



# Account Receivable System of Cold Stainless Steel

By

Ms. Leena Utsaharujikul

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

July, 1999



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Project Title                Account Receivable System of Cold Stainless Steel

Name                        Ms. Leena Utsaharujikul

Project Advisor            Dr. Suphamit Chittayasothorn

Academic Year            July 1999


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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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## ABSTRACT

For the new millennium, information technology has the most important role in any organization. The demand and needs of reliable, accurate, timely and economical information by people at any level in the organization is increasing especially for the management level. Therefore, the organization needs the effective and efficient computerized system to increase the company's operation for the new millennium.

Due to the existing system of the company, it is a manual system, which creates many problems in controlling the flow of documents and providing unreliable, inaccurate and inadequate information. Ineffectively, the existing system consumes more time and is more costly. These have some effects on the growth and expansion of the organization

Hence, the Account Receivable System for Cold Stainless Steel Trading Company is developed to increase the operation of the Accounting Department in any functional roles. The objective of the project is mainly to change the system from being a manual system to a computerized system. The scope of the project involves the Account Receivable process including recording account receivable, issuing necessary documents (Sales Order, Tax invoice, Official receipt, Invoice, etc.) and providing all necessary reports to management level as the supporting documents for their consideration in making decisions. The new system will provide the staff of the Accounting Department with information necessary to carry out their working process more effectively and efficiently. This will decrease time and cost of the operation.

The new system is developed in accordance with the Systems Analysis and Design techniques. The new system project is designed to respond to the users' needs. The project will discuss about the user requirements, system design, system implementation,



hardware and software requirements, security and control system including the user support, etc. The new system has been tested and implemented using Microsoft Access.



## ACKNOWLEDGEMENTS

I really appreciate contributions of many persons who have supported me in the completion of my M.S (CIS) degree.

First of all, I would like to express my sincere gratitude to my advisor, Dr. Suphamit Chittayasothorn, for his constant encouragement and invaluable suggestions and guidance.

I am very grateful to all the members of M.S (CIS) Board for their advice. I would like to convey my deepest thanks to all the lecturers of M.S (CIS) program who have imparted their knowledge and experience to me.

I extend my sincere thanks to Ms. Soontharee Utsaharujikul, Accounting Manager, P.K. Steel Co., Ltd. for her cooperation and assistance in providing all information for doing my project.

Finally, my sincerest appreciation goes to my good friends who have spent their precious times and support me with the various work of this project.



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## I. INTRODUCTION

### 1.1 Background of the Project

P.K. Steel Center Co., Ltd. is one of the big distributors of Steel sheet in coil such as Stainless Steel sheet, Hot dipped galvanized Steel sheet, Electro-galvanized Steel sheet, Aluminium sheet and other Stainless Steel fittings which are used in any industries. The company has the average total sales of more than 50 million baht per year with the registered capital of more than 10 million baht.

Now, the company recognizes the importance of Account Receivable as a key in increasing or decreasing the sales and net income of the company. It impacts the sales, inventory, service and cash flow of the company. These have some effects on the growth and success of the company in the near future.

To support the future growth of the company, effective Account Receivable system is developed to achieve the objective in solving this problem. Therefore, the system emphasizes on these significant areas for example Issuing Sales order, Tax invoice, Official receipt and Invoice including the cash collection process. Furthermore, the Account Receivable System will cover all the details of customers, suppliers and product information.

While the new system is being used, the company is fully-integrated and achieving the planned improved capacity of Accounting department including the performance of the staff as well as the reduced operation time and cost.

## **1.2 Project Objectives of the project**

The Project Objectives of the project are as follows:

1. To change the existing system from being a manual system to a computerized system.
2. To analyze, design and implement the Account Receivable control system for cold stainless steel trading company.
3. To reduce cost and time in operation
4. To reserve the future growth of the company

## **1.3 Scope of the Project**

The project will cover the basic requirements of Account Receivable control system which are summarized as follows:

1. To get the customer order and record all Sales order transactions.
2. To issue and record Tax invoice, Official receipts for both cash and credit customers.
3. To issue and record invoice for credit customers.
4. To issue and record Purchase order for the Warehouse Department.
5. To provide and update the customers, supplier, staff information.
6. To generate all necessary reports about sales and account receivable to management level for their consideration in making decisions.

## **1.4 Project Plan**

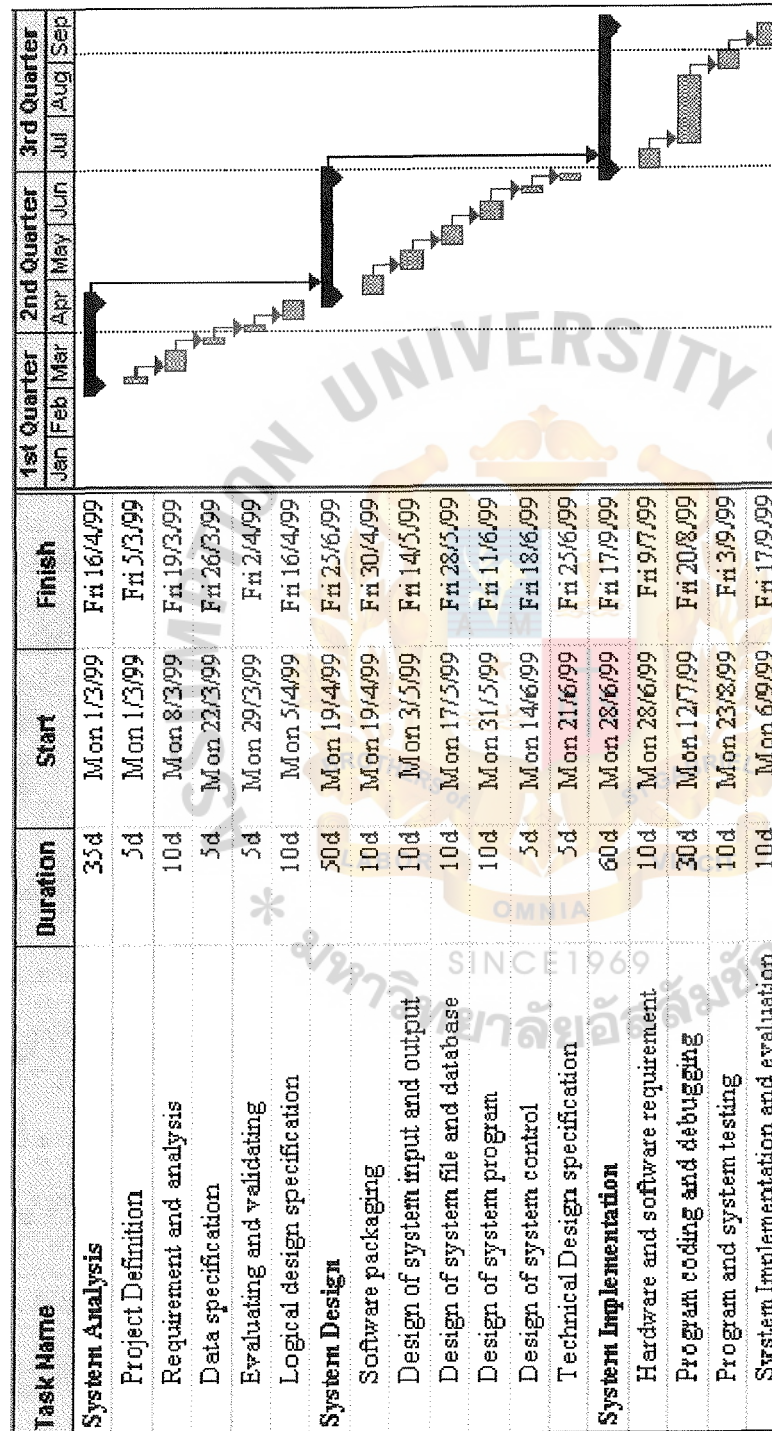


Figure 1.1. Project Schedule.



## II. THE EXISTING SYSTEM

### 2.1 Background of the Company

P.K. Steel Center Co., Ltd. is one of the big distributors of Steel sheet in coil such as Stainless Steel sheet, Hot dipped galvanized Steel sheet, Electro-galvanized Steel sheet, Aluminium sheet and other Stainless Steel fittings which are used in any industries.

The company is located at 28/2 Moo 1 Petchakaseam Rd., Nongkham, Bangkok and has a warehouse at Puttamonthol Rd. The major product line is Stainless Steel sheet. The company has four major departments as show in figure 2.1.



Figure 2.1. Organization Chart.

## **2.2 Existing Business Functions**

The company consists of four major departments and has the following responsibilities:

### **2.2.1 MARKETING DEPARTMENT** Its responsibilities are:

- To achieve the company's mission and objective
- To design the marketing strategy and the marketing plan
- To set price and promotion of the company's product

### **2.2.2 SALES DEPARTMENT** Its responsibilities are:

- To achieve the company's mission and objective
- To follow up the marketing strategy and the marketing plan
- To take care of the customers and get their orders
- To provide all product's knowledge to customer
- To get the invoice from the accounting department and to send them to the customers
- To collect the payment from the customers to the accounting department and take the official receipts back and send them to the customer

### **2.2.3 WAREHOUSE DEPARTMENT** Its responsibilities are:

- To achieve the company's mission and objective
- To get the product requisition from the accounting department
- To prepare the product shipment to customers
- To control and the inventory both in selling and purchasing
- To prepare the inventory report to the accounting department
- To prepare the purchase order to the suppliers
- To check the quality of products

2.2.4 ACCOUNTING DEPARTMENT Its responsibilities are:

- To achieve the company's mission and objective
- To get the customer's order from sales department
- To prepare and issue the product requisition to the warehouse department
- To prepare and issue Sales order, Tax invoice, Official receipt, Invoice and Purchase order.
- To record all accounting transactions
- To prepare the financial statement report to management level
- To collect the payment of Sales order
- To deposit cheque and cash received to the bank every day
- To prepare payment to creditors
- To prepare the bank reconciliation every month
- To generate all necessary reports to management level

### 2.3 Current Problems and Areas for Improvement

The company has some problems about the existing system as follows:

- The existing system is a manual system. It takes more time and is at a higher cost to operate. Furthermore, there is work overload in the Accounting Department because the working processes are so complex and duplicated. It might cause a lack of effective control within the Department.
- The company has no database system to support the use of the computerized system. Each department has a computer used only word processing, spread sheet, and keeping his department's information, etc. There is no database system which is the center processing of information. So, it is inadequate for the user's needs in requiring the information between the departments.
- Management cannot obtain sufficient information and updated reports from the subordinates because the reports are generated both daily and monthly and are prepared by the Accounting Department. It is difficult to prepare the information and report on time. Hence, the information may be incorrect and inaccurate.
- The information of the customers, products, suppliers, staff is not kept in the proper system. The existing system keeps the information only in the book. So, the details of the information are duplicated and need more books to keep them. The company must spend more office space to store the book and other documents about Accounting. It is so difficult to search for the old information and the past documents.



## **2.4 The Existing System**

The existing system of Account Receivable consists of six major processings which are performed by the Accounting staff as follows:

1.0 Process Sales Order: The main function of this process is recording of Sales order from customers. The Sales Manager will verify the order by checking whether the order is Cash sales order or Credit sales order. After that the staff will prepare and issue the product requisition to the Warehouse Department for preparing the product shipment to customers. The Accounting Staff record cash account for cash sales order, issuing Tax invoice, and Official receipt for cash customers. All accounting transactions are recorded in journal ledger. In this process, cash sales order will be sent to the next process.

2.0 Update Cash customer information: This process updates the cash customer information including adding new customer information and modifying the existing cash customer information. The detail of customer information consists of customer's name, address, type of product sold and price in each cash sales order.

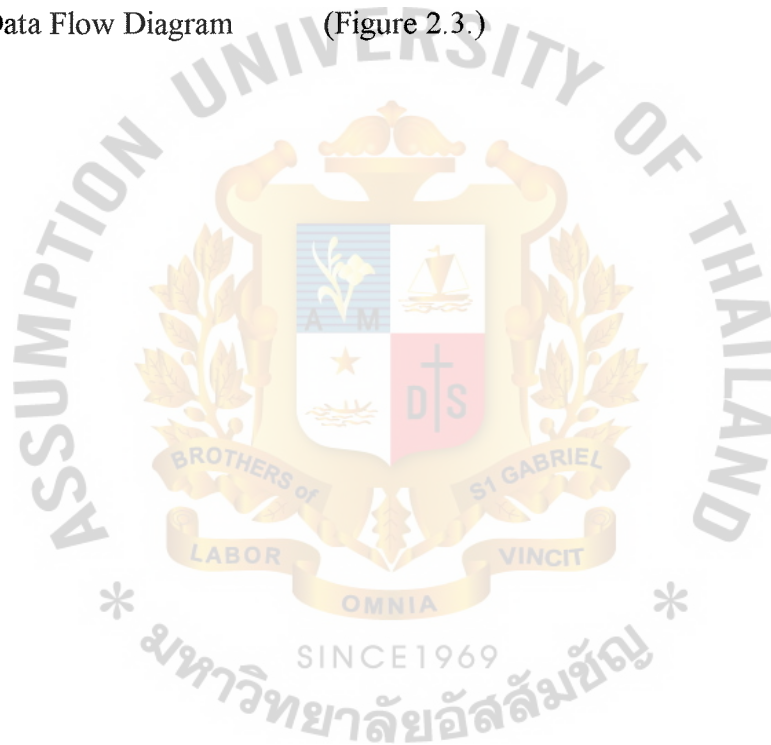
3.0 Process Credit sales order: This process gets the credit sales order from the first process. The Accounting Staff will record Account receivable account for credit customer and issue Tax invoice to Customer. All accounting transactions are recorded in journal ledger.

4.0 Issue invoice: At the end of each month, the Accounting staff must issue an invoice by summarizing the total Account Receivable of each customer manually and Sales staff will send it to customer for requesting payment.

5.0 Cash collection process: After getting payment from credit customer, the Accounting Staff must issue an Official Receipt to credit customer and record the payment in a journal ledger.

6.0 Update credit customer information: This process updates the credit customer information including adding new customer information and modifying the existing credit customer information. The detail of customer information consists of customer's name, address, type of product sold and price in each credit sales order. The following documents will represent the picture of the whole system and the flow of document in each process.

- Context Diagram (Figure 2.2.)
- Data Flow Diagram (Figure 2.3.)



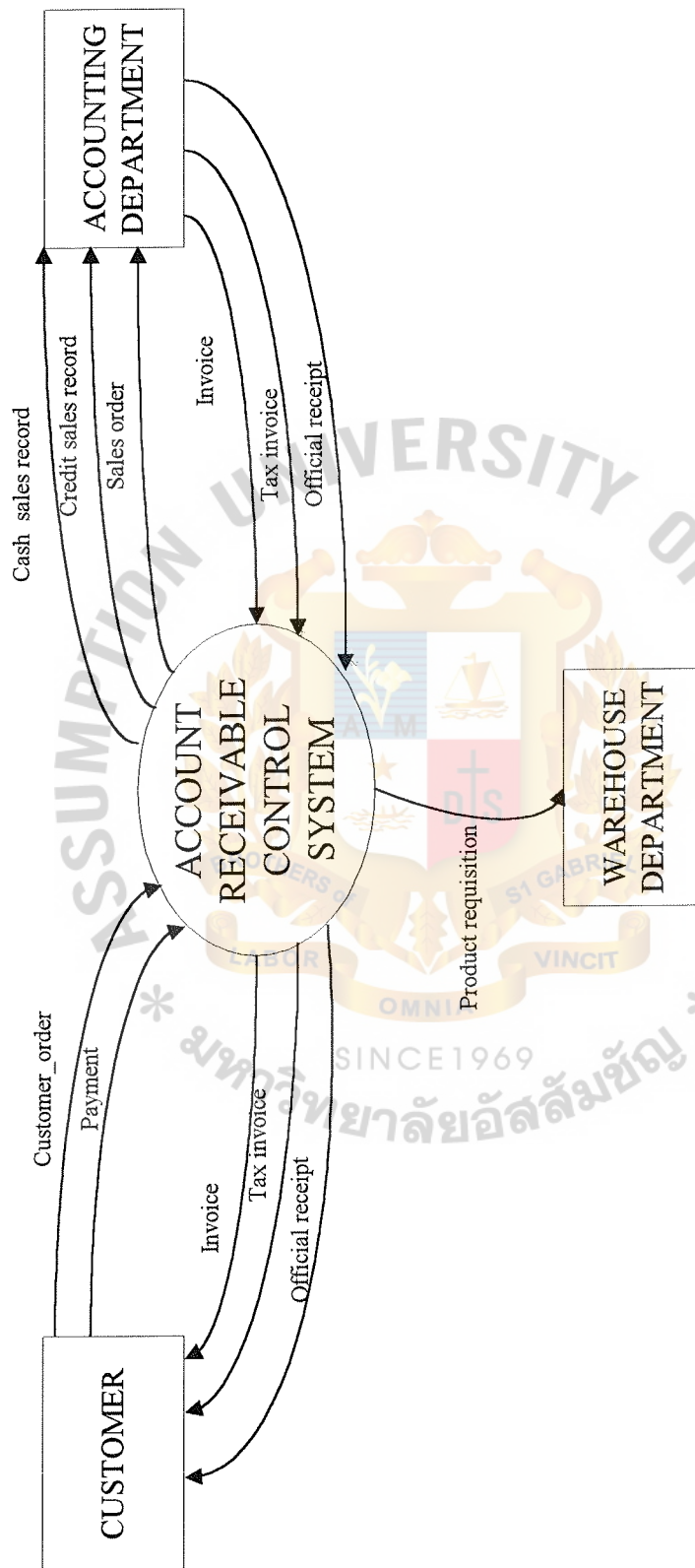


Figure 2.2. The Existing System : Context Diagram.

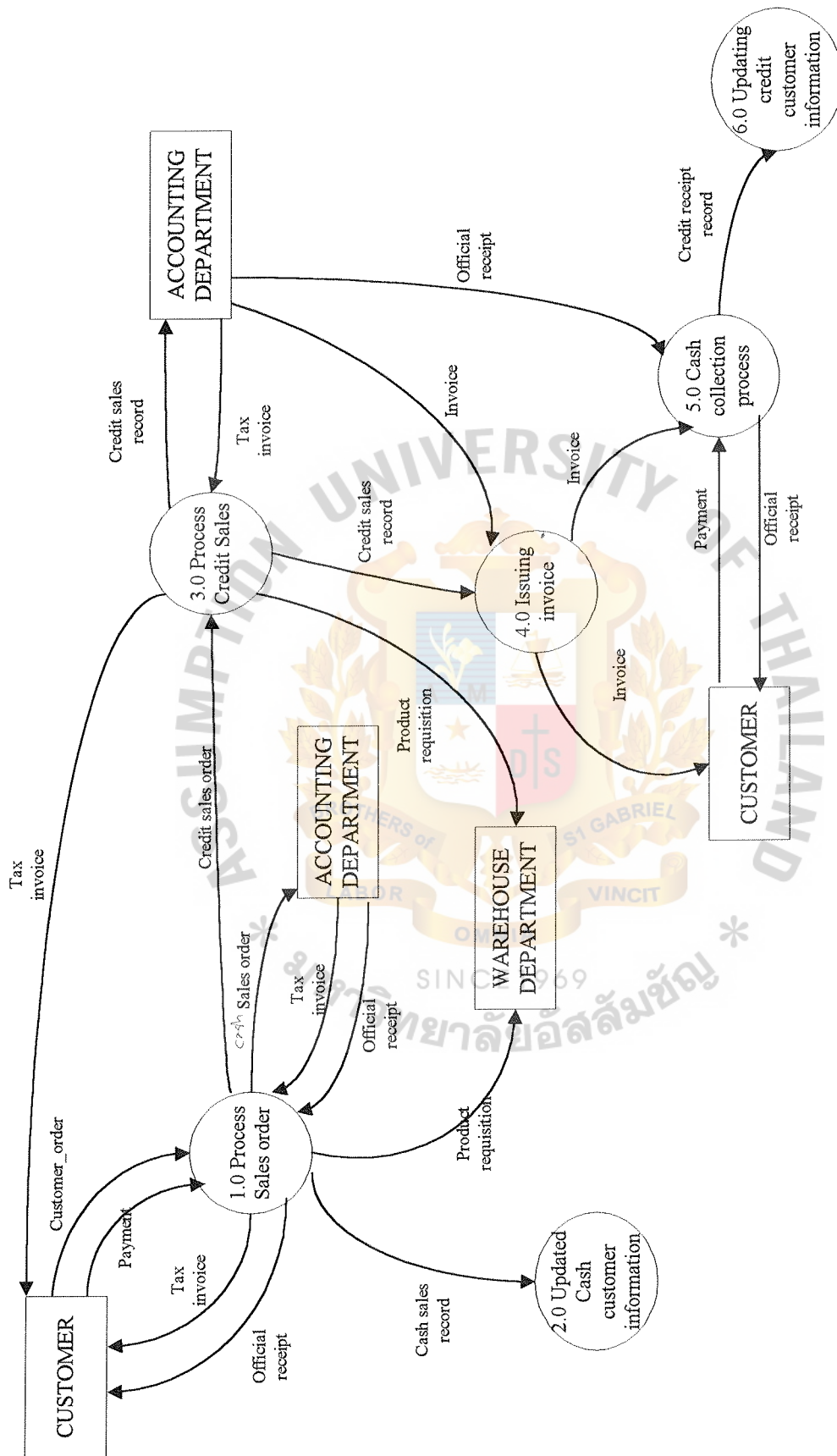


Figure 2.3. The Existing System : Data Flow Diagram Level 0.



### III. THE PROPOSED SYSTEM

#### 3.1 User Requirements

User requirements are prepared by interviewing and having meetings with the staff in the Accounting Department and other departments in order to get as much information as possible for designing the proposed system which is separated into two major parts.

##### 3.1.1 Input Requirements

It indicates the information required by the users, which must be included in the system.

- Customer information: it contains the customer information about Customer ID, name, address, telephone number, Fax and name of contact person.
- Product information: it contains the product information about Product ID, product description, weight, thickness and length.
- Staff information: it contains the staff information about Staff ID, name, position and department.
- Supplier information: it contains the supplier information about Supplier ID, name, address, telephones, Fax. and name of contact person.
- Inventory information: it contains the inventory information of each product in the warehouse. It provides Lot No., Quantity, cost and remaining balance.
- Sales Order information: it contains the information about each sales record. It provides Sales Order No., Order date, customer's name, term of payment, ordered product, Quantity, price, Vat rate, total sales amount and staff's name, and related features.

- Tax invoice information: it contains the same information as Sales Order but it has some additional information about Tax invoice No.
- Official receipt information: it contains the information about the collection of payment of each sales order. It provides Official receipt No, date of issue, Sales order paid and total amount of collection, and other related features.
- Invoice information: It contains the information about the issued invoice. It provides the summary of Account Receivable of each customer such as Invoice No., total detail of Account receivable.
- Purchase Order: It contains the information about the purchased product, Quantity, cost and total amount of purchase.

### 3.1.2 Output Requirements

It is the output information which is required by the users for providing reports to the upper level.

