100099	15/01/99	Art Matt 2 AA 105 24*35	7.00	1,092.00	7,644.00			-	81.25	1,092.00	88,725.00
98100027	16/01/99	Art Matt 2 AA 105 24*35			-	3.00	1,092.00	3,276.00	78.25	1,092.00	85,449.00
98100036	19/01/99	Art Matt 2 AA 105 24*35			-	3.40	1,092.00	3,712.80	74.85	1,092.00	81,736.20
98100125	19/01/99	Art Matt 2 AA 105 24*35	3.00	1,092.00	3,276.00			-	77.85	1,092.00	85,012.20
98100128	19/01/99	Art Matt 2 AA 105 24*35	3.00	1,092.00	3,276.00			-	80.85	1,092.00	88,288.20
98100058	20/01/99	Art Matt 2 AA 105 24*35			-	3.50	1,092.00	3,822.00	77.35	1,092.00	84,466.20
98100069	22/01/99	Art Matt 2 AA 105 24*35			-	0.40	1,092.00	436.80	76.95	1,092.00	84,029.40
98100077	22/01/99	Art Matt 2 AA 105 24*35			-	4.00	1,092.00	4,368.00	72.95	1,092.00	79,661.40
98100096	23/01/99	Art Matt 2 AA 105 24*35			-	1.00	1,092.00	1,092.00	71.95	1,092.00	78,569.40
98100124	24/01/99	Art Matt 2 AA 105 24*35			-	30.00	1,092.00	32,760.00	41.95	1,092.00	45,809.40
98100129	26/01/99	Art Matt 2 AA 105 24*35			-	0.60	1,092.00	655.20	41.35	1,092.00	45,154.20

Figure D.6. Stock Movement Report.

Phian Chai 94 Co., Ltd. Slow Moving Stock Report For the Month of : January 1999 Unit : Baht

Stock Id	Stock Description	90 Days	180 Days	Over 180 Days	Total Quantity	Unit Cost	Total Amount
5020901	Art Matt 2 AA 90 24*35	20.00			20.00	936.00	18,720.00
5020905	Art Matt 2 AA 90 28*40		15.00		15.00	1,248.00	18,720.00
5020907	Art Matt 2 AA 90 31*43	35.00			35.00	1,484.00	51,940.00
5161577	Art Matt 2 J 105 31*43			10.00	10.00	1,432.00	14,320.00
5170791	Art Matt 2 GA 79 24*35		7.00		7.00	726.00	5,082.00
5171571	Art Matt 2 GA 157 24*35			13.00	13.00	1,543.00	20,059.00
Grand Total		55.00	22.00	23.00	100.00		128,841.00

Figure D.7. Slow Moving Stock Report.

Phian Chai 94 Co., Ltd. Stock Taking Report For the Month of : January 1999 Unit : Baht

Receiving No	Stock Description	UOM	Unit Cost	Total Quantity	Count Qty	Diff Quantity	Diff Amount
5020901	Art Matt 2 AA 90 24*35	Ream	936.00	58.00	58.00	-	-
5020905	Art Matt 2 AA 90 28*40	Ream	1,248.00	95.70	95.70	-	-
5020907	Art Matt 2 AA 90 31*43	Ream	1,484.00	85.00	84.00	(1.00)	(1,484.00)
5021051	Art Matt 2 AA 105 24*35	Ream	1,092.00	125.00	124.00	(1.00)	(1,092.00)
5021053	Art Matt 2 AA 105 25*36	Ream	1,168.00	135.00	135.00	-	-
5021055	Art Matt 2 AA 105 28*40	Ream	1,456.00	75.00	75.00	-	-
5021057	Art Matt 2 AA 105 31*43	Ream	1,732.00	93.00	95.00	2.00	3,464.00
5021281	Art Matt 2 AA 128 24*35	Ream	1,332.00	47.00	47.00	-	-
5021283	Art Matt 2 AA 128 25*36	Ream	1,428.00	50.00	52.00	2.00	2,856.00
5021287	Art Matt 2 AA 128 31*43	Ream	2,112.00	71.00	69.00	(2.00)	(4,224.00)
5021571	Art Matt 2 AA 157 24*35	Ream	1,632.00	91.50	91.50	-	-
5021573	Art Matt 2 AA 157 25*36	Ream	1,748.00	32.00	32.00	-	-
5021577	Art Matt 2 AA 157 31*43	Ream	2,592.00	47.60	47.60	-	-
Grand Total							(480.00)

Figure D.8. Stock Taking Report.

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