- Total Sales report: it provides a report of sales both cash and credit sales, which the staff can select the date of sales. It represents sales amount in each order and the sum total sales amount both daily and monthly.
- Total Cash sales report: it is a report about the total cash sales both daily and monthly. It represents each cash sales order.
- Total Credit sales report is a report about both daily and monthly the total credit sales. It represents each credit sales order.
- Sales Tax report is a report about the total Sales tax at the end of each month. The company must provide this information to the Revenue Department. It represents Sales tax amount and the sales amount of each order.

- Supplier information report represents the Supplier information about the company's purchase order, product purchased, both daily and monthly cost and purchased amount. This report will be used as the purchase history of each supplier.
- Inventory information report represents the remaining inventory of each product and the outstanding balance recorded in the Warehouse Department.
- Purchasing report represents the purchased amount of each purchase order and the total purchased amount, both daily and monthly.
- Purchase tax report is a report about the total Purchase tax at the end of each month which the company must provide this information to the Revenue Department. It represents the Purchase tax amount and the purchased amount of each purchase order.
- Total Cash Collection report represents the total cash collection of each sales order, both daily and monthly. This report includes both cash order and credit order.
- Total Cash sales collection report represents the cash collection of each cash sales order, daily and monthly.
- Total Credit sales collection report represents the cash collection of each credit sales order in both daily and monthly.
- Total Credit owed report represents the outstanding credit sales, which are within credit term or exceeding the term, both daily and monthly. It is represented as a detail of Account receivable.
- Total Credit exceeding report represents the total credit sales, which exceed the credit term.

- Sales Analysis report by customer information represents the total sales amount of each customer and provides the customer who makes the highest total sales of each month.
- Sales Analysis report by product information represents the total sales amount of each product and provides which product receives the highest order from customer in each month.





## **3.2 System Design**

### **3.2.1 Data Flow Diagrams**

The proposed system is presented by using data flow diagrams as a tool that allows us to picture a system as a network of functional processes, connected to one another by pipelines and holding tanks of data. So, it provides us to view and get more understanding of the functions of the system. The new proposed system design is divided into seven major processes as follows:

#### **Process 1.0 : Process Sales record**

This process deals with about recording Sales order. Accounting staff gets the order from customer and key in the order's information into the system. The system will issue Sales order and Tax invoice to the customer and keep the Sales order record and Tax invoice in the database. In this process, Sales order record will be kept separately into two types of record. The two types of records are the cash sales records and credit sales records. The system will verify it by using terms of payment as a key in verifying. Customer information, product information, staff information will be retrieved from the database.

#### **Process 2.0 : Issue the Invoice**

At the end of each month, the system must sum the total credit sales amount of each customer for issuing the Invoice, which is sent to the customer for collecting the payment. Invoice is issued and kept in the database. Customer information, Credit sales record is retrieved from database to provide the necessary data in issuing the Invoice.

#### **Process 3.0 : Cash Collection Process**

This process is used when the customer makes the payment of each sales order. Customer information, Cash sales record, Credit sales record are retrieved from the database to provide necessary data in issuing the Official receipt. The system will issue

the Official receipt and keep it into the database. At this process, the Credit receipt record is created to keep the data about the payment of credit sales order, which should be updated every time credit payment is made.

#### Process 4.0 : Validating inventory on hand

Accounting staff will retrieve inventory information, which represents inventory on hand of each product in the warehouse, from the database for checking the validation of the inventory. If the inventory is valid, the sales order will be sent to the Warehouse Department for preparing the product shipment to customers.

#### Process 5.0 : Issuing Purchase Order

In case the inventory on hand is invalid, the Accounting staff will issue the Purchase Order to supplier and keep it into the database. Product information, Supplier information are retrieved from the database to provide the necessary data. The Purchase Order will be sent to the Warehouse Department for checking the quality of the purchased product and updating the inventory information because the Warehouse Department has a duty of inventory control both in selling and purchasing product.

#### Process 6.0 : Updating Customer information

This process is developed for adding new customer or modifying the customer information in case the customer changes some information such as name, address, telephone, and such features. This process is usually updated to obtain reliable and accurate information.

#### Process 7.0 : Generating the report

The main function of this process is to use all the information from the database to process and generate all the informational reports. The report will be distributed to the concerned department and the upper level management for using as reference

information. The system can generate the report daily, weekly and monthly to serve the user's needs.

For more understanding of the system, the Context Diagram and Data Flow Diagram Level 0 are presented with the whole picture of the process shown in Figure 3.1. and Figure 3.2. respectively, and the rest of the Data Flow Diagrams are presented in Appendix A.



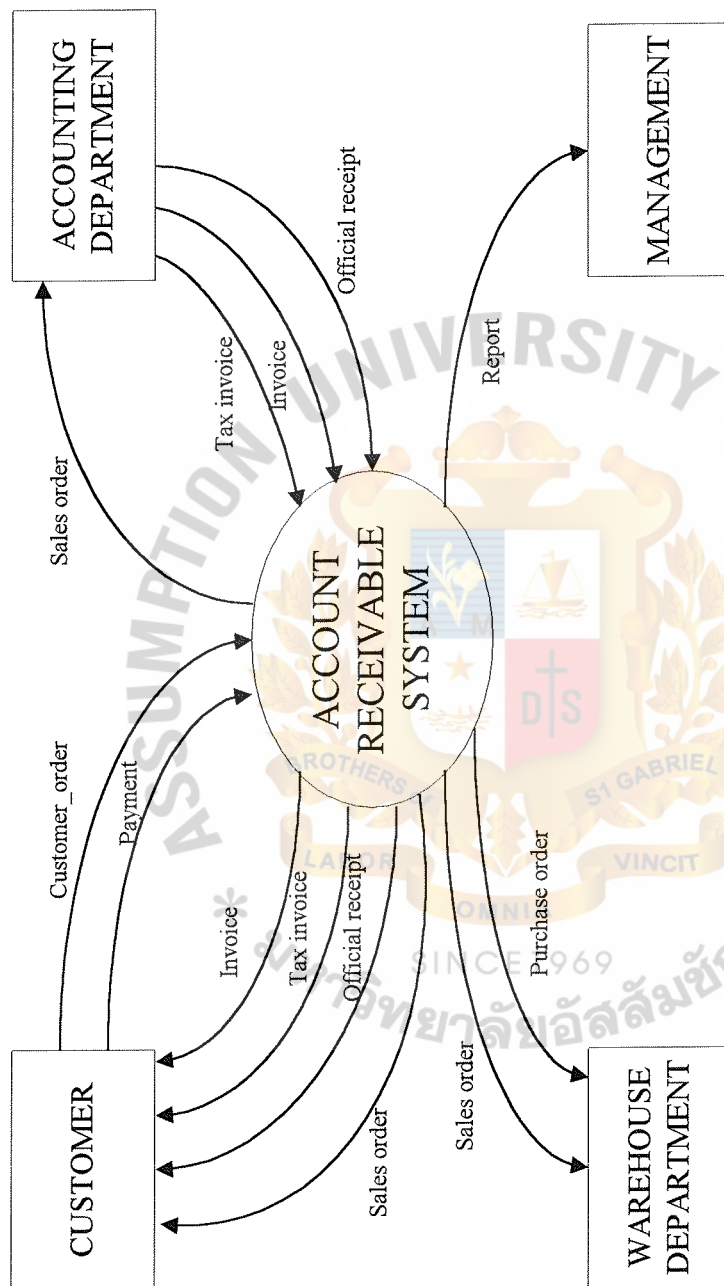
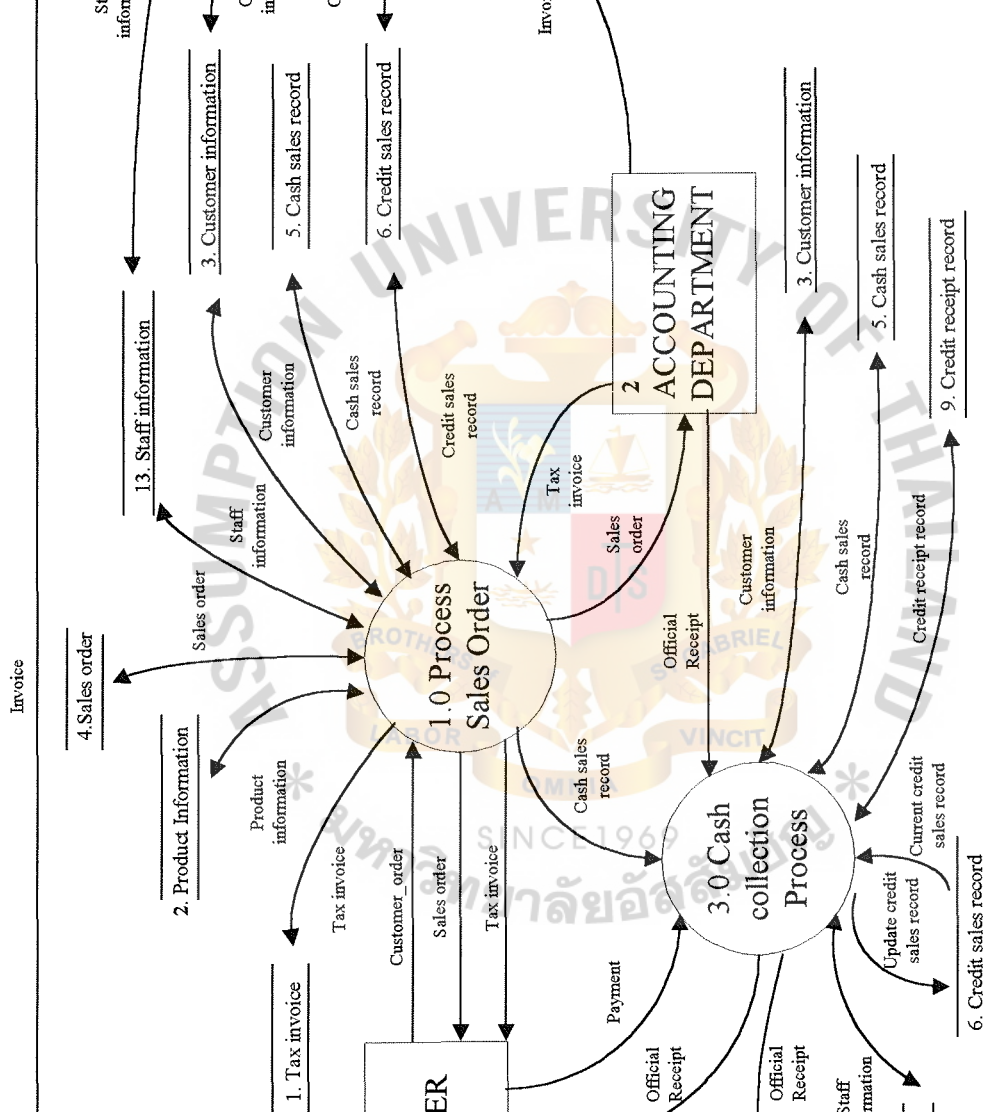


Figure 3.1. Context Diagram : The Proposed System.





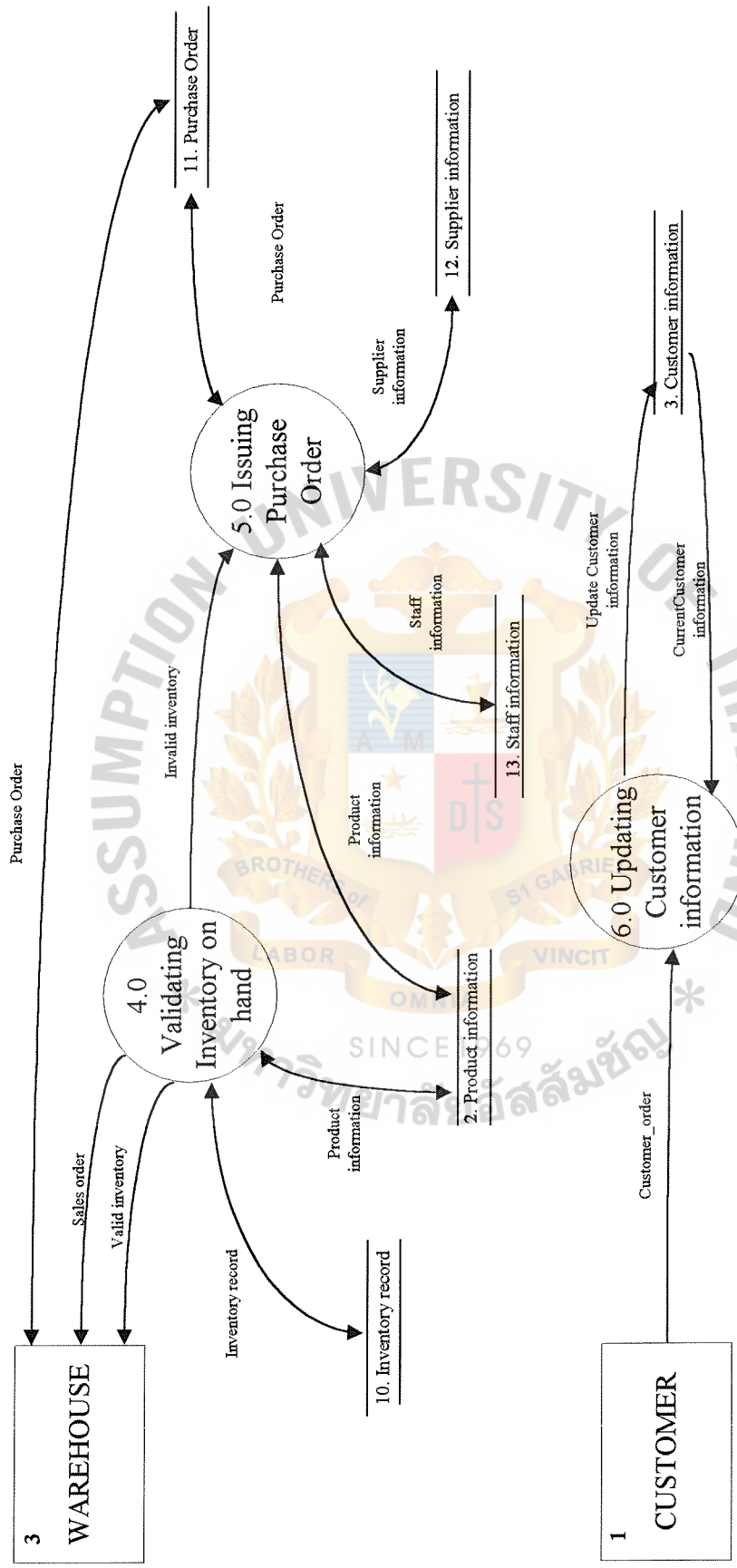


Figure 3.2. Data Flow Diagram Level 0 : The Proposed System.

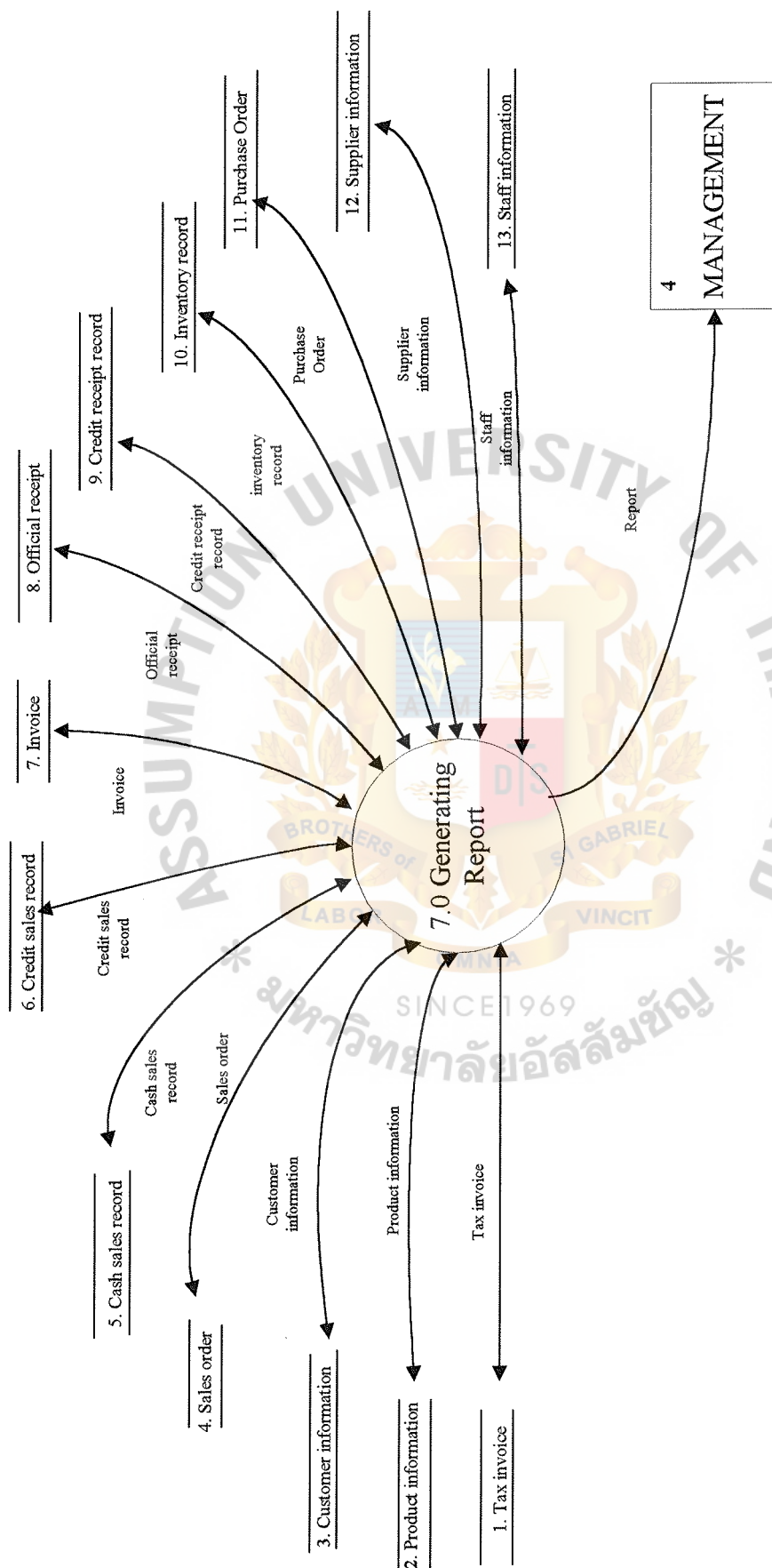


Figure 3.2. Data Flow Diagram Level 0 : The Proposed System.

### 3.2.2 Structure Charts

Structure Charts provide a detailed graphic picture of the internal organization of computer program. They show a hierarchy of functions, where each function represents a program module. Structure Charts feature data couples and flags to graphically illustrate which inputs are received by which module and which outputs are produced. Figure 3.3. represents the top level of Structure Charts of the system, which provides an overview and a clear picture of the system. The other levels of Structure Charts are presented in Appendix B.







### 3.2.3 Others System Design

- Data Dictionary (Appendix C)
- Process Specification (Appendix D)
- Module Specification (Appendix E)
- Screen Design and Layout (Appendix F)

Table 3.1. List of Screen Design.

Screen No.	Screen Name
SC0001	Security Control Screen
SC0002	Main Menu Screen
SC0003	Sales Order Screen
SC0004	Tax Invoice Screen
SC0005	Official Receipt Screen
SC0006	Invoice Screen
SC0007	Purchase Order Screen
SC0008	Customer Information Screen
SC0009	Product Information Screen
SC0010	Staff Information Screen
SC0011	Supplier Information Screen
SC0012	Inventory on hand Screen
SC0013	Report Menu Screen

Table 3.1. List of Screen Design (continue).

Screen No.	Screen Name
SC0014	Customer Report Screen
SC0015	Product Report Screen
SC0016	Supplier Report Screen
SC0017	Sales & Purchase Report Screen

- Report Design and Layout (Appendix G)

Table 3.2. List of Report.

Report No.	Report Name
RP0001	Total Sales Report
RP0002	Total Cash Sales Report
RP0003	Total Credit Sales Report
RP0004	Sales Tax Report
RP0005	Customer Information Report
RP0006	Supplier Information Report
RP0007	Inventory Information Report
RP0008	Purchase Order Report
RP0009	Purchase Tax Report

Table 3.2. List of Report (continue).

Screen No.	Screen Name
RP0010	Total Cash Collection Report
RP0011	Total Credit Sales Collection Report
RP0012	Total Credit Owed Report
RP0013	Total Credit Exceeding Report
RP0014	Sales Analysis report by customer information
RP0015	Sales Analysis report by product information

- Entity Relationship Diagram (Appendix H)
- File Layout (Appendix I)

### 3.3 Hardware and Software Requirements

#### 3.3.1 Hardware Requirements

- 1) Personal Computer 2 Sets

Pentium II 300 or higher

32 MB SDRAM or higher

1.44 MB Floppy Disk Drive

Hard Disk space 3.2 GB or higher

Monitor size 14"

Resolution area 800 x 600 pixel

Casing 230 Watts Power Supply

LAN Card transferred rate 10/100 Mbps

Mouse, Mouse Pad, Dust Cover

Support LAN

- 2) Dot Matrix Printer 1 Sets

#### 3.3.2 Software Requirements

All software are guaranteed Y2K Compliance.

WINDOW NT version 4.0 THAI EDITION(+SERVICE PACK5)

MSDOS version 6.0 or higher

MICROSOFT WINDOW 98 THAI EDITION

MICROSOFT OFFICE 97 PROFESSIONAL EDITION

- MICROSOFT WORD
- MICROSOFT EXCEL
- MICROSOFT POWER POINT
- MICROSOFT ACCESS

### 3.4 Security and Controls

All information of the proposed system are stored in the database, so the value of the information is just now being recognized as a major corporate asset because a database is one collection of data, stored and maintained at one central location, to which many people have access as needed. Security and Controls have a big role in the system for protecting and preventing it from the intruder. For the proposed system, the security policy is set up for controlling the access of the user as follows:

- Set up password and authority in the system for each user to login to the system. The users are asked to enter the user name and the password. After checking, if the users are authorized, they could make the data entry, modification and correction. When the information is keyed in, modified or changed by the user, the system will identify the user, who does that transaction, both for the audit trail and for permission to access certain data every time.
- The authorized user is allowed to access only the authorized data and so that different users can be restricted to different modes of access (such as read and write). Access depends on his/her job and position.
- The user must change the password every 90 days and must keep his/her password confident. If an other user is using his/her password for illegal action, he/she should take the responsibility for that action without any excuse.
- Authorized persons should be instructed to sign source documents.
- For new users and resigned users, the Accounting manager should assign the new User IDs and passwords for new user and delete the User IDs and passwords of the resigned user from the system.



- Staff should be provided with adequate training of how to use the system.
- The distribution of reports should be controlled to ensure that they are sent to the correct department.
- The hardware and printer should not be left unattended during the printing process.
- The hardware must be checked for completeness or any damages every 3 months for preventing the damage from external factor such as electronic failure.
- The office must be locked at closing time and the key should be entrusted to an authorized person.



### 3.5 Cost/Benefit Analysis

The other important part of the proposed system is the comparison of cost between the old and the new systems. How much the new system costs and how much benefit it provides to the company, if the company changes to the new system must be considered. A comparison should be made on any aspects such as investment, operating cost, benefit(both tangible and intangible benefit), etc

#### 3.5.1 Cost Analysis

To invest in the new system, the cost of the new system will include the cost of the developed system(analysis, design and implement), the cost of the hardware & the software and operating cost, and other related costs. All costs occur either fixed or variable. This depends on the nature of the particular cost.

The estimated costs of the proposed system are proposed to management for decision making as follows:

#### System Development Cost Estimation

- Hardware		78,000
Personal Computer (2 Sets @ 33,000)	66,000	
dot-matrix Printer (1 Set @ 12,000)	12,000	
- Software		30,000
- Project design cost (See Table 3.3)		<u>215,420</u>
Total System Development Cost		<u>323,420</u>

Table 3.3. Cost of Direct Labor.

Activity	Description	Time(in weeks)	Staff size	Project hours	Project Cost (baht)
1	Project definition	1	1	40	4,000
2	Requirement & Analysis	2	1	80	8,000
3	Data Specification	1	1	40	4,000
4	Evaluating & Validating the logical design	1	1	40	4,000
5	Logical design specification	2	1	80	8,000
6	Software Packaging	2	1	80	8,000
7	Design of system input and output	2	1	80	8,000
8	Design of system file and database	2	1	80	8,000
9	Design of system program	2	1	80	8,000
10	Design of system controls	1	1	40	4,000
11	Technical design specification	1	1	40	4,000
12	Hardware and software acquisition	2	1	80	8,000
13	Program coding and debugging	4	1	160	16,000
14	Program and system testing	3	1	120	12,000

Table 3.3. Cost of Direct Labor (continue).

Activity	Description	Time(in weeks)	Staff size	Project hours	Project Cost (baht)
15	System implementation and evaluation	3	1	120	12,000
	Total			1160	116,000

\* Staff works 5 days per week (40 hours per week)

\* Rate = 100 Baht per hour

Project System Design Cost Estimation (Baht):

Direct Labor cost (1)	116,000
Indirect Labor cost (2)	<u>34,800</u>
Total Labor Cost	150,800
Computer cost (3)	<u>42,000</u>
Total Labor and equipment cost	192,800
Overhead cost (4)	<u>22,620</u>
Total Project Design cost	<u>215,420</u>

Note:

- (1) Direct Labor Cost (see Table 3.3)
- (2) Indirect Labor cost are based on 30% of the Direct Labor
- (3) Computer costs are estimated from 700 hour x 60 baht per hour
- (4) Project Overhead costs are estimated at 15% of the Total labor cost

### 3.5.2 Benefit Analysis

Tangible benefits: the proposed system will reduce both time and cost of operation of the manual system. These are measured in baht, resources or time saved. The tangible benefits of this system are as follows:

• Reduced cost of stationary and document paper	100,000
• Reduced time and cost of the manual system	<u>200,000</u>
Total tangible benefits	<u>300,000</u>

Intangible benefits are the additional benefits, which the users receive after using the new system. They cannot be measured like those of the tangible benefits. Intangible benefits of the proposed system are as follows:

- Better working process and reduce some task redundancy
- Get reliable, accurate information on time
- Easier to manage and control the system
- Easier to key in the data by using Graphic User Interface Screen
- Reduce the error of working task
- Reduce the volume of paper work and space for storage
- Speed up in requesting, searching and reporting information to management level
- Provide a good image and attitude toward the company



### 3.5.3 Cost Comparison

Cost comparison can be defined by using the breakeven analysis and payback period, for example. These will represent how long it will take the company to recover the investment cost and how long the system will reach breakeven point. They provide the whole picture of the numerical information about the worthiness of the proposed system.

The cost of the existing system is shown in Table 3.4 and the cost of the proposed system is shown in Table 3.5.

Table 3.4. Cost of The Existing System (Annually).

List of requirement	1	2	3	4	5
<u>Personal</u>					
Manager (15000 + 10% increase)	180,000	198,000	217,800	239,500	263,538
Accountant (10000 + 10% increase)	120,000	132,000	145,200	159,720	175,692
<u>Office Equipment</u>					
Personal Computer	20,000	16,000	12,000	8,000	4,000
Software	0	0	0	0	0
Printer	8,000	6,400	4,800	3,200	1,600
Electrical Typewriter	10,000	8,000	6,000	4,000	2,000
FAX.	9,500	7,600	5,700	3,800	1,900
Stationary & paper	30,000	30,000	30,000	30,000	30,000
Others	15,000	15,000	15,000	15,000	15,000
Total	392,500	413,000	436,500	463,220	493,730

Note:

- (1) Personal computer, Printer, Electrical Typewriter and Fax have an accumulated depreciation which reduces its values.
- (2) The method of depreciation is a straight line method (20% depreciation per year)

Table 3.5. Cost of The Purposed System (Annually).

List of requirement	1	2	3	4	5
<u>Personal</u>					
Manager (15000 + 10% increase)	180,000	198,000	217,800	239,500	263,538
Accountant (10000 + 10% increase)	120,000	132,000	145,200	159,720	175,692
<u>Office Equipment</u>					
Personal Computer	86,000	68,800	51,600	34,400	17,200
Software	30,000	0	0	0	0
Printer	20,000	16,000	12,000	8,000	4,000
Electrical Typewriter	10,000	8,000	6,000	4,000	2,000
FAX.	9,500	7,600	5,700	3,800	1,900
Hardware Maintenance	0	10,000	11,000	12,000	13,000
Overhead Cost	0	1,500	1,650	1,800	1,950
Stationary & paper	20,000	20,000	20,000	20,000	20,000
Others	7,500	7,500	7,500	7,500	7,500
Total	483,000	469,400	478,450	490,720	507,230

Note:

- (1) Personal computer, Printer, Electrical Typewriter and Fax have an accumulated depreciation which reduces its values.
- (2) The method of depreciation is a straight line method (20% depreciation per year)
- (3) Overhead Costs are estimated to be 15% of Hardware Maintenance

#### Payback Period

The payback period is determined by the number of years required to accumulate earning sufficient to cover the cost of the proposed system.

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

Where

P	=	Payback Period (Year)
i	=	Investment Cost
T	=	Tax Rate (7%)
R	=	Annual Saving realize by investment

So,

$$P = \frac{323,420}{(1 - 0.07)300,000}$$

$$P = 1.159 \text{ Years}$$

The payback period is 1 year and 2 months. The company can recover the investment of the proposed system in less than one and a half years.

#### Breakeven Analysis

Break-even analysis determines the point at which the cost of the proposed system equals the cost of the current system, or the cost of a new system equals its benefits. After determining the break-even point, the analyst subjectively evaluates conditions evidenced in the project to assess its acceptability.

Table 3.6. Proposed System Cost VS. Existing System Cost.

Year	The Proposed system cost	The Existing system cost
1	100,000	0
2	285,207	392,500
3	307,973	413,000
4	348,790	436,500
5	397,483	463,220
6	456,507	493,730

Note:

- (1) The proposed system costs are computed by the discounted value at 10% = (net value) $\times (.9)^{n-1}$ , where n is the year effective.

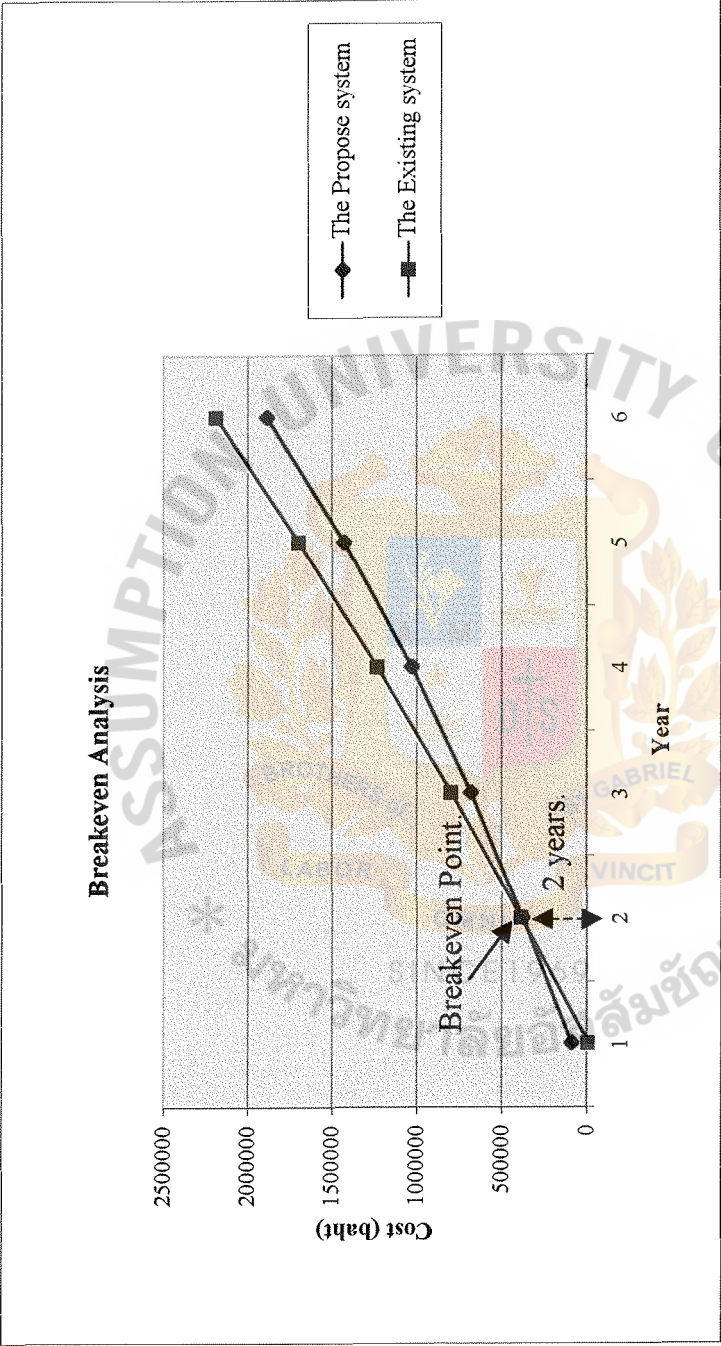


Figure 3.4. Breakeven Analysis of Proposed System VS. Existing System.



### 3.6 Network Design

The network design is designed by using LAN System with the Bus topology. The software support, which supports the server is Window NT. The supporting software of the Client is Window'98. The connection is Client Server. Each department shares files and a printer. All departments share one printer.

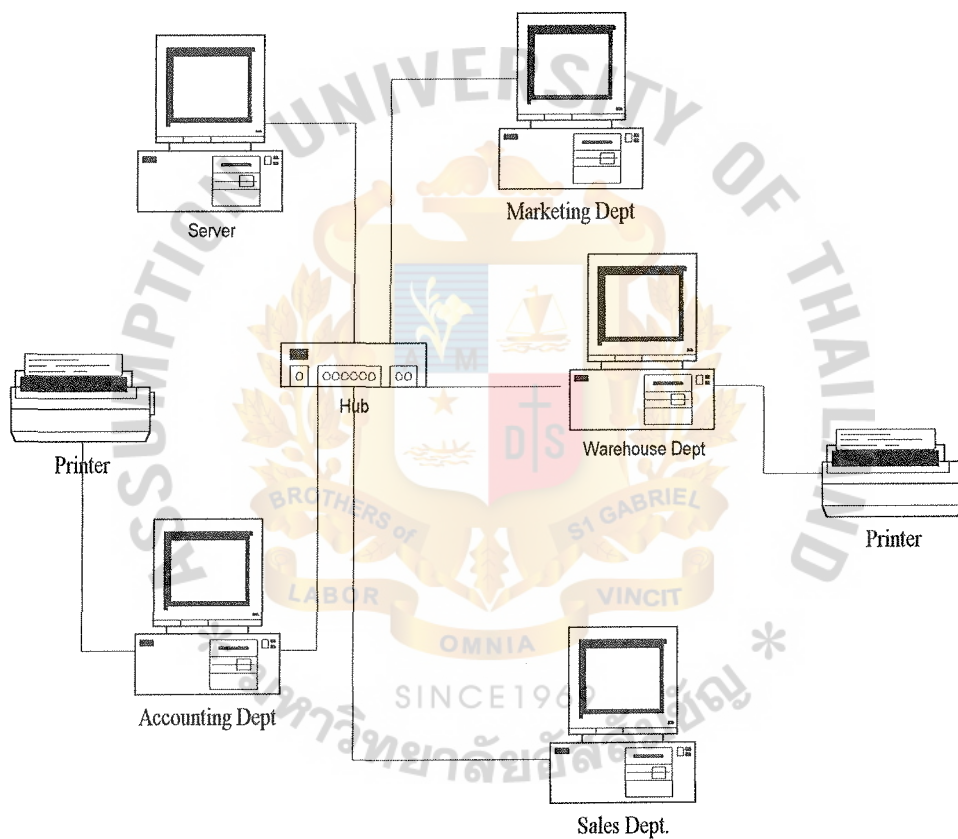


Figure 3.5. Network Design Layout.

## IV. PROJECT IMPLEMENTATION

### 4.1 Programming the System

After the completion of the analysis and the design of the proposed system, the next step is implementation of the system. The main goal in this part is to build reliable, usable, understandable and maintainable programs. A reliable program means providing failure-free system execution and correct output. A usable program serves the staffs in their job functions; it is easy to use, convenient, and tolerant of user errors and it provides the information needed. And understandable program means that users will know how to use the system properly; they will know what input are required and how to interpret system output. A maintainable program makes it easy to correct errors, enhance system performance, and adapt the system to changes in the business environment.

The project needs more control from the project management during the project development. Therefore, the primary tasks of a project development plan are as follows:

- Assign responsibility for individual programs
- Create application programs
- Create procedures to the direct system and communication software
- Create documentation
- Covert existing software and data storage formats to support the system
- Acquire supporting hardware and software
- Create or modify the database and procedures
- Create error recovery routine
- Create crash recovery procedures
- Control the time consumed and the budget in developing the project

Furthermore, the project management should concentrate on every part of the development of the project in cooperation with the team.

#### **4.2 Testing the system**

System testing is used to determine whether all the different programs interface correctly and operate as a complete system. The objective of system testing is to ensure that the system performs as promised in the user requirement phase. System testing consists of two major parts.

(1) Integration testing is to identify the tests to perform, the order in which to apply them, the hardware and software to use, the files to use during execution and the documentation required. The test used for this purpose are as follows:

- Peak load testing determines how the system would perform in periods of high demand of computer execution.
- Volume tests inspect a system while it is executing a particularly large job.
- Stress tests determine how the system reacts to loads within specified limits.
- Limit tests submit the system to conditions outside of its designed limits to determine whether an adequate safety margin has been included in the design.
- Performance testing determines the length of time required for certain system operation.
- Recovery testing examines the ability of the system to recover from a failure.
- Storage testing determines the ability of the system to store a maximum amount of data.
- Procedure testing provides a basic test of both system and user documentation. System documentation provides directions in a procedure

user's manual for both operations personnel and user personnel to follow when they encounter the problems.

- User procedure testing ensures that the users perform a procedure exactly as shown in the user manual. If there is difficulty with the procedure, the manual needs some revising.

(2) Acceptance testing means that the users are ready to sign off on the system.

They verify that it meets the goals and specifications, which are determined during the analysis and design phases. The tests used for this purpose are as follows:

- User testing determines how the system is actually used. The following features are considered: clarity of documentation, ease of use, how well the system satisfies user information needs, and the opinions of the users about the system.

### 4.3 Installing the system

This part is the conversion and changeover part of the system. Conversion denotes transferring all data, programs and procedures from the old system to the new system. For changeover, the new computerized methods are replacing the manual operations. In this part, the user should consider the following issues before:

- Users should consider about using the existing system parallely with the new system to ensure that its results are the same before complete conversion to the new system.
- In case there are a large volume of existing data to be converted, the project team should convert them on extensive conversion control required for protecting and preventing data lost.
- For data in the existing system which is in a documentation form, It may be possible to convert the existing files to the new format file.
- During conversion process, the error detection and error correction, which may occur from the existing system should be considered and corrected.

For this new system, the company decides to use the Parallel system in conversion from the old system to the new system. They will run both the existing system and the new system side by side. Since two systems are available, one acts as a backup to the other and as a benchmark for comparison of how well they function. If the new system fails or has some error, the existing system remains in place to take over processing. But there are some disadvantages. It is the most expensive method. It may require additional personnel. Executing systems side by side is time-consuming and costly. Finally, the users often resist running two systems concurrently.



## V. CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

The analysis is a study on Account Receivable System in Accounting Department of P.K Steel Center Co., Ltd. After studying the existing system, many problems are found and solved by the proposed system which was developed to replace the existing system. All analyses are operated to prepare for this project. They include Project Definition, Requirements Analysis, Data Specification and Evaluating/Validating the logical design, and related features. The deliverable from the new system is the integrated Account Receivable System. It reduces the existing problems and provides many benefits such as reducing the task redundancy, time and cost of operation and providing reliable and accurate information on time, for example. Finally, it provides a good image and attitude toward to the company in serving for the expansion and growth of the company in the near future.

## 5.2 Recommendations

The proposed system does not only help the users to get rid of tedious tasks, but also provide efficiency and effectiveness in their performances in the Accounting Department. And in the near future, Account Receivable System can be integrated with other Accounting System. Although it will take about 1 year and 2 months (Payback Period) for getting the investment back, if the company decides to invest in this proposed system, there are many benefits of the proposed system such as the system provides automatic calculation and controlling of the Account Receivable. Furthermore, the reliable and accurate information is produced to be used as the supporting document for management level in decision making. And the system can support higher volume of transactions and data. It will reduce both time and cost of the operation in the long term. So this proposed system is appropriate for making an investment.



**APPENDIX A**  
**DATA FLOW DIAGRAM**

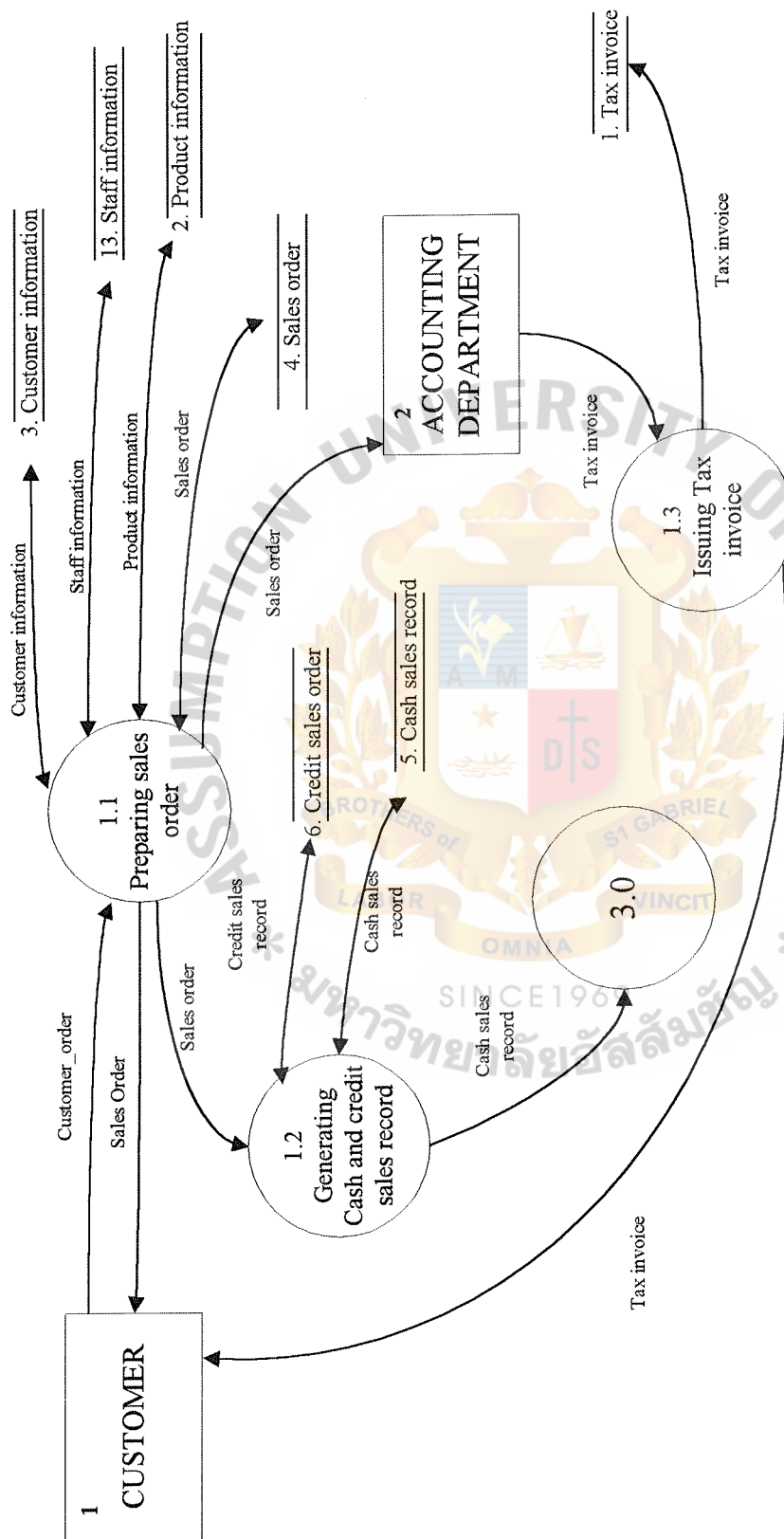


Figure A.1. Data Flow Diagram Level 1 : Preparing Sales Order.

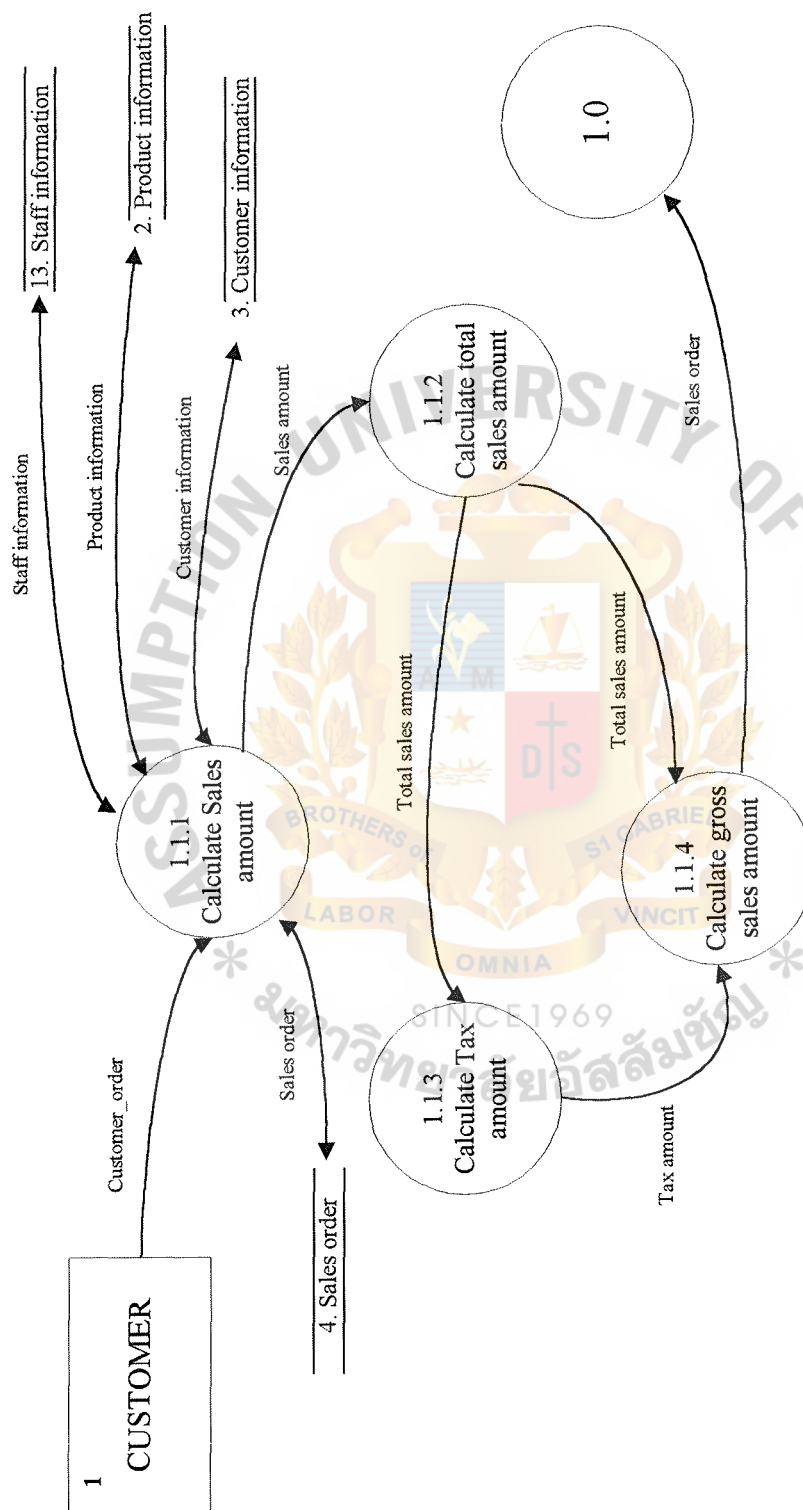


Figure A.2. Data Flow Diagram Level 1.1 : Processing Sales Orders.



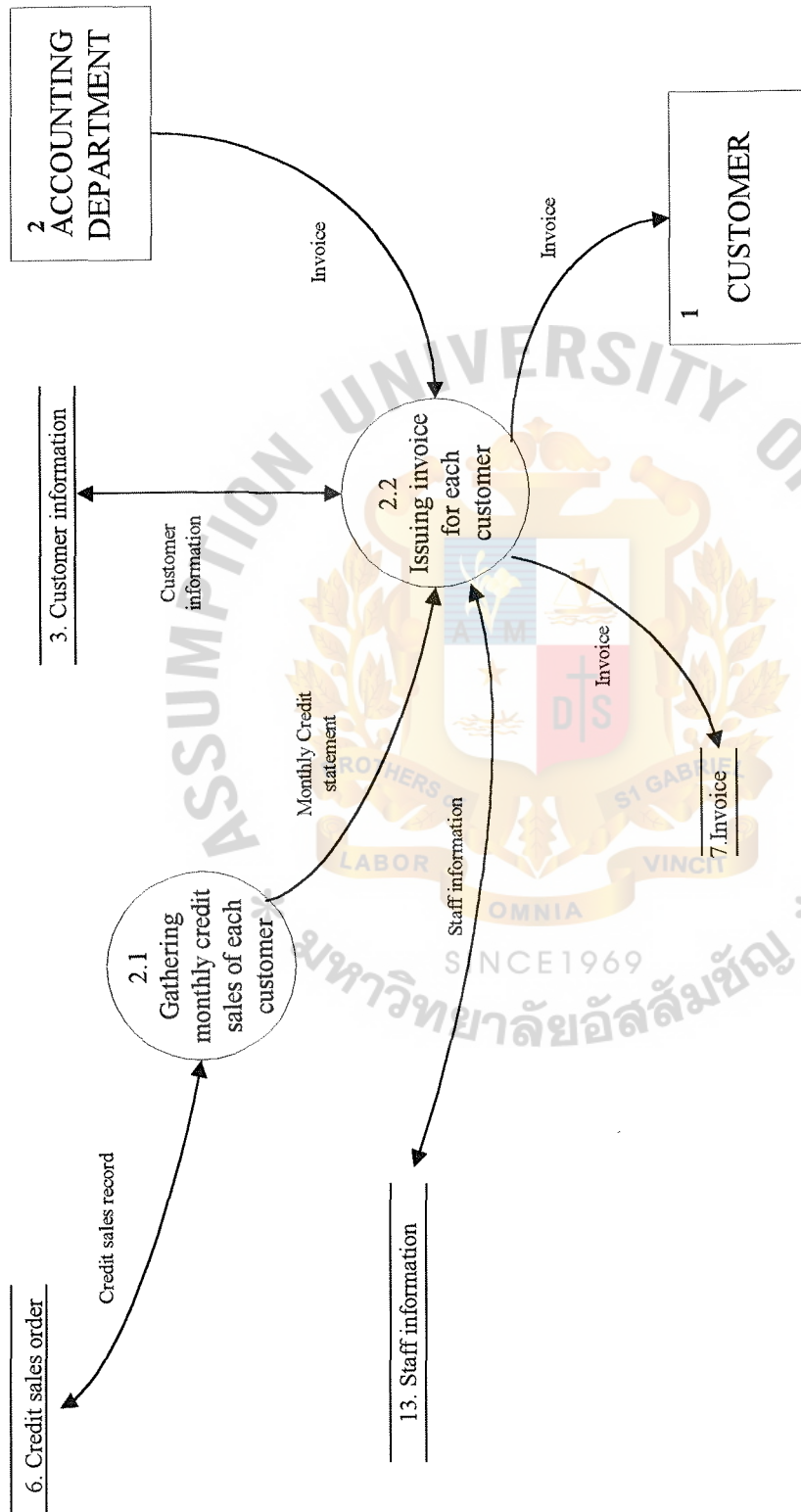


Figure A.3. Data Flow Diagram Level 2 : Issuing Invoice.

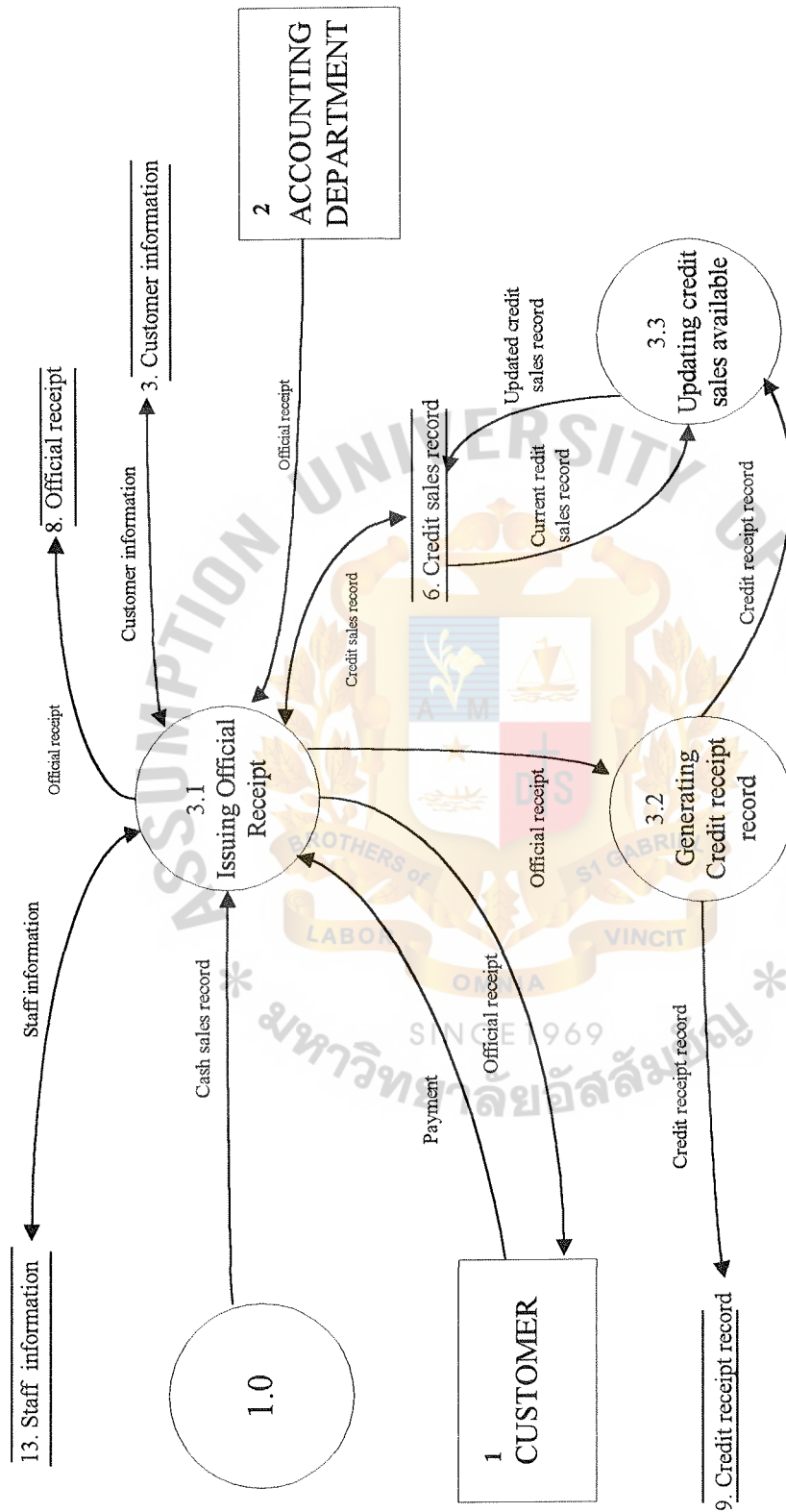


Figure A.4. Data Flow Diagram Level 3 : Cash Collection Process.

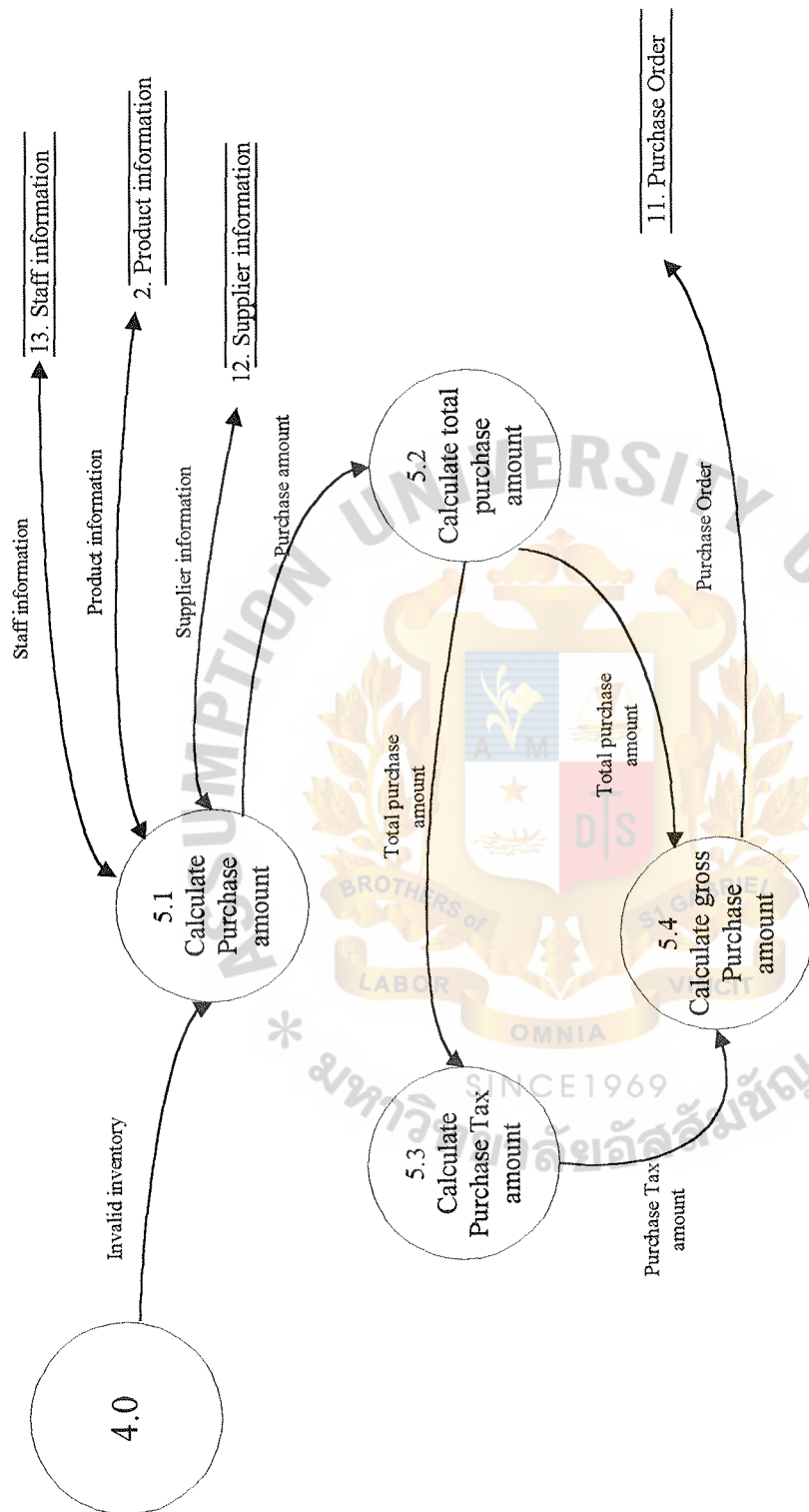


Figure A.5. Data Flow Diagram Level 5 : Issuing Purchase Orders.

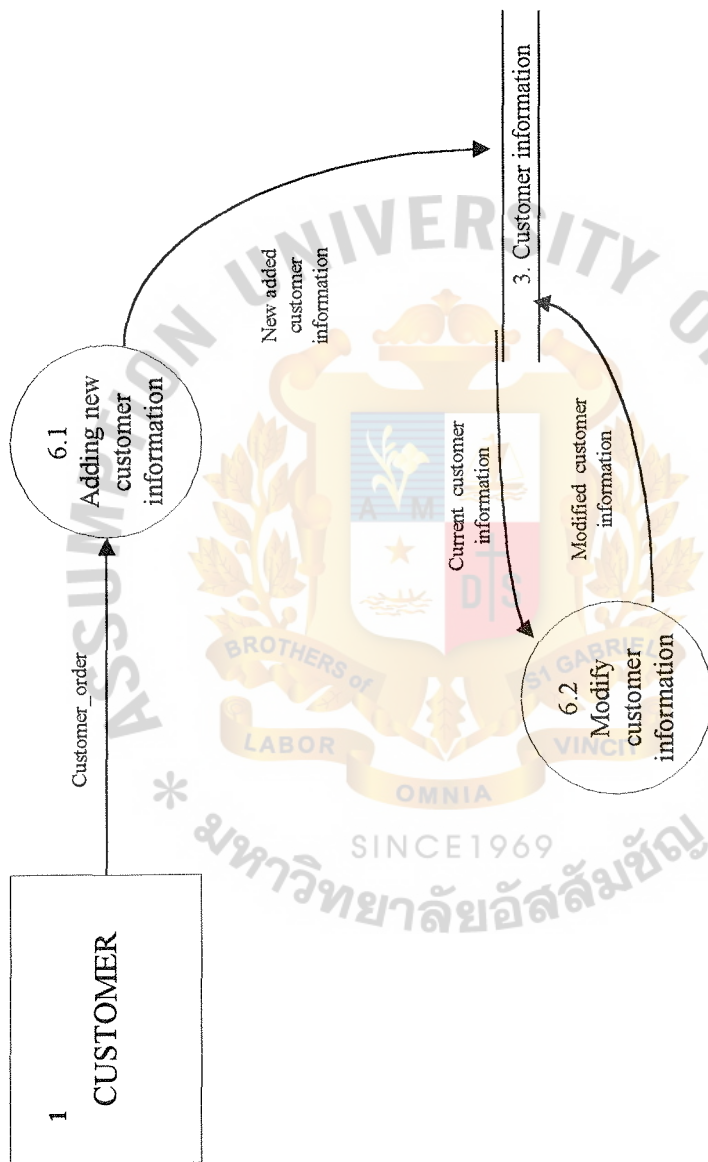


Figure A.6. Data Flow Diagram Level 6 : Updating Customer Information.



**APPENDIX B**  
**STRUCTURE CHART**



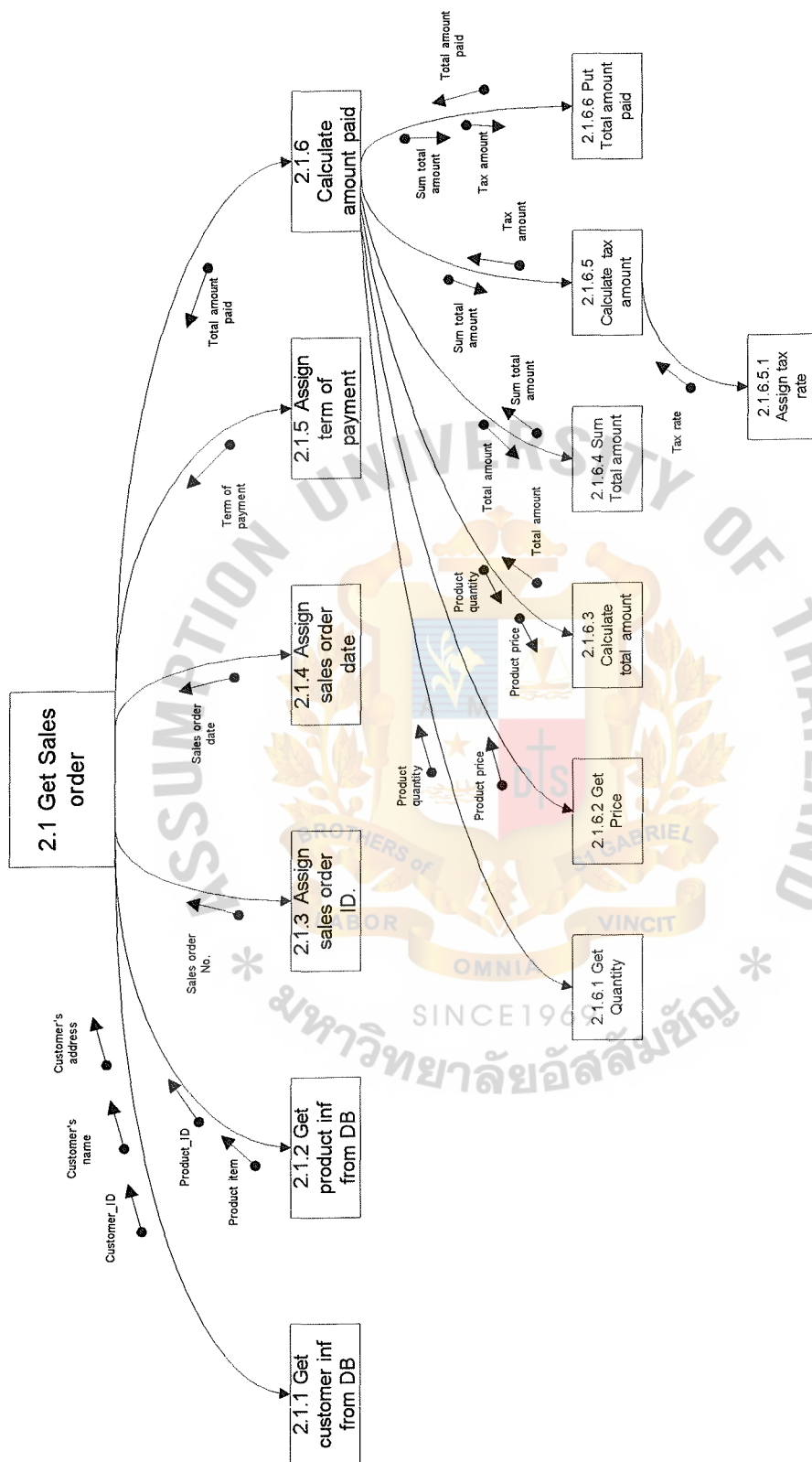


Figure B.1. Structure Charts Process 2.1 : Make Sales Order.

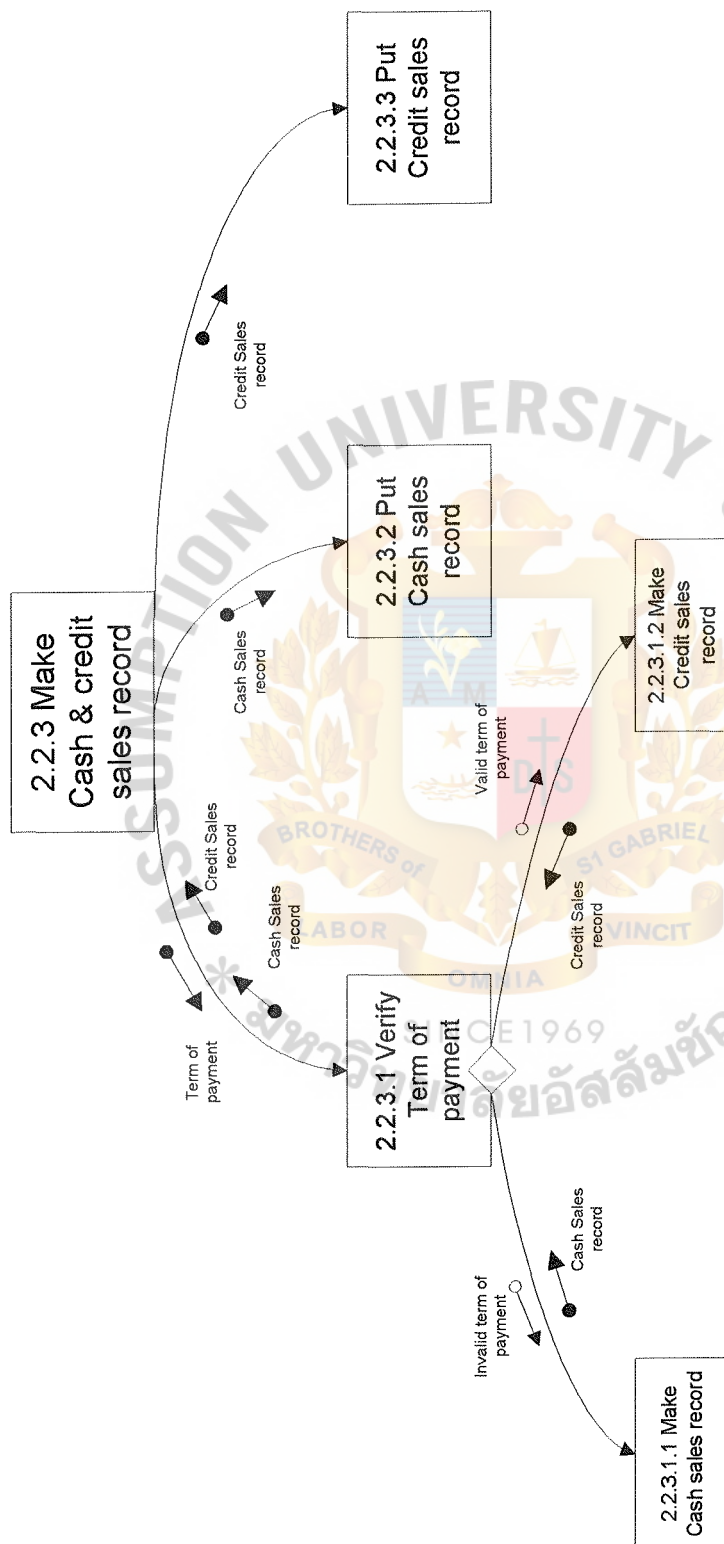


Figure B.2. Structure Charts Process 2.2.3 : Make Cash & Credit Sales.

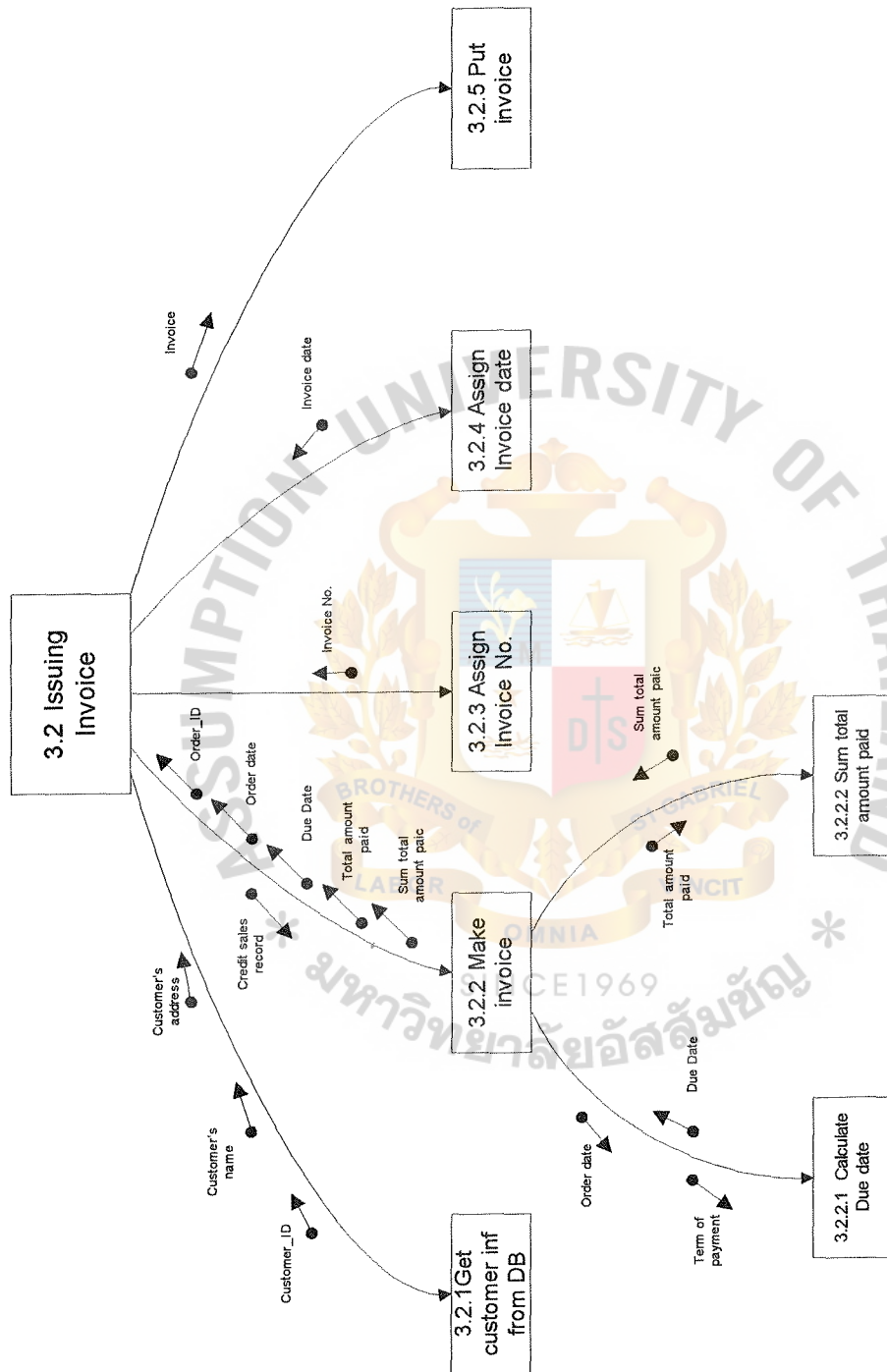


Figure B.3. Structure Charts Process 3.2 : Issuing Invoice.

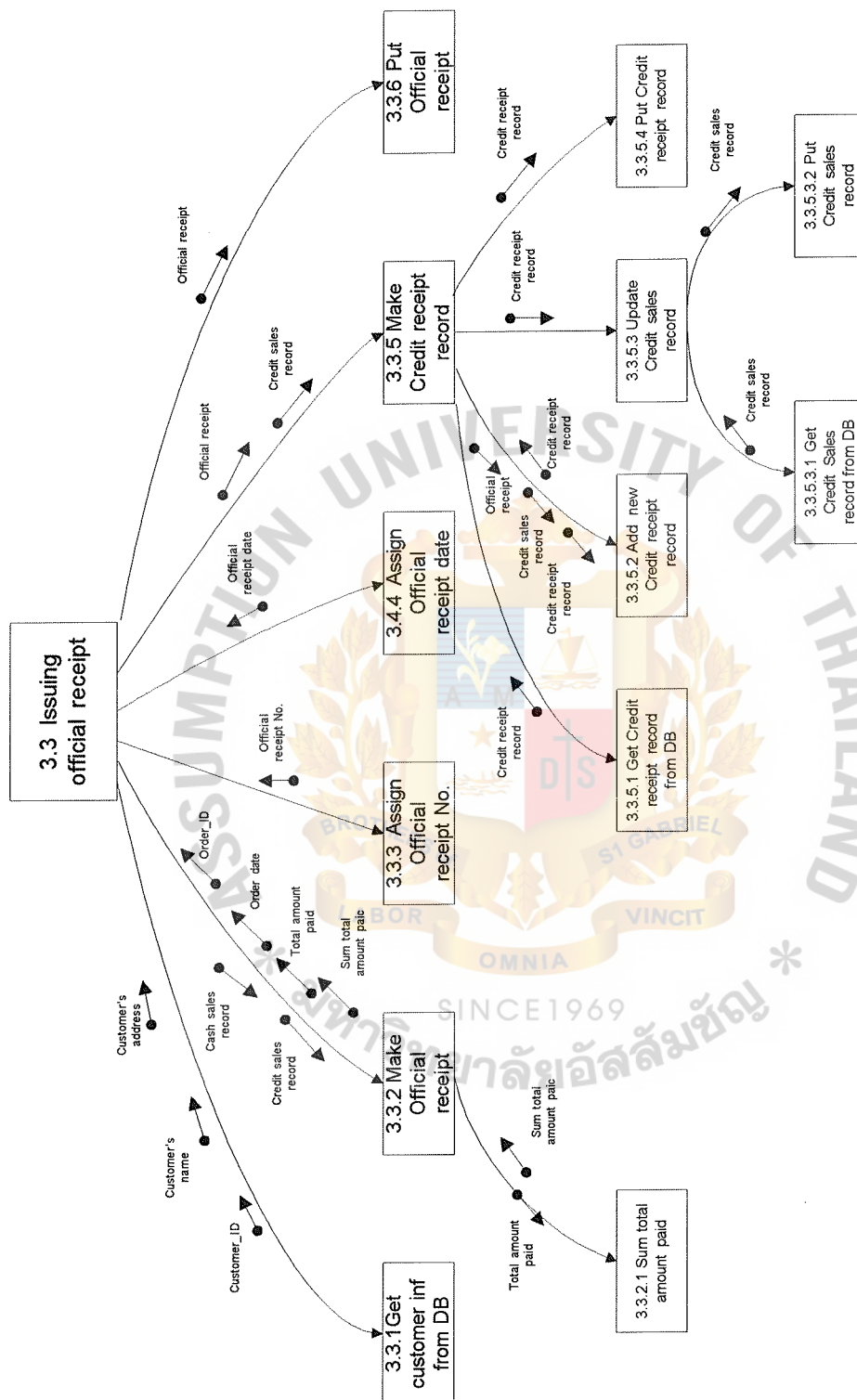


Figure B.4. Structure Charts Process 3.3 : Issuing Official Receipt.

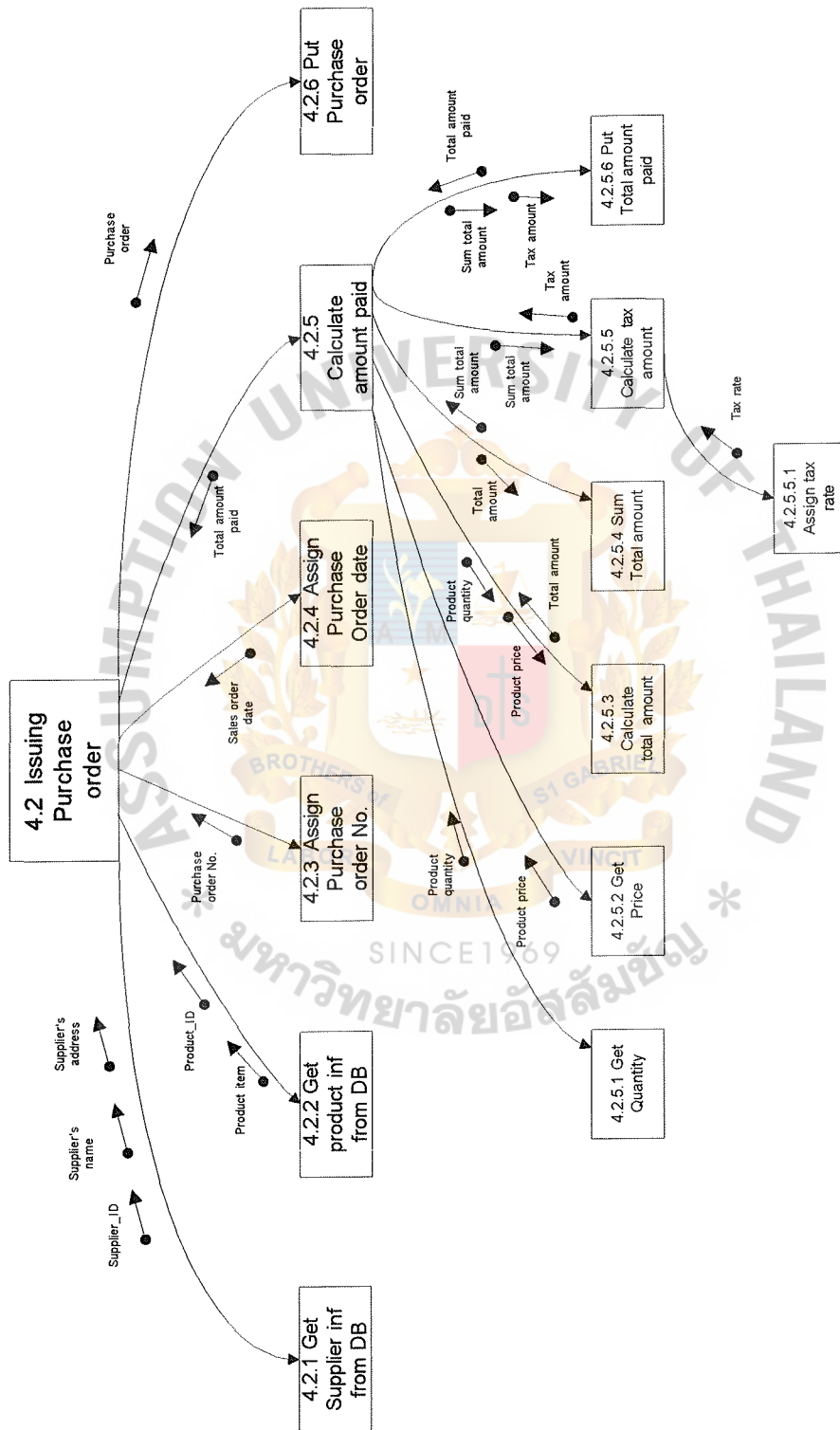


Figure B.5. Structure Charts Process 4.2 : Issuing Purchase Order.



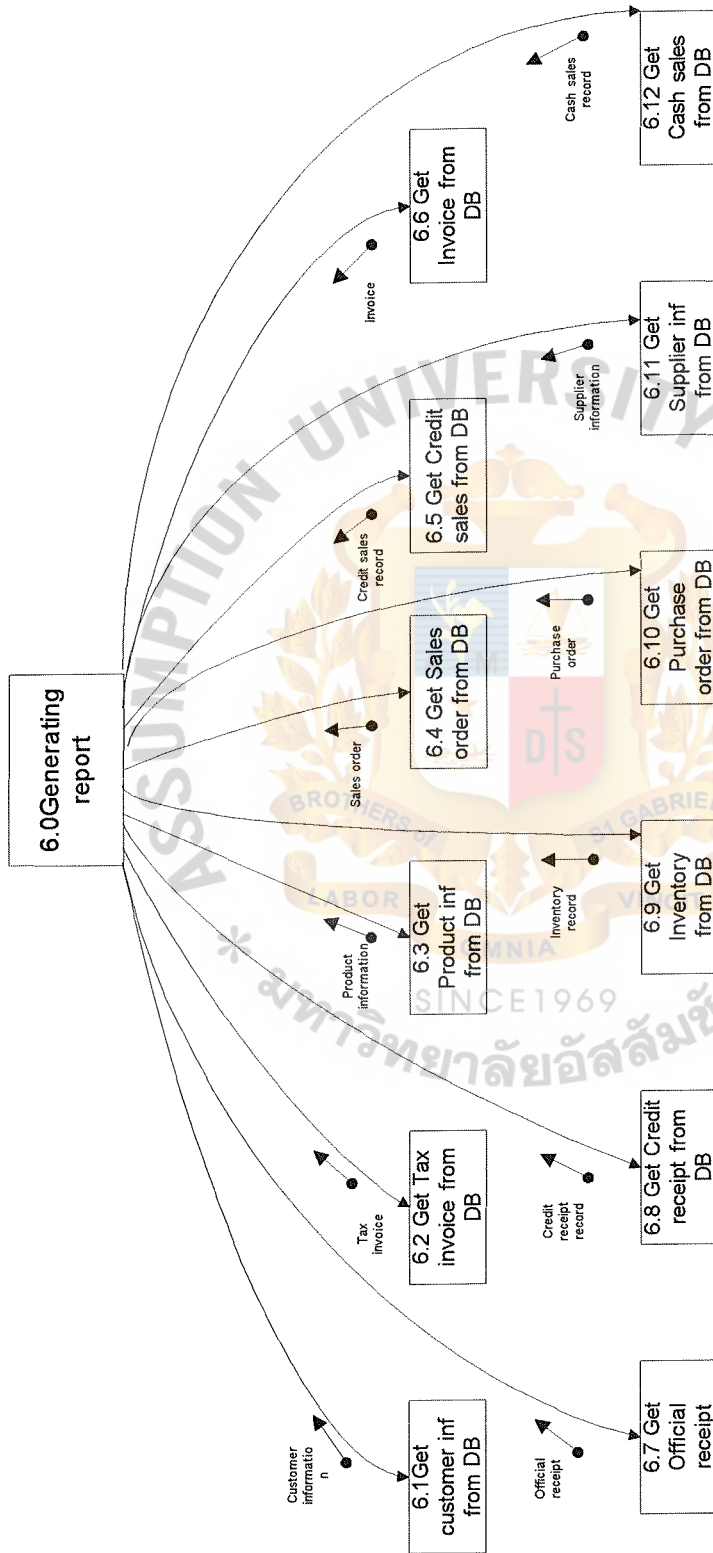


Figure B.6. Structure Charts Process 6.0 : Generating Report.



**APPENDIX C**  
**DATA DICTIONARY**

## DATA DICTIONARY

Object Name	Object Type	Description
Customer information	Data store	<p>* <u>Customer_ID</u> + Customer_name + Customer_address + Telephone + Fax + Contact_person *</p> <p>Customer_ID = * Character + Digit Number*</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Telephone = * Character *</p> <p>Contact_person = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p>
Product information	Data store	<p>* <u>Product_ID</u> + Product_name + Weight + Thickness + Length *</p>

Object Name	Object Type	Description
Staff information	Data store	Product_ID = * Character + Digits Number*
		Product_name = * Character *
		Weight = * Digits Number *
		Thickness = * Digits Number *
		Length = * Digits Number *
		Character = [A-Z   a-z   0-9   -   /   .   &   %]
		Digits Number = 0{number}9
		* Staff_ID + Staff_name + Position + Department *
		Staff_ID = * Character *
		Staff_Name = * Character *
		Position = * Character *

Object Name	Object Type	Description
Supplier information	Data store	<p>Department = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>* <u>Supplier_ID</u> + Supplier_name + Supplier_Address + Telephone + Fax + Contact_person *</p> <p>Supplier_ID = * Character + Digit Number *</p> <p>Supplier_name = * Character *</p> <p>Supplier_Address = * Character *</p> <p>Telephone = * Character *</p> <p>Fax = * Character *</p> <p>Contact_person = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p>



Object Name	Object Type	Description
Inventory information	Data store	<p>* <u>Product_ID</u> + Product_name + Lot_No. + Quantity + Unit + Cost_per_KG + Cost_per_unit +</p> <p>Amount *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Lot_No. = * Digit Number *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Cost_per_KG = * Digit Number *</p> <p>Cost_per_Unit = * Digit Number *</p> <p>Amount = Quantity x [Cost_per_KG   Cost_per_Unit]</p>

Object Name	Object Type	Description
Sales Order		Amount = * Digit Number *
		Character = [A-Z   a-z   0-9   -   /   .   &   %]
		Digit Number = 0{number}9
	Data store	* Order_No. + Customer_ID + Customer_name + Customer_address + Date + Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID
		Order_No = * Digit Number *
		Customer_ID = * Character + Digit Number *
		Customer_name = * Character *
		Customer_address = * Character *
		Date = * DD + MM + YYYY *

Object Name	Object Type	Description
		<p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p>

Object Name	Object Type	Description
Cash Sales Order	Data store	<p> <math>\text{Vat\_amount} = * \text{Digit Number} *</math>  <math>\text{Total\_amount} = \text{Amount} + \text{Vat\_amount}</math>  <math>\text{Total\_amount} = * \text{Digit Number} *</math>  <math>\text{Amount\_in\_word} = * \text{Character} *</math>  <math>\text{Staff\_ID} = * \text{Character} + \text{Digit Number} *</math>  <math>\text{Character} = [\text{A-Z}   \text{a-z}   0-9   -   /   .   \&amp;   \%]</math>  <math>\text{Digit Number} = 0\{\text{number}\}9</math>  <math>\text{DD} = 1\{\text{number}\}31</math>  <math>\text{MM} = 1\{\text{number}\}12</math>  <math>\text{YYYY} = 0000\{\text{number}\}9999</math>  <math>* \text{Order\_No.} + \text{Customer\_ID} + \text{Customer\_name} + \text{Customer\_address} + \text{Date} + \text{Term\_of\_payment}</math> </p>

Object Name	Object Type	Description
		<p>+ Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount +</p> <p>Total_amount + Amount_in_word + Staff_ID</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p>



Object Name	Object Type	Description
		<p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Vat_amount = * Digit Number *</p> <p>Total_amount = Amount + Vat_amount</p> <p>Total_amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p>

Object Name	Object Type	Description
Credit Sales Order	Data store	<p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* Order_No. + Customer_ID + Customer_name + Customer_address + Date + Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p>

Object Name	Object Type	Description
		<p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p>

Object Name	Object Type	Description
		<p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Vat_amount = * Digit Number *</p> <p>Total_amount = Amount + Vat_amount</p> <p>Total_amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 3 1</p>

Object Name	Object Type	Description
Tax invoice	Data store	<p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* Tax_invoice_No. + Order_No. + Customer_ID</p> <p>+ Customer_name + Customer_address + Date</p> <p>+ Term_of_payment + Product_ID + Product_name</p> <p>+ Quantity + Unit + Price + Amount +</p> <p>Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Tax_invoice_No. = * Digit Number *</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p>



Object Name	Object Type	Description
		<p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p>

Object Name	Object Type	Description
		<p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Total_amount = Amount + Vat_amount</p> <p>Total_amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p>

Object Name	Object Type	Description
Invoice	Data store	<p>* <u>Invoice_No.</u> + Customer_ID + Customer_name + Customer_address + Date + No. + Order_No.  + Order_date + Due_date + Amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Invoice_No. = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>No. = * Digit Number *</p> <p>Order_No. = * Digit Number *</p> <p>Order_date = * DD + MM + YYYY *</p> <p>Due_date = Date + Order_date</p>

Object Name	Object Type	Description
		<p>Due_date = * DD + MM + YYYY *</p> <p>Amount = * Digit Number *</p> <p>Total_amount = * Sum of amount *</p> <p>Sum of amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p> <p>DD = 1{number}31</p> <p>MM = 1{number}12</p> <p>YYYY = 0000{number}9999</p>

Object Name	Object Type	Description
Official receipt	Data store	<p>* <u>Official_receipt_No.</u> + Customer_ID + Customer_name + Customer_address + Date + No. + Order_No. + Order_date + Amount + Total_amount + Payment + Amount_in_word + Staff_ID.</p> <p>Official_receipt_No. = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>No. = * Digit Number *</p> <p>Order_No. = * Digit Number *</p> <p>Order_date = * DD + MM + YYYY *</p> <p>Amount = * Digit Number *</p>



Object Name	Object Type	Description
		<p>Payment = * Method of payment *</p> <p>Method of payment = [Cash   Cheque]</p> <p>Cheque = * Bank's name + Bank's branch + Cheque_No. + Cheque_date *</p> <p>Bank's name = * Character *</p> <p>Bank's branch = * Character *</p> <p>Cheque_No. = * Character *</p> <p>Cheque_date = * DD + MM + YYYY *</p> <p>Total_amount = * Sum of amount *</p> <p>Sum of amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p>

Object Name	Object Type	Description
Purchase Order	Data store	<p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* Purchase_order_No. + Supplier_ID + Supplier_name + Supplier_address + Date + Product_ID</p> <p>+Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount +</p> <p>Amount_in_word + Staff_ID</p> <p>Purchase_order_date = * Digit Number *</p> <p>Supplier_ID = * Character + Digit Number *</p> <p>Supplier_name = * Character *</p>

Object Name	Object Type	Description
		<p>Supplier_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p>

Object Name	Object Type	Description
		<p><math>\text{Vat\_amount} = \text{Amount} \times \text{Vat\_rate}</math></p> <p><math>\text{Total\_amount} = \text{Amount} + \text{Vat\_amount}</math></p> <p><math>\text{Total\_amount} = * \text{Digit Number} *</math></p> <p><math>\text{Amount\_in\_word} = * \text{Character} *</math></p> <p><math>\text{Staff\_ID} = * \text{Character} + \text{Digit Number} *</math></p> <p><math>\text{Character} = [\text{A-Z} \mid \text{a-z} \mid \text{0-9} \mid - \mid / \mid . \mid \&amp; \mid \%]</math></p> <p><math>\text{Digit Number} = 0 \{ \text{number} \} 9</math></p> <p><math>\text{DD} = 1 \{ \text{number} \} 31</math></p> <p><math>\text{MM} = 1 \{ \text{number} \} 12</math></p> <p><math>\text{YYYY} = 0000 \{ \text{number} \} 9999</math></p> <p>* <math>\text{Order\_No.} + \text{Official\_receipt\_No.} + \text{Official\_receipt\_date} + \text{Customer\_ID} + \text{Customer\_name} +</math></p>
Credit receipt	Data store	

Object Name	Object Type	Description
		<p>Amount *</p> <p>Order_No. = * Digit Number *</p> <p>Official_receipt_No. = * Digit Number *</p> <p>Official_receipt_date = * DD + MM + YYYY *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Amount = * Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p>



Object Name	Object Type	Description
Customer_Order	Data flow	<p>YYYY = 0000 {number} 9999</p> <p>* Customer_Name + Product_Name + Date + Quantity + Price *</p> <p>Customer_name = * Character *</p> <p>Product_name = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Quantity = * Digit Number *</p> <p>Price = * Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p>

Object Name	Object Type	Description
Customer information	Data flow	<p>YYYY = 0000 {number} 9999</p> <p>* Customer_ID + Customer_name + Customer_address *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p>
Product information	Data flow	<p>* Product_ID + Product_name *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p>

Object Name	Object Type	Description
Sales Order	Data flow	<p>Digit Number = 0{number}9</p> <p>* Order_No. + Customer_ID + Customer_name + Customer_address + Date + Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p>

Object Name	Object Type	Description
		<p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Vat_amount = * Digit Number *</p> <p>Total_amount = Amount + Vat_amount</p>

Object Name	Object Type	Description
Cash Sales order	Data flow	<p>Total_amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* Order_No. + Customer_ID + Customer_name + Customer_address + Date + Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID</p>



Object Name	Object Type	Description
		<p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p>

Object Name	Object Type	Description
		<p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Vat_amount = * Digit Number *</p> <p>Total_amount = Amount + Vat_amount</p> <p>Total_amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p>

Object Name	Object Type	Description
Credit Sales order	Data flow	<p>Digit Number = 0{number}9</p> <p>DD = 1{number}31</p> <p>MM = 1{number}12</p> <p>YYYY = 0000{number}9999</p> <p>* Order_No. + Customer_ID + Customer_name + Customer_address + Date + Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p>

Object Name	Object Type	Description
		<p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p>

Object Name	Object Type	Description
		<p> <math display="block">\text{Vat\_amount} = \text{Amount} \times \text{Vat\_rate}</math> <math display="block">\text{Vat\_amount} = * \text{Digit Number} *</math> <math display="block">\text{Total\_amount} = \text{Amount} + \text{Vat\_amount}</math> <math display="block">\text{Total\_amount} = * \text{Digit Number} *</math> <math display="block">\text{Amount\_in\_word} = * \text{Character} *</math> <math display="block">\text{Staff\_ID} = * \text{Character} + \text{Digit Number} *</math> <math display="block">\text{Character} = [\text{A-Z} \mid \text{a-z} \mid 0-9 \mid - \mid / \mid . \mid \&amp; \mid \%]</math> <math display="block">\text{Digit Number} = 0\{\text{number}\}9</math> <math display="block">\text{DD} = 1\{\text{number}\}31</math> <math display="block">\text{MM} = 1\{\text{number}\}12</math> <math display="block">\text{YYYY} = 0000\{\text{number}\}9999</math> </p>



Object Name	Object Type	Description
Tax invoice	Data flow	<p>* Tax_invoice_No. + Order_No. + Customer_ID + Customer_name + Customer_address + Date</p> <p>+ Term_of_payment + Product_ID + Product_name + Quantity + Unit + Price + Amount +</p> <p>Vat_rate</p> <p>+ Vat_amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Tax_invoice_No. = * Digit Number *</p> <p>Order_No = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Term_of_payment = * Digit Number *</p>

Object Name	Object Type	Description
		<p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p> <p>Vat_rate = * Digit Number *</p> <p>Vat_amount = Amount x Vat_rate</p> <p>Total_amount = Amount + Vat_amount</p>

Object Name	Object Type	Description
Sales amount	Data flow	Total_amount = * Digit Number *
		Amount_in_word = * Character *
		Staff_ID = * Character + Digit Number *
		Character = [A-Z   a-z   0-9   -   /   .   &   %]
		Digit Number = 0 {number} 9
		DD = 1 {number} 31
		MM = 1 {number} 12
		YYYY = 0000 {number} 9999
		* Quantity + Price *
		Quantity = * Digit Number *
		Price = * Digit Number *

Object Name	Object Type	Description
Total sales amount	Data flow	Digit Number = 0{number}9
Tax amount	Data flow	* Sum of Sale amount * * Vat_rate + Total_sales_amount * Vat_rat = * Digit Number * Total_sales_amount = * Digit Number * Digit Number = 0{number}9
Gross Sales amount	Data flow	* Total_sales_amount + Tax_amount * Total_sales_amount = * Digit Number * Tax_amount = * Digit Number *
Invoice	Data flow	Digit Number = 0{number}9 * Invoice_No. + Customer_ID + Customer_name + Customer_address + Date + No. + Order_No.

Object Name	Object Type	Description
		<p>+ Order_date + Due_date + Amount + Total_amount + Amount_in_word + Staff_ID</p> <p>Invoice_No. = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>No. = * Digit Number *</p> <p>Order_No. = * Digit Number *</p> <p>Order_date = * DD + MM + YYYY *</p> <p>Due_date = Date + Order_date</p> <p>Due_date = * DD + MM + YYYY *</p>



Object Name	Object Type	Description
Official receipt	Data flow	<p>Amount = * Digit Number *</p> <p>Total_amount = * Sum of amount *</p> <p>Sum of amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit_Number = 0{number}9</p> <p>DD = 1{number}31</p> <p>MM = 1{number}12</p> <p>YYYY = 0000{number}9999</p> <p>* Official_receipt_No. + Customer_ID + Customer_name + Customer_address + Date + No. +</p>

Object Name	Object Type	Description
		<p>Order_No. + Order_date + Amount + Total_amount + Payment + Amount_in_word + Staff_ID.</p> <p>Official_receipt_No. = * Digit Number *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p> <p>Customer_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>No. = * Digit Number *</p> <p>Order_No. = * Digit Number *</p> <p>Order_date = * DD + MM + YYYY *</p> <p>Amount = * Digit Number *</p> <p>Payment = * Method of payment *</p>

Object Name	Object Type	Description
		<p>Method of payment = [Cash   Cheque]</p> <p>Cheque = * Bank's name + Bank's branch + Cheque_No. + Cheque_date *</p> <p>Bank's name = * Character *</p> <p>Bank's branch = * Character *</p> <p>Cheque_No. = * Character *</p> <p>Cheque_date = * DD + MM + YYYY *</p> <p>Total_amount = * Sum of amount *</p> <p>Sum of amount = * Digit Number *</p> <p>Amount_in_word = * Character *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p>

Object Name	Object Type	Description
Credit receipt	Data flow	<p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 31</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* Order_No. + Official_receipt_No. + Official_receipt_date + Customer_ID + Customer_name + Amount *</p> <p>Order_No. = * Digit Number *</p> <p>Official_receipt_No. = * Digit Number *</p> <p>Official_receipt_date = * DD + MM + YYYY *</p> <p>Customer_ID = * Character + Digit Number *</p> <p>Customer_name = * Character *</p>

Object Name	Object Type	Description
Valid Inventory	Data flow	<p>Amount = * Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p> <p>MM = 1{number}12</p> <p>YYYY = 0000{number}9999</p> <p>* Order_No. + Date + Product_ID + Product_name + Lot_No. + Quantity *</p> <p>Order_No. = * Digit Number *</p> <p>Date = * DD + MM + YYYY *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Lot_No. = * Digit Number *</p>



Object Name	Object Type	Description
Invalid Inventory	Data flow	<p>Quantity = * Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p> <p>DD = 1{number}31</p> <p>MM = 1{number}12</p> <p>YYYY = 0000{number}9999</p> <p>* Order_No.+ Date + Product_ID + Product_name + Quantity *</p> <p>Order_No. = * Digit Number *</p> <p>Date = * DD + MM + YYYY *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p>

Object Name	Object Type	Description
Purchase Order	Data flow	<p>Quantity = * Digit Number *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0 {number} 9</p> <p>DD = 1 {number} 3 1</p> <p>MM = 1 {number} 12</p> <p>YYYY = 0000 {number} 9999</p> <p>* <u>Purchase_order_No.</u> + Supplier_ID + Supplier_name + Supplier_address + Date + Product_ID</p> <p>+Product_name + Quantity + Unit + Price + Amount + Vat_rate + Vat_amount + Total_amount +</p> <p>Amount_in_word + Staff_ID</p> <p>Purchase_order_date = * Digit Number *</p> <p>Supplier_ID = * Character + Digit Number *</p>

Object Name	Object Type	Description
		<p>Supplier_name = * Character *</p> <p>Supplier_address = * Character *</p> <p>Date = * DD + MM + YYYY *</p> <p>Product_ID = * Character + Digit Number *</p> <p>Product_name = * Character *</p> <p>Quantity = * Digit Number *</p> <p>Unit = * The measurement unit of product *</p> <p>The measurement unit = * Character *</p> <p>Price = * Digit Number *</p> <p>Amount = Quantity x Price</p> <p>Amount = * Digit Number *</p>

Object Name	Object Type	Description
		<p> <math>Vat\_rate = * \text{Digit Number} *</math>  <math>Vat\_amount = Amount \times Vat\_rate</math>  <math>Total\_amount = Amount + Vat\_amount</math>  <math>Total\_amount = * \text{Digit Number} *</math>  <math>Amount\_in\_word = * \text{Character} *</math>  <math>Staff\_ID = * \text{Character} + \text{Digit Number} *</math>  <math>Character = [A-Z   a-z   0-9   -   /   .   \&amp;   \%]</math>  <math>\text{Digit Number} = 0\{\text{number}\}9</math>  <math>DD = 1\{\text{number}\}31</math>  <math>MM = 1\{\text{number}\}12</math>  <math>YYYY = 0000\{\text{number}\}9999</math> </p>

Object Name	Object Type	Description
Supplier information	Data flow	<p>* Supplier_ID + Supplier_name + Supplier_address *</p> <p>Supplier_ID = * Character + Digit Number *</p> <p>Supplier_name = * Character *</p> <p>Supplier_address = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p>
Staff information	Data flow	<p>* Staff_ID + Staff_name *</p> <p>Staff_ID = * Character + Digit Number *</p> <p>Staff_name = * Character *</p> <p>Character = [A-Z   a-z   0-9   -   /   .   &amp;   %]</p> <p>Digit Number = 0{number}9</p>





**APPENDIX D**  
**PROCESS SPECIFICATION**

## PROCESS SPECIFICATION

Process Number : 1.0 Prepare Sales Order

Input : Customer Order

Output : Sales Order

Process Description :

This is the process of preparing Sales Order record.

Process Number : 1.1 Process Sales Order

Input : Customer Order, Customer, Product, Staff, Sales Order

Output : Sales Order

Process Description :

Staff gets the Customer Order from customer.

Get Sales Order No. from Sales Order database

Get Customer ID, Customer Name and Address from Customer database.

Get Product ID, Product Name from Product database.

Key in Quantity, Price and Unit

Get Staff ID from Staff database.

Keep new Sales Order record in the database

Print out Sales Order to customer.

Process Number : 1.1.1 Calculate Sales amount

Input : Customer Order, Sales Order

Output : Sales amount

Process Description :

Get quantity and price from Sales Order database

Sales amount = quantity x price

Keep Sales amount in Sales Order record

Process Number : 1.1.2 Calculate Total Sales amount

Input : Sales amount

Output : Total Sales amount

Process Description :

Get Sales amount from Sales Order database

Total Sales amount is the sum of Sales amount

Keep Total Sales amount in Sales Order record

Process Number : 1.1.3 Calculate Tax amount

Input : Total Sales amount

Output : Tax amount

Process Description :

Get Tax rate from Sales Order database.

Get Total Sales amount from Sales Order database

Tax amount = Total Sales amount x Tax rate.

Keep Tax amount in Sales Order record

Process Number : 1.1.4 Calculate Gross Sales amount

Input : Total Sales amount and tax amount

Output : Gross Sales amount

Process Description :

Get Total Sales amount and Tax amount from Sales Order database

Gross Sales amount is the sum of Total Sales amount and Tax amount

Keep Gross Sales amount in Sales Order record

Process Number : 1.2 Generating Cash and Credit Sales Order

Input : Sales Order

Output : Cash Sales record and Credit Sales record

Process Description :

Get Sales Order from Sales Order database

Verify the term of payment

If the terms of payment is not equal to zero, Sales record is kept to be Credit Sales record

If term of payment is zero, Sales record is kept to be Cash Sales record

Keep new Cash Sales record database

Keep new Credit Sales record database

Process Number : 1.3 Issuing Tax invoice

Input : Sales Order

Output : Tax invoice

Process Description :

Get Sales Order from Sales Order database.

Verify Tax rate

If the tax rate is equal to 7%, Sales Order is kept to be tax invoice record

Get Tax invoice No. from Tax invoice database

Keep the new Tax invoice record database

Print out Tax invoice to customers

Process Number : 2.0 Issue Invoice

Input : Credit Sales Order

Output : Invoice

Process Description :

This is the process of preparing Invoice.

Process Number : 2.1 Gathering monthly credit sales of each customer

Input : Credit Sales Order



Output : Monthly credit statement

Process Description :

Get Credit Sales Order from Credit Sales Order database.

Select Customer ID from Customer database

Group Credit Sales Order by Date

Process Number : 2.2 Issue invoice

Input : Monthly credit statement, Customer, Staff

Output : Invoice

Process Description :

Get the monthly credit statement

Get Invoice No. from Invoice database

Get Customer ID, Customer Name from Customer database

Get Staff ID from Staff database

Issue Invoice to Customer

Process Number : 3.0 Cash Collection Process

Input : Cash Sales Order, Credit Sales Order, Customer, Staff

Output : Official Receipt

Process Description :

This is the process of preparing Official Receipt.

Process Number : 3.1 Issue Official Receipt

Input : Cash Sales Order, Credit Sales Order, Customer, Staff

Output : Official Receipt

Process Description :

Get the payment from customer

Get Official Receipt No. from Official Receipt database

Get Customer ID, Customer Name and Address from Customer database

Get Cash Sales from Cash Sales record database

Get Credit Sales from Credit Sales record database

Get Staff ID from Staff database

Keep new Official Receipt record in the database

Print Out Official Receipt to Customer

Process Number : 3.2 Generating Credit receipt record

Input : Official Receipt

Output : Credit Receipt record

Process Description :

Get Sales Order No. from Official receipt database

Get Sales Order No. from Credit Sales Order database

If Sales Order No. from Official receipt is in Credit Sales Order database

Keep Sales Order No and Official Receipt No as new Credit receipt record in the database

Process Number : 3.3 Update Credit Sales available

Input : Credit Receipt record, Credit Sales Order

Output : Credit Sales Order

Process Description :

Get Sales Order No. from Credit Receipt database

Get Sales Order No. from Credit Sales Order database

If Sales Order No. from Credit Sales Order is in Credit Receipt record

Update Credit Sales Order database

Process Number : 4.0 Validating inventory on hand

Input : Inventory, Product, Sales Order

Output : \*

Process Description :

Get Product ID, Product Name from Product database

Get Lot No., Quantity and Cost from inventory database

Verify the validation of inventory with Sales Order

If the inventory is valid, the product shipment is done

If the inventory is invalid, the Purchase Order will be issued.

Process Number : 5.0 Issue Purchase Order

Input : Supplier, Product, Staff

Output : Purchase Order

Process Description :

Get Purchase Order No. from Purchase Order database

Get Supplier ID, Supplier Name and Address from Supplier database

Get Product ID, Product Name from Product database

Key in quantity, price and unit

Keep new Purchase Order record in the database

Print out Purchase Order to Supplier

Process Number : 5.1 Calculate Purchase amount

Input : Supplier, Product, Staff, Purchase Order

Output : Purchase amount

Process Description :

Get quantity and price from Purchase Order database

Purchase amount = quantity x price

Keep Purchase amount in Purchase Order record

Process Number : 5.2 Calculate Total Purchase amount

Input : Purchase amount

Output : Total Purchase amount

Process Description :

Get Purchase amount from Purchase Order database

Total Purchase amount is the sum of Purchase amount

Keep Total Purchase amount in Purchase Order record

Process Number : 5.3 Calculate Purchase Tax amount

Input : Total Purchase amount

Output : Purchase Tax amount

Process Description :

Get Purchase Tax rate from Purchase Order database.

Get Total Purchase amount from Purchase Order database

$\text{Purchase Tax amount} = \text{Total Purchase amount} \times \text{Purchase Tax rate.}$

Keep Purchase Tax amount in Purchase Order record

Process Number : 5.4 Calculate Gross Purchase amount

Input : Total Purchase amount and Purchase Tax amount

Output : Gross Purchase amount

Process Description :

Get Total Purchase amount and Purchase Tax amount from Purchase Order in the database



Gross Purchase amount is the sum of Total Purchase amount and PurchaseTax amount

Keep Gross Purchase amount in Purchase Order record

Process Number : 6.0 Updating Customer Information

Input : Customer Order

Output : Customer

Process Description :

This is the process of updating Customer information. In case, the new customer will be added in the database or the existing customer information is changed.

Process Number : 6.1 Add New customer information

Input : Customer Order

Output :

Process Description :

Get Customer ID from Customer in the database

If Customer ID in Customer Order is not in Customer ID database

Get Customer information from customer

Add new Customer information to Customer database

Process Number : 6.2 Modify customer information

Input : Customer, Customer Order

Output : -

Process Description :

Get Customer ID from Customer database

If Customer ID in Customer Order is in Customer ID database

Update Customer information to Customer database, if some record is changed.

Process Number : 7.0 Generating report

Input : All record in database

Output : Report

Process Description :

Get record from Tax Invoice database

Get record from Product database

Get record from Customer database

Get record from Sales Order database

Get record from Cash Sales Order database

Get record from Credit Sales Order database

Get record from Official Receipt database

Get record from Purchase Order database

Get record from Supplier database

Get record from Staff database

Get record from Invoice database

Generate report to Management.





**APPENDIX E**  
**MODULE SPECIFICATION**

## MODULE SPECIFICATION

Module : Make Sales Order  
Purpose : Issue Sales Order  
Use : Customer, Product, Staff  
Return : Sales Order Document

System generates Sales Order No. and Date automatically

Get Customer\_ID

If Customer\_ID is not in Customer database then

Call Module(Add new Customer)

else Retrieve Customer\_Name, Address from Customer database

Key in Term\_of\_payment

Select Product\_ID from list box

Key in Quantity, Unit, Price

num := 0

While Product\_ID <> "" do

begin num := num + 1

Call Module (Calculate amount)

end

Call Module (Calculate total amount) with num

Select Tax\_rate from list box

Call Module (Calculate Tax amount) with tax rate

Call Module (Calculate Gross amount)

Select Staff\_ID from list box

Save new Sales Order record in Sales Order database



Call Module (Cash & Credit Sales Order) with term of payment

If Tax\_rate = 7% then Call Module (Issue Tax Invoice) with Sale Order

Print Out Sales Order

Module : Add New Customer  
Purpose : Update Customer database  
Use : Customer  
Return : -

Key in Customer\_ID, Customer\_Name, Address, Tel, Fax and contact person

Save new Customer record in Customer database.

Module : Calculate Amount  
Purpose : Calculate Amount  
Use : Quantity, Price  
Return : Amount

Get Quantity and Price

Amount = Quantity x Price

Module : Calculate Total amount  
Purpose : Calculate Total amount  
Use : Amount, num  
Return : Total amount

Result := 0

For i := 1 to num do

Begin

result := result + amount

end

Total amount := result

Module : Calculate Tax amount  
Purpose : Calculate Tax amount  
Use : Tax rate, Total amount  
Return : Tax amount

Tax amount = Total amount x Tax rate

Module : Calculate Gross amount  
Purpose : Calculate Gross amount  
Use : Total amount, Tax amount  
Return : Gross Amount

Gross amount = Total Amount + Tax amount

Module : Make Cash & Credit Sales Order record  
Purpose : Make Cash & Credit Sales Order record  
Use : Term of payment  
Return : Cash & Credit Sales Order

If Term\_of\_payment <> 0 then

Save Sales Order to Credit Sales Order

else Save Sales Order to Cash Sales Order

Module : Make Tax invoice  
Purpose : Add new Tax invoice  
Use : Sales Order record  
Return : Tax invoice document

System generates Tax\_invoice\_No. and Date automatically

Save new Tax invoice record to Tax invoice database

Print Out Tax invoice

Module : Make Invoice  
Purpose : Issue Sales Order  
Use : Credit Sales Order  
Return : Invoice Document

System generates Invoice\_No. and Date automatically

Get Customer\_ID

Retrieve Customer\_Name and Address

num := 0

Search Sales\_Order\_No. from Credit Sales Order

While found (Sales\_Order\_No.) do

begin num := num + 1

Retrieve Order\_date, Gross\_amount, term\_of\_payment

Due\_date = Order\_date + Term\_of\_payment

end

Call Module (Calculate Total amount) with num

Select Staff\_ID from list box

Save new invoice to invoice record

## Print Out Invoice

Module : Make Official Receipt  
Purpose : Issue Official Receipt  
Use : Sales Order record  
Return : Official Receipt Document

System generates Official\_Receipt\_No. and date automatically

Get Customer\_ID

Retrieve Customer\_Name and Address

Key in Sales\_Order\_No.

num := 0

While Sales\_Order\_No. < > “ ” do

begin

Search Sales\_Order\_No in Sales Order database

If found (Sales\_Order\_No.) then

Retrieve Order\_date, Gross amount

num := num + 1

Call Module ( Add new Credit Receipt record) with Official

Receipt No., Sales Order No.

else messagebox (“ไม่มีหมายเลขใบสั่งสินค้านี้”)

end

Call Module (Calculate Total amount) with num

Select cash or cheque payment

If Cheque then

Key in Bank\_name, Branch, Cheque\_No, Cheque\_date

Select Staff\_ID from list box

Save new Official Receipt to Official Receipt database

Call Module (Update Credit Sales Order)

Print Out Official Receipt

Module : Add new credit receipt record

Purpose : Update credit receipt record

Use : Official Receipt No, Sales Order No.

Return : -

Get Official\_Receipt\_No., Sales\_Order\_No.

Search Sales\_Order\_No. in Credit Sales Order

If found (Sales\_Order\_No.) then

Save new Credit receipt record in Credit Receipt database

Module : \* Update Credit Sales Order \*

Purpose : Update Credit Sales Order

Use : Credit Sales Order, Credit Receipt record

Return : Update Credit Sales Order

Search Sales\_Order\_No. of Credit Sales Order by using Sales\_Order\_No. of

Credit receipt record.

If found (Sales\_Order\_No.) then

Update Credit Sales Order in the database.



Module : Make Purchase Order  
Purpose : Issue Purchase Order  
Use : Product, Supplier, Staff  
Return : Purchase Order document

System generates Purchase\_Order\_No. and Date automatically

Get Supplier\_ID

If Supplier\_ID is not in Supplier database then

Call Module (Add new Supplier)

else Retrieve Supplier\_Name, Address from Supplier database

Select Product\_ID from list box

Key in Quantity, Unit, Price

num := 0

While Product\_ID <> "" do

begin num := num + 1

Call Module (Calculate amount)

end

Call Module (Calculate total amount) with num

Select Tax rate from list box

Call Module (Calculate Tax amount) with tax rate

Call Module (Calculate Gross amount)

Select Staff\_ID from list box

Save new Purchase Order in Purchase Order database

Print Out Purchase Order

Module : Generate Report  
Purpose : Issue Report to management  
Use : Report, Type of report, beginning date, ending date  
Return : Report document

Case Report do

“รายงานลูกค้า” :

begin

Case type of report do

1 : filename = “ Customer Information Report”

2 : filename = “ Sales Analysis report by Customer”

end case

open filename with beginning date, ending date

end

“รายงานสินค้า” :

begin

Case type of report do

1 : filename = “ Product Information Report”

2 : filename = “ Sales Analysis report by product”

3 : filename = “Inventory on hand report”

end case

open filename with beginning date, ending date

end

“ รายงานผู้จำหน่าย “ :

Open Supplier Information Report with beginning date, ending date

“รายงานการขายและสิ่งอื่น” :

Case type of report do

1 : filename = “ Total Sales Report”

2 : filename = “ Total Cash Sales Report”

3 : filename = “ Total Credit Sales Report”

4 : filename = “ Sales Tax report”

5 : filename = “ Purchase Order Report”

6 : filename = “ Purchase Tax Report”

7 : filename = “ Total Cash collection Report”

8 : filename = “ Total Credit Sales Collection Report”

9 : filename = “ Total Credit Owed Report

10 : filename = “ Total Credit Exceeding Report”

end case

open filename with beginning date, ending date

end

end case





The image shows a screenshot of a security control interface. At the top, the title 'ระบบรักษาความปลอดภัย' (Security Control System) is centered. Below the title, there are two input fields. The first is labeled 'รหัสพนักงาน' (Staff ID) and contains the text 'AC-0001'. The second is labeled 'รหัสผ่าน' (Password) and contains seven asterisks '\*\*\*\*\*'. Below these fields are two buttons: 'เข้าระบบ' (Login) on the left and 'ออกจากระบบ' (Logout) on the right. The entire interface is enclosed in a rectangular frame.

Figure F.1. Security Control Screen.

This screen represents the security control of the proposed system. All users must have their Staff ID and password to access the system. The password must be changed every 3 months. If the password is incorrect 3 times, the system will shut down automatically.



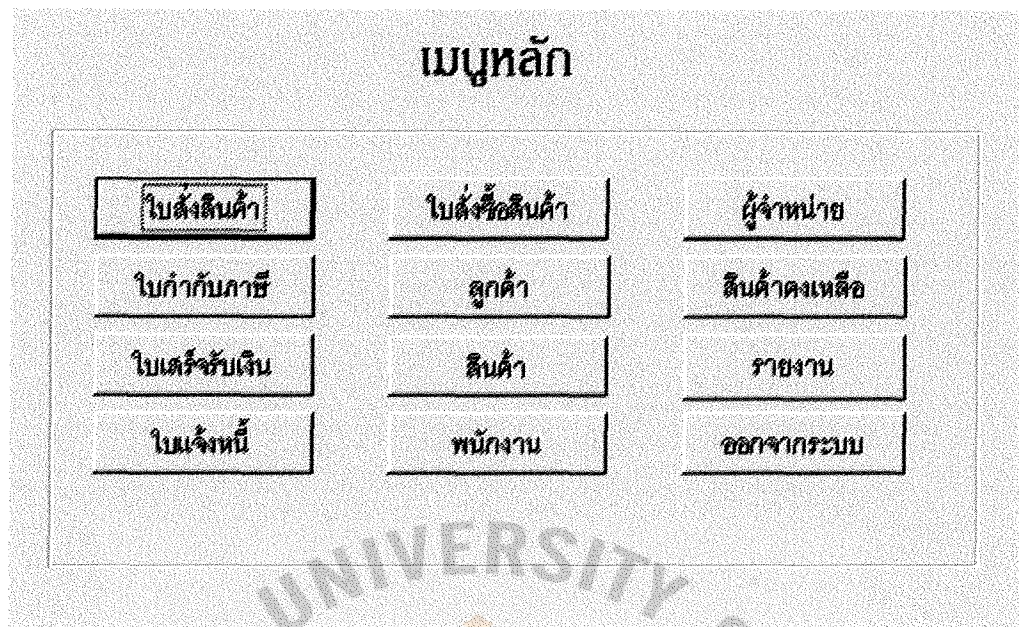


Figure F.2. Main Menu Screen.

This screen represents the main function of the system. It consists of Sales order, Tax invoice, Official receipt, Invoice, Purchase order, Customer, Product, Staff, Supplier, Inventory and Report.

**ใบสั่งสินค้า**

รหัสลูกค้า	ค-0004	ใบสั่งสินค้าเลขที่	0001
ชื่อลูกค้า	บริษัท คอนกรีตโลหะกิจ จำกัด	วันที่	1/4/1999
ที่อยู่	7/5-6 ถ. มหานคร แขวงรองเมือง เขตคลองเมือง กทม.	เงื่อนไขการชำระเงิน	15 วัน

รหัสสินค้า	รายการสินค้า	จำนวน	หน่วย	ราคา/หน่วย	จำนวนเงิน
AL-0001	#3.0mm x 4' x 8' สแตนเลส	5	แผ่น	1560.00	7,800.00
PS-0010	แป๊ปสแตนเลส 2 x 2 x 1.5mm	7	เส้น	860.00	6,020.00
<b>รวม</b>					13,820.00
ภาษี 7%					967.40
<b>รวมยอดชำระ</b>					14,787.40

จำนวนเงินเป็นทวิอักษร

หนึ่งหมื่นสี่พันเจ็ดร้อยแปดสิบเจ็ดบาทสี่สิบสองสตางค์

จัดทำโดย AC-0002

เพิ่มเติม	ลบข้อมูล	บันทึกข้อมูล	ค้นหาข้อมูล
ข้อมูลถัดไป	ข้อมูลก่อนหน้า	พิมพ์ข้อมูล	ออก

Figure F.3. Sales Order Screen.

Screen Name : Sales Order Screen

Table F.1. Screen No. : SC0003 , Sales Order Screen Format.

Field name	Type	Length	Format
Sales_order_No.	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
Term	Numeric	2	99
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx



**ใบกำกับภาษี**

รหัสลูกค้า	๑-0001	ใบกำกับภาษีเลขที่	0010
ชื่อลูกค้า	บริษัท อรรณวอุตสาหกรรม จำกัด	ใบสั่งสินค้าเลขที่	0028
ที่อยู่	10 หมู่ 1 ถ. เพชรเกษม แขวงภาษีเจริญ เขตภาษีเจริญ กทม.	วันที่	1/5/1999
		เดือน/ปีการชำระเงิน	0    วัน

รหัสสินค้า	รายละเอียดสินค้า	จำนวน	หน่วย	ราคา/หน่วย	จำนวนเงิน
RB-0001	เพลสแตนเลส 1"	75	กิโลกรัม	105.00	7,875.00
FB-0010	แบนสแตนเลส 1-1/4 x 3/16	11	เส้น	690.00	7,590.00
รวม					15,465.00
ภาษี 7%					1,082.55
รวมยอดชำระ					16,547.55

จำนวนเงินเป็นคำอื่น

หนึ่งหมื่นหกพันห้าร้อยสี่สิบเจ็ดบาทห้าสิบห้าสตางค์ 1969

จัดทำโดย AC-0002

เพิ่มเติ่ม

ลบข้อมูล

บันทึกข้อมูล

ค้นหาข้อมูล

ข้อมูลถัดไป

ข้อมูลก่อนหน้า

พิมพ์ข้อมูล

ออก

Figure F.4. Tax Invoice Screen.

Screen Name : Tax Invoice Screen

Table F.2. Screen No. : SC0004 , Tax Invoice Screen Format.

Field name	Type	Length	Format
Tax_invoice_No	Numeric	4	9999
Sales_order_No.	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
Term	Numeric	2	99
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

**ใบเสร็จรับเงิน**

รหัสลูกค้า	ท-0003	ใบเสร็จรับเงินเลขที่	0070
ชื่อลูกค้า	ไทยสิน	วันที่	20/5/1999
ที่อยู่	85 ถ. ตากสิน แขวงธนบุรี เขตธนบุรี กทม.		

ลำดับที่	ใบสั่งสินค้าเลขที่	วันที่ใบสั่งสินค้า	จำนวนเงิน
1	0010	20/4/1999	5,756.25
2	0035	10/5/1999	16,890.50
รวม			22,646.75

ชำระโดย

<input checked="" type="radio"/> เงินสด	<input type="radio"/> เช็ค	ธนาคาร	สาขา
		เช็คเลขที่	เช็คลงวันที่

จำนวนเงินเป็นตัวเลข

สองหมื่นสองพันหกร้อยสี่สิบลบาทเจ็ดสิบห้าสตางค์	จัดทำโดย AC-0002
--	------------------

เพิ่มเติม	ลบข้อมูล	บันทึกข้อมูล	ค้นหาข้อมูล
ข้อมูลถัดไป	ข้อมูลก่อนหน้า	พิมพ์ข้อมูล	ออก

Figure F.5. Official Receipt Screen.



Screen Name : Official Receipt Screen

Table F.3. Screen No. : SC0005 , Official Receipt Screen Format.

Field name	Type	Length	Format
Official_receipt_No	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
No.	Numeric	2	99
Sales_order_No.	Numeric	4	9999
Sales_order_date	Date	10	99/99/9999
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Payment	Boolean	1	(0/1)
Bank_name	Character	20	xxx...xxx
Bank_branch	Character	30	xxx...xxx
Cheque_No	Character	7	xxxxxxx
Cheque_date	Date	10	99/99/9999
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

**ใบแจ้งหนี้**

รหัสลูกค้า	ด-0002	ใบแจ้งหนี้เลขที่	0017
ชื่อลูกค้า	บริษัท โตชิน (ประเทศไทย) จำกัด	วันที่	1/5/1999
ที่อยู่	461/22 ถ. จันทน์ แขวงบางโพงพาง เขตบางคอแหลม กทม.		

ลำดับที่	ใบส่งสินค้าเลขที่	วันที่ใบส่งสินค้า	วันที่ครบกำหนด	จำนวนเงิน
1	0020	17/4/1999	16/5/1999	36,795.00
2	0041	20/4/1999	19/5/1999	540.00
3	0058	22/4/1999	21/5/1999	1,652.00
จำนวนเงินเป็นตัวเลข				รวม 38,987.00
สามหมื่นแปดพันเก้าร้อยแปดสิบเจ็ดบาทถ้วน				จัดทำโดย AC-0002

เพิ่มเติม	ลบข้อมูล	บันทึกข้อมูล	ค้นหาข้อมูล
ข้อมูลถัดไป	ข้อมูลก่อนหน้า	พิมพ์ข้อมูล	ออก

Figure F.6. Invoice Screen.

Screen Name : Invoice Screen

Table F.4. Screen No. : SC0006 , Invoice Screen Format.

Field name	Type	Length	Format
Invoice_No	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
No.	Numeric	2	99
Sales_order_No.	Numeric	4	9999
Sales_order_date	Date	10	99/99/9999
Due_date	Date	10	99/99/9999
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx



**ใบสั่งซื้อสินค้า**

รหัสผู้จำหน่าย	จ-0005	ใบสั่งซื้อเลขที่	0011
ชื่อผู้จำหน่าย	บริษัท เจ อุตสาหกรรม จำกัด	วันที่	20/4/1999
ที่อยู่	56/4 ถ. เพชรเกษม แขวงภาษีเจริญ เขตภาษีเจริญ กทม.		

รหัสสินค้า	รายละเอียดสินค้า	จำนวน	หน่วย	ราคา/หน่วย	จำนวนเงิน
SF-0003	ข้อต่อขนาด 1"	150	ตัว	50.00	7,500.00
SF-0005	ข้อต่อขนาด 1-1/2"	100	ตัว	65.00	6,500.00
<b>รวม</b>					<b>14,000.00</b>
ภาษี 7%					<b>980.00</b>
<b>รวมยอดชำระ</b>					<b>14,980.00</b>

จำนวนเงินเป็นตัวอักษร

หนึ่งหมื่นสี่พันเก้าร้อยแปดสิบบาทถ้วน

จัดทำโดย AC-0001

เพิ่มเติม	ลบข้อมูล	บันทึกข้อมูล	ค้นหาข้อมูล
ข้อมูลลัดไป	ข้อมูลก่อนหน้า	พิมพ์ข้อมูล	ออก

Figure F.7. Purchase Order Screen.

Screen Name : Purchase Order Screen

Table F.5. Screen No. : SC0007 , Purchase Order Screen Format.

Field name	Type	Length	Format
Purchase_order_No.	Numeric	4	9999
Date	Date	10	99/99/9999
Supplier_ID	Character	6	x-xxxx
Supplier_Name	Character	25	xxx...xxx
Supplier_Address	Character	80	xxx...xxx
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx



**ลูกค้า**

รหัสลูกค้า	ก-0001
ชื่อลูกค้า	ห้างหุ้นส่วนจำกัด กิมเฮงเฮียง
ที่อยู่	851 ถ. เจริญกรุง ตลาดน้อย กทม.
โทรศัพท์	2334915, 2349018
โทรสาร	2383771
ติดต่อ	

เพิ่มเติม
ลบข้อมูล
บันทึกข้อมูล
ค้นหาข้อมูล

ข้อมูลดีดไป
ข้อมูลก่อนหน้า
พิมพ์ข้อมูล
ออก

Figure F.8. Customer Information Screen.

Screen Name : Customer Information Screen

Table F.6. Screen No. : SC0008 , Customer Information Screen Format.

Field name	Type	Length	Format
Customer_ID	Character	6	X-XXXX
Customer_Name	Character	25	XXX...XXX
Customer_Address	Character	80	XXX...XXX
Telephone	Character	30	XXX...XXX
Fax	Character	15	XXX...XXX
Contact_person	Character	20	XXX...XXX

**สินค้า**

รหัสสินค้า	AL-0001
ชื่อสินค้า	# 3.0 mm x 4' x 8' สลิมเนียม
น้ำหนักสุทธิ(กิโล)	24.6
ความหนา(มม.)	3
ความยาว(เมตร)	

เพิ่มเติม

ลบข้อมูล

บันทึกข้อมูล

ค้นหาข้อมูล

ข้อมูลถัดไป

ข้อมูลก่อนหน้า

พิมพ์ข้อมูล

ออก

Figure F.9. Product Information Screen.

Screen Name : Product Information Screen

Table F.7. Screen No. : SC0009 , Product Information Screen Format.

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	25	xxx...xxx
Weight	Character	4	xxxx
Thickness	Character	6	xx.xxx
Length	Character	4	xxxx



**พนักงาน**

รหัสพนักงาน	AC-0001
ชื่อพนักงาน	สุนทรี สุดสาครจุฑา
ตำแหน่ง	ผู้จัดการฝ่ายบัญชี
แผนก	บัญชี

เพิ่มเติม

ลบข้อมูล

บันทึกข้อมูล

ค้นหาข้อมูล

ข้อมูลถัดไป

ข้อมูลก่อนหน้า

พิมพ์ข้อมูล

ออก

Figure F.10. Staff Information Screen.

Screen Name : Staff Information Screen

Table F.8. Screen No. : SC0010 , Staff Information Screen Format.

Field name	Type	Length	Format
Staff_ID	Character	6	x-xxxx
Staff_Name	Character	25	xxx...xxx
Position	Character	20	xxx...xxx
Department	Character	20	xxx...xxx

## ผู้จำหน่ายสินค้า

รหัสผู้จำหน่าย	จ-0001
ชื่อผู้จำหน่าย	ห้างหุ้นส่วนสามัญนิติบุคคล จังโจ๊ะ
ที่อยู่	99/1 ถ. เจริญกรุง แขวงสัมพันธวงศ์ เขตสัมพันธวงศ์ กรุงเทพฯ 10500
โทรศัพท์	2350218, 2330172
โทรสาร	2350219
ติดต่อ	คุณเกียง

เพิ่มเติม
ลบข้อมูล
บันทึกข้อมูล
ค้นหาข้อมูล

ข้อมูลถัดไป
ข้อมูลก่อนหน้า
พิมพ์ข้อมูล
ออก

Figure F.11. Supplier Information Screen.

Screen Name : Supplier Information Screen

Table F.9. Screen No. : SC0011 , Supplier Information Screen Format.

Field name	Type	Length	Format
Supplier_ID	Character	6	x-xxxx
Supplier_Name	Character	25	xxx...xxx
Supplier_Address	Character	80	xxx...xxx
Telephone	Character	30	xxx...xxx
Fax	Character	15	xxx...xxx
Contact_person	Character	20	xxx...xxx



### รายการสินค้าคงเหลือ

รหัสสินค้า

SS-0001

ชื่อสินค้า

#3.0mm x 4' x 8' สแตนเลส

ลำดับที่	จำนวนสินค้า	หน่วย	ราคา/กิโลกรัม	ราคา/หน่วย	จำนวนเงิน
1	1597	กิโลกรัม	63	4475	100,611.00
2	43	แผ่น	62.5	4440	190,920.00

ข้อมูลทั่วไป

ข้อมูลย้อนหน้า

ค้นหาข้อมูล

พิมพ์ข้อมูล

ออก

Figure F.12. Inventory On Hand Screen.

Screen Name : Inventory on Hand Screen

Table F.10. Screen No. : SC0012 , Inventory on Hand Screen Format.

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Lot_No.	Character	2	xx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxx



Table F.10. Screen No. : SC0012 , Inventory on Hand Screen Format (continue).

Field name	Type	Length	Format
Cost per kilogram	Numeric	10	9999999.99
Cost per unit	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99

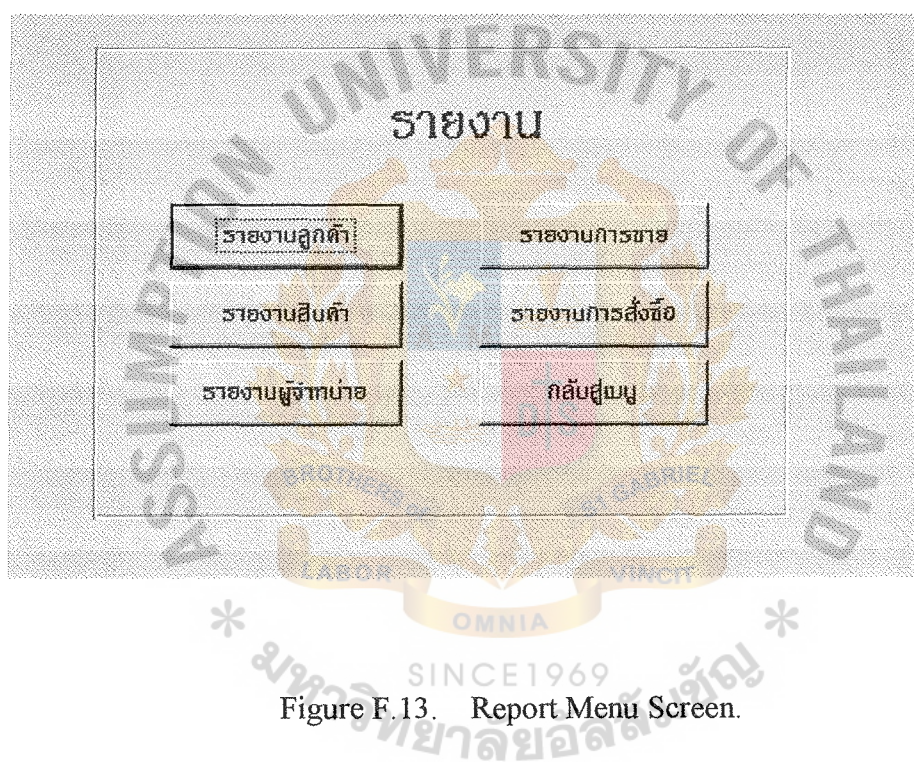



Figure F.13. Report Menu Screen.

This screen represents the report type of the proposed system. The reports are classified by Customer, Product, Supplier, Sales and Purchasing.



**รายงานลูกค้า**

รหัสลูกค้า: ท-0003

ชื่อลูกค้า: ไทยสิน

ประเภทรายงาน: รายงานข้อมูลลูกค้า

เริ่ม (วันที่/เดือน/ปี): 1/4/1999

ถึง (วันที่/เดือน/ปี): 30/4/1999

แสดงรายงาน    พิมพ์รายงาน    ออก

Figure F.14. Customer Report Screen.

Screen Name : Customer Report Screen

Table F.11. Screen No. : SC0014 , Customer Report Screen Format.

Field name	Type	Length	Format
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Report_Name	Character	40	xxx...xxx
From_date	Date	10	99/99/9999
To_date	Date	10	99/99/9999

**รายงานสินค้า**

รหัสสินค้า	<input type="text" value="SS-0001"/>	เริ่ม (วันที่/เดือน/ปี)	<input type="text" value="1/4/1999"/>
ชื่อสินค้า	<input type="text" value="#3.0mm x 4' x 8' สแตนเลส"/>	ถึง (วันที่/เดือน/ปี)	<input type="text" value="30/4/1999"/>
ประเภทรายงาน	<input type="text" value="รายงานข้อมูลสินค้า"/>		

Figure F.15. Product Report Screen.

Screen Name : Product Report Screen

Table F.12. Screen No. : SC0015 , Product Report Screen Format.

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	25	xxx...xxx
Report_Name	Character	40	xxx...xxx
From_date	Date	10	99/99/9999
To_date	Date	10	99/99/9999



**รายงานผู้จำหน่าย**

รหัสผู้จำหน่าย	<input type="text" value="ท-0001"/>	เริ่ม (วันที่/เดือน/ปี)	<input type="text" value="1/4/1999"/>
ชื่อผู้จำหน่าย:	<input type="text" value="บริษัท ไทยนิคมฯ สดิล จำกัด"/>	ถึง (วันที่/เดือน/ปี)	<input type="text" value="30/4/1999"/>
ประเภทรายงาน	<input type="text" value="รายงานข้อมูลผู้จำหน่าย"/>		

Figure F.16. Supplier Report Screen.

Screen Name : Supplier Report Screen

Table F.13. Screen No. : SC0016 , Supplier Report Screen Format.

Field name	Type	Length	Format
Supplier_ID	Character	6	x-xxxx
Supplier_Name	Character	25	xxx...xxx
Report_Name	Character	40	xxx...xxx
From_date	Date	10	99/99/9999
To_date	Date	10	99/99/9999

**รายงานการขาย และการสั่งซื้อ**

ประเภทรายงาน เริ่ม (วันที่/เดือน/ปี)

1/4/1999

รายงานยอดขาย ถึง (วันที่/เดือน/ปี)

30/4/1999

Figure F.17. Sales and Purchase Report Screen.

Screen Name : Sales and Purchase Report Screen

Table F.14. Screen No. : SC0017 , Sales and Purchase Report Screen Format.

Field name	Type	Length	Format
Report_Name	Character	40	xxx...xxx
From_date	Date	10	99/99/9999
To_date	Date	10	99/99/9999





## APPENDIX G

### REPORT DESIGN AND LAYOUT

ห้างหุ้นส่วนจำกัด พี. เค. สติล เซ็นเตอร์

28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพฯ

โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดขาย

วันที่ 1/4/1999 ถึง 5/4/1999

ลำดับที่	ใบสั่งสินค้าเลขที่	วันที่ใบสั่งสินค้า	ชื่อลูกค้า	จำนวนยอดชำระ
1	0122	1/4/1999	บริษัท ดนากิจโลหะกิจ จำกัด	25,650.00
2	0123	1/4/1999	ชลเชอร์วิส	17,650.00
3	0124	1/4/1999	ห้างหุ้นส่วนจำกัด ไทยภาพร	12,500.00
4	0125	1/4/1999	ห้างหุ้นส่วนจำกัด จิระสดี	48,500.00
5	0126	2/4/1999	ตากสินเครื่องเขียน	15,550.00
6	0127	2/4/1999	บริษัท ธรรมาอุตสาหกรรม จำกัด	30,200.00
7	0128	2/4/1999	บริษัท ดนากิจโลหะกิจ จำกัด	99,500.00
8	0129	2/4/1999	เจ้านครเครื่องเขียน	9,500.00
9	0130	5/4/1999	โรงงาน ไทยแพ้ง	65,752.00
10	0131	5/4/1999	บริษัท ไชยสิริเครื่องเขียน	35,720.00
11	0132	5/4/1999	ทวีผล	22,000.00
12	0133	5/4/1999	ชลเชอร์วิส	9,630.00
รวม				392,152.00

Figure G.1. Total Sales Report.

ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซียนเตอร์  
 28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดขายเงินสด

วันที่ 1/4/1999 ถึง 10/4/1999

ลำดับที่	ใบสั่งสินค้าเลขที่	วันที่ใบสั่งสินค้า	ชื่อลูกค้า	จำนวนยอดชำระ
1	0123	1/4/1999	ชลอเซอร์วิส	17,650.00
2	0124	1/4/1999	ห้างหุ้นส่วนจำกัด ไทยภาพร	12,500.00
3	0126	2/4/1999	ตากสินเครื่องเขียน	15,550.00
4	0129	2/4/1999	เจ้านครเครื่องเขียน	9,500.00
5	0131	5/4/1999	บริษัท โซลิสตี้เครื่องเขียน	35,720.00
6	0132	5/4/1999	ทวีผล	22,000.00
7	0133	5/4/1999	ชลอเซอร์วิส	9,630.00
8	0135	8/4/1999	บริษัท ตบาคิจโลหะกิจ จำกัด	46,980.00
9	0138	8/4/1999	ดำรงศิลป์	2,300.00
10	0139	9/4/1999	บริษัท ธรรมาอุตสาหกรรม จำกัด	8,650.00
11	0140	9/4/1999	ทวีผล	5,980.00
12	0142	9/4/1999	ห้างหุ้นส่วนจำกัด จิระศิลป์	10,000.00
13	0144	9/4/1999	ห้างหุ้นส่วนจำกัด ไทยภาพร	15,670.50
รวม				212,130.50

Figure G.2. Total Cash Sales Report.

ห้างหุ้นส่วนจำกัด พี. เค. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพวย เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดขายเครดิต

วันที่ 1/4/1999 ถึง 10/4/1999

ลำดับที่	ใบสั่งสินค้าเลขที่	วันที่ใบสั่งสินค้า	เงื่อนไขการชำระเงิน	ชื่อลูกค้า	จำนวนยอดชำระ
1	0122	1/4/1999	60	บริษัท คมกกิจโลหะกิจ จำกัด	25,650.00
2	0125	1/4/1999	30	ห้างหุ้นส่วนจำกัด จิระสตีล	48,500.00
3	0127	2/4/1999	15	บริษัท ธรรมาอุตสาหกรรม จำกัด	30,200.00
4	0128	2/4/1999	60	บริษัท คมกกิจโลหะกิจ จำกัด	99,500.00
5	0130	5/4/1999	60	โรงงาน ไทยเพ็ง	65,752.00
6	0134	8/4/1999	30	จ. วิวัฒน์โลหะ	22,000.00
7	0136	8/4/1999	30	ห้างหุ้นส่วนจำกัด จิระสตีล	49,630.00
8	0137	8/4/1999	15	ดำรงดีตีลปี	16,980.00
9	0141	9/4/1999	30	ไทยสิบลู	82,300.00
10	0143	9/4/1999	60	โรงงาน ไทยเพ็ง	58,650.00
รวม					449,162.00

Figure G.3. Total Credit Sales Report.

ห้างหุ้นส่วนจำกัด พี. เด. สติล เซ็นเตอร์  
28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพุด เขตหนองแขม กรุงเทพฯ  
โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดภาษีขาย

วันที่ 1/4/1999 ถึง 30/4/1999

ลำดับที่	ใบกำกับภาษีเลขที่	วันที่ใบกำกับภาษี	ชื่อลูกค้า	ภาษีมูลค่าเพิ่ม(%)	จำนวนเงิน
1	0053	1/4/1999	ชลอเซอร์วิส	1,154.67	17,650.00
2	0054	1/4/1999	ห้างหุ้นส่วนจำกัด จิระสติล	3,172.89	48,500.00
3	0055	2/4/1999	บริษัท ธรรมชาติสาทรกรรม จำกัด	1,975.70	30,200.00
4	0056	2/4/1999	เจ้านครเครื่องเย็บ	621.49	9,500.00
5	0057	5/4/1999	บริษัท โซยสิริเครื่องเย็บ	2,336.82	35,720.00
6	0058	5/4/1999	ทวีผล	1,308.41	20,000.00
7	0059	8/4/1999	จ. วิวัฒน์ประ	1,439.25	22,000.00
8	0060	8/4/1999	ห้างหุ้นส่วนจำกัด จิระสติล	3,246.82	49,630.00
9	0061	9/4/1999	ไทยสิน	5,384.11	82,300.00
10	0062	19/4/1999	ไทยสิน	2,130.09	32,560.00
11	0063	19/4/1999	บริษัท เทคโนโลยีสกล จำกัด	4,307.81	65,848.00
12	0064	20/4/1999	บริษัท โซยสิริเครื่องเย็บ จำกัด	1,699.63	25,980.00
13	0065	20/4/1999	บริษัท เค. เอ็ม. ซี เอ็มบีเอ็ม จำกัด	2,649.53	40,500.00
14	0066	21/4/1999	บริษัท ขาญสดนเลส จำกัด	985.89	15,070.00
15	0067	26/4/1999	ห้างหุ้นส่วนจำกัด ไทยภาพร	1,240.37	18,960.00
17	0069	30/4/1999	ทวีผล	825.61	12,620.00
รวม				35,779.03	546,908.00

Figure G.4. Sales Tax Report.



ห้างหุ้นส่วนจำกัด พี. ดี. สติล เซ็นเตอร์  
28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพูก เขตหนองแขม กรุงเทพฯ  
โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานข้อมูลลูกค้า

รหัสลูกค้า ท-0003  
ชื่อลูกค้า ไทยสิน

วันที่ 1/4/1999 ถึง 30/4/1999

ใบสั่งสินค้าเลขที่	วันที่ส่งสินค้า	เดือนใบการชำระเงิน	รหัสสินค้า	ชื่อสินค้า	ราคา/หน่วย	หน่วย	จำนวนเงิน
0141	9/4/1999	30	PL-0010	แป๊ปสแตนเลส 7/8 x 1.5 mm	223	เส้น	22,300.00
0141	9/4/1999	30	RB-0010	เพลาสแตนเลส 1"	2000	เส้น	40,000.00
0145	19/4/1999	0	AL-0005	#0.7 mm x 4' x 8' อลูมิเนียม	97	กิโลกรัม	32,560.00
0156	28/4/1999	30	AL-0007	#0.9 mm x 4' x 8' อลูมิเนียม	3240	แผ่น	32,400.00
0156	28/4/1999	30	SS-0010	#0.4 mm x 4' x 8' สแตนเลส	76	กิโลกรัม	40,160.00
0159	29/4/1999	0	SF-0010	ฝาครอบสแตนเลส 4"	714	อัน	17,850.00
0159	29/4/1999	0	AS-0001	ฉากสแตนเลส 3/4 x 1/8	400	เส้น	20,000.00
0159	29/4/1999	0	AS-0002	ฉากสแตนเลส 1 x 1/8	106	กิโลกรัม	30,040.00
					รวม		235,310.00

Figure G.5. Customer Information Report.

ห้างหุ้นส่วนจำกัด พี. เค. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานข้อมูลผู้จำหน่ายสินค้า

รหัสลูกค้า ท-0002  
 ชื่อลูกค้า บริษัท ไทยน็อคซ์ สติล จำกัด

วันที่ 1/4/1999 ถึง 30/4/1999

ใบสั่งซื้อสินค้าเลขที่	วันที่สั่งซื้อสินค้า	รหัสสินค้า	ชื่อสินค้า	ราคา/หน่วย	หน่วย	จำนวนเงิน
0019	10/4/1999	AL-0005	#0.7 mm x 4' x 8' อลูมิเนียม	97	กิโลกรัม	45,500.00
0019	10/4/1999	AL-0007	#0.9 mm x 4' x 8' อลูมิเนียม	95	กิโลกรัม	38,750.00
0019	10/4/1999	SS-0010	#0.4 mm x 4' x 8' สแตนเลส	78	กิโลกรัม	51,470.00
0031	22/4/1999	SS-0003	#1.5 mm x 4' x 8' สแตนเลส	59	กิโลกรัม	120,900.00
0031	22/4/1999	SS-0004	#1.2 mm x 4' x 8' สแตนเลส	62	กิโลกรัม	98,400.00
0034	29/4/1999	SS-0005	#1.0 mm x 4' x 8' สแตนเลส	64	กิโลกรัม	89,650.00
รวม						444,670

Figure G.6. Supplier Information Report.

ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานข้อมูลสินค้าคงเหลือ

รหัสสินค้า SS-0001  
 ชื่อสินค้า #3.0mm x 4' x 8' สแตนเลส

วันที่ 1/4/1999 ถึง 30/4/1999

ลำดับที่	จำนวนสินค้า	หน่วย	ราคา/กิโลกรัม	ราคา/หน่วย	จำนวนเงิน
1	1597	กิโลกรัม	63	4475	110,611.00
2	43	แผ่น	62.5	4440	190,920.00
				รวม	301,531.00

Figure G.7. Inventory Information Report.

ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพวย เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดการสั่งซื้อสินค้า

วันที่ 1/4/1999 ถึง 15/4/1999

ลำดับที่	ใบสั่งซื้อเลขที่	วันที่ใบสั่งซื้อ	รหัสผู้จำหน่าย	ชื่อผู้จำหน่าย	จำนวนยอดชำระ
1	0015	1/4/1999	จ-0001	ห้างหุ้นส่วนสามัญนิติบุคคล จึงใจโฮะ	17,650.00
2	0016	1/4/1999	ส-0003	บริษัท สิ้นสยาม แพทเทิล จำกัด	12,500.00
3	0017	2/4/1999	ล-0005	ห้างหุ้นส่วนจำกัด ลิมมิ่งเส็ง	15,550.00
4	0018	7/4/1999	ท-0001	บริษัท ไทยฟีดติง แอนด์ สติล จำกัด	9,500.00
5	0019	10/4/1999	ท-0002	บริษัท ไทยน็อคส์ สติล จำกัด	135,720.00
6	0020	10/4/1999	ก-0001	บริษัท เกรทเซ็นทรัล จำกัด	22,000.00
รวม					212,920.00

Figure G.8. Purchase Order Report.

ห้างหุ้นส่วนจำกัด พี. ดี. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพูล เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดภาษีซื้อ

วันที่ 1/4/1999 ถึง 15/4/1999

ลำดับที่	ใบสั่งซื้อเลขที่	วันที่ใบสั่งซื้อ	ชื่อผู้จำหน่าย	ภาษีมูลค่าเพิ่ม (7%)	จำนวนยอดชำระ
1	0015	1/4/1999	ห้างหุ้นส่วนสามัญนิติบุคคล จิงไฮอะ	1,235.50	17,650.00
2	0016	1/4/1999	บริษัท สิ้นสยาม เมทาล จำกัด	875.00	12,500.00
3	0017	2/4/1999	ห้างหุ้นส่วนจำกัด สัมมั่งสิ่ง	1,088.50	15,550.00
4	0018	7/4/1999	บริษัท ไทยพีตติง แอนด์ สติล จำกัด	665.00	9,500.00
5	0019	10/4/1999	บริษัท ไทยบ็อคส์ สติล จำกัด	9,500.40	135,720.00
6	0020	10/4/1999	บริษัท เกรทเซ็นทรัล จำกัด	1,540.00	22,000.00
			รวม	14,904.40	212,920.00

Figure G.9. Purchase Tax Report.



ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพลู เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดชำระเงินสด

วันที่ 1/4/1999 ถึง 15/4/1999

ลำดับที่	ใบเสร็จรับเงินเลขที่	วันที่เสร็จรับเงิน	ใบส่งสินค้าเลขที่	ชื่อลูกค้า	จำนวนยอดชำระ
1	0098	1/4/1999	0123	ชลอเซอร์วิส	17,650.00
2	0099	1/4/1999	0124	ห้างหุ้นส่วนจำกัด ไทยภาพร	12,500.00
3	0100	2/4/1999	0126	ตากสินเครื่องเขียน	15,550.00
4	0101	2/4/1999	0129	จำนตรเครื่องเขียน	9,500.00
5	0102	5/4/1999	0131	บริษัท ไทยสิริเครื่องเขียน	35,720.00
6	0103	5/4/1999	0132	ทวีผล	22,000.00
7	0104	5/4/1999	0133	ชลอเซอร์วิส	9,630.00
8	0105	8/4/1999	0135	บริษัท ดนากกิจโลหะกิจ จำกัด	46,980.00
9	0106	8/4/1999	0138	ตำรวจติสเป	2,300.00
10	0107	9/4/1999	0139	บริษัท ธรณาดูสาทกรรม จำกัด	8,650.00
11	0108	9/4/1999	0140	ทวีผล	5,980.00
12	0109	9/4/1999	0142	ห้างหุ้นส่วนจำกัด จิระสติล	10,000.00
13	0110	9/4/1999	0144	ห้างหุ้นส่วนจำกัด ไทยภาพร	15,670.50
				รวม	212,130.50

Figure G.10. Total Cash Collection Report.

ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซ็นเตอร์

28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพสุ เขตหนองแขม กรุงเทพฯ

โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดชำระเงินเครดิต

วันที่ 1/5/1999 ถึง 15/5/1999

ลำดับที่	ใบเสร็จรับเงินเลขที่	วันที่ใบเสร็จรับเงิน	ใบส่งสินค้าเลขที่	ชื่อลูกค้า	จำนวนยอดชำระ
1	0210	1/5/1999	0125	ห้างหุ้นส่วนจำกัด จิระสติล	48,500.00
2	0211	5/5/1999	0148	บริษัท ไทยสรีดรีดงเอ็ม จำกัด	25,980.00
3	0212	9/5/1999	0141	ไทยสรี	82,300.00
4	0213	13/5/1999	0157	ดำรงดติลปี	23,848.00
5	0214	14/5/1999	0158	บริษัท ธรณานุสสาทรกรรม จำกัด	32,500.00
6	0215	15/5/1999	0161	เจ้านครดรีดงเอ็ม	25,070.00
7	0216	17/4/1999	0127	บริษัท ธรณานุสสาทรกรรม จำกัด	30,200.00
8	0217	23/4/1999	0137	ดำรงดติลปี	16,980.00
					285,378.00

Figure G.11. Total Credit Sales Collection Report.

ห้างหุ้นส่วนจำกัด พี. เด. สติล เซ็นเตอร์

28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพวย เขตหนองแขม กรุงเทพฯ

โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดค้างชำระเงินเครดิต

วันที่ 1/5/1999 ถึง 15/5/1999

ลำดับที่	ใบแจ้งหนี้เลขที่	ใบส่งสินค้าเลขที่	วันที่ใบส่งสินค้า	เงื่อนไขการชำระเงิน	วันกำหนดชำระเงิน	ชื่อลูกค้า	จำนวนยอดชำระ
1	0059	0122	1/4/1999	60	30/5/1999	บริษัท ดนากิจโลหะกิจ จำกัด	25,650.00
2	0059	0128	2/4/1999	60	31/5/1999	บริษัท ดนากิจโลหะกิจ จำกัด	99,500.00
3	0060	0130	5/4/1999	60	3/6/1999	โรงงาน ไทยเพ็ง	65,752.00
4	0061	0134	8/4/1999	30	7/5/1999	จ. วิวัฒน์โลหะ	22,000.00
5	0062	0136	8/4/1999	30	7/5/1999	ห้างหุ้นส่วนจำกัด จิระสดีล	49,630.00
6	0063	0143	9/4/1999	60	7/6/1999	โรงงาน ไทยเพ็ง	58,650.00
7	0064	0150	21/4/1999	30	20/5/1999	ห้างหุ้นส่วนจำกัด ไทยภาพร	16,000.00
8	0065	0153	23/4/1999	60	21/6/1999	บริษัท ดนากิจโลหะกิจ จำกัด	95,670.00
9	0066	0156	28/4/1999	30	27/6/1999	ไทยสิน	72,560.00
รวม							505,412.00

Figure G.12. Total Credit Owed Report.

ห้างหุ้นส่วนจำกัด พี. เด. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพุด เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดค้างชำระเงินเกินเครดิต

วันที่ 31/5/1999 ถึง 31/5/1999

ลำดับที่	ใบแจ้งหนี้เลขที่	ใบสั่งสินค้าเลขที่	วันกำหนดชำระเงิน	เกินกำหนด(วัน)	ชื่อลูกค้า	จำนวนยอดชำระ
1	0061	0134	7/5/1999	26	จ. วิวัฒน์โลหะ	22,000.00
2	0062	0136	7/5/1999	26	ห้างหุ้นส่วนจำกัด จิระสดีเส	49,630.00
3	0064	0150	20/5/1999	11	ห้างหุ้นส่วนจำกัด ไทยภาพร	16,000.00
รวม						87,630.00

Figure G.13. Total Credit Exceeding Report.

ห้างหุ้นส่วนจำกัด พี. เติ. สติล เซ็นเตอร์

28/2 หมู่ 1 ก. เพชรเกษม แขวงหนองค้างพสุ เขตหนองแขม กรุงเทพฯ

โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดจำหน่ายจากข้อมูลลูกค้า

วันที่ 1/4/1999 ถึง 30/4/1999

ลำดับที่	รหัสลูกค้า	ชื่อลูกค้า	ยอดจำหน่าย
1	ก-0003	กิตติพันธ์เครื่องเขียน	10,520.00
2	ก-0005	บริษัท เทียรติชัยอุตสาหกรรมสแตนเลส จำกัด	56,780.00
3	ค-0003	บริษัท ดนนาภิโกละ จำกัด	102,450.00
4	จ-0003	ห้างหุ้นส่วนจำกัด จิระสดี	98,350.00
5	ช-0001	ชวลิตคอมไพเนนท์	9,500.00
6	ช-0010	บริษัท ชัยมโนบอดิ จำกัด	60,505.00
7	ด-0005	ดำรงศิลป์	7,850.00
8	ด-0002	ตากสินเครื่องเขียน	10,000.00
9	ท-0001	บริษัท ไทยยูนิคดอยล์เซ็นเตอร์ จำกัด	253,480.00
10	ท-0003	ไทยสืบ	98,600.00
11	ท-0005	ห้างหุ้นส่วนจำกัด ไทยภาพร	9,400.00
12	ธ-0001	บริษัท ธรรมาอุตสาหกรรม จำกัด	46,800.00
13	ธ-0009	บริษัท ธนวิอุตสาหกรรม จำกัด	89,700.00
14	ท-0001	หาญเอ็นจิเนียริง	20,000.00
		รวม	873,935.00

Figure G. 14. Sales Analysis Report By Customer Information.



ห้างหุ้นส่วนจำกัด พี. ดี. สติล เซ็นเตอร์  
 28/2 หมู่ 1 ถ. เพชรเกษม แขวงหนองค้างพูก เขตหนองแขม กรุงเทพฯ  
 โทรศัพท์ 8107766-8 โทรสาร 4206723

รายงานยอดขายจำหน่าจากสินค้า

วันที่ 1/4/1999 ถึง 15/4/1999

ลำดับที่	รหัสสินค้า	ชื่อสินค้า	ยอดจำหน่าย
1	AL-0001	#3.0mm x 4' x 8' อลูมิเนียม	32,900.00
2	AL-0002	#2.0mm x 4' x 8' อลูมิเนียม	12,400.00
3	AS-0010	จากสเตนเลส 3 x 3/16	5,850.00
4	FB-0001	แบบสเตนเลส 5/8 x 1/8	6,850.00
5	HD-0010	#0.35mm x 4' x 8' สังกะสี	8,950.00
6	PN-0009	แป้น้ำสเตนเลส 4 x 3.0mm	12,980.00
7	PS-0011	แป้นสเตนเลส 2 x 2 x 2.0mm	10,000.00
8	RB-0002	เฟลสสเตนเลส 3/16	750.00
9	SL-0001	#3.0mm x 4' x 8' สเตนเลส	75,650.00
10	SS-0002	#2.0mm x 5' x 10' สเตนเลส	51,900.00
รวม			218,230.00

Figure G.15. Sales Analysis Report By Product Information.



## APPENDIX H

### ENITTY RELATIONSHIP DIAGRAM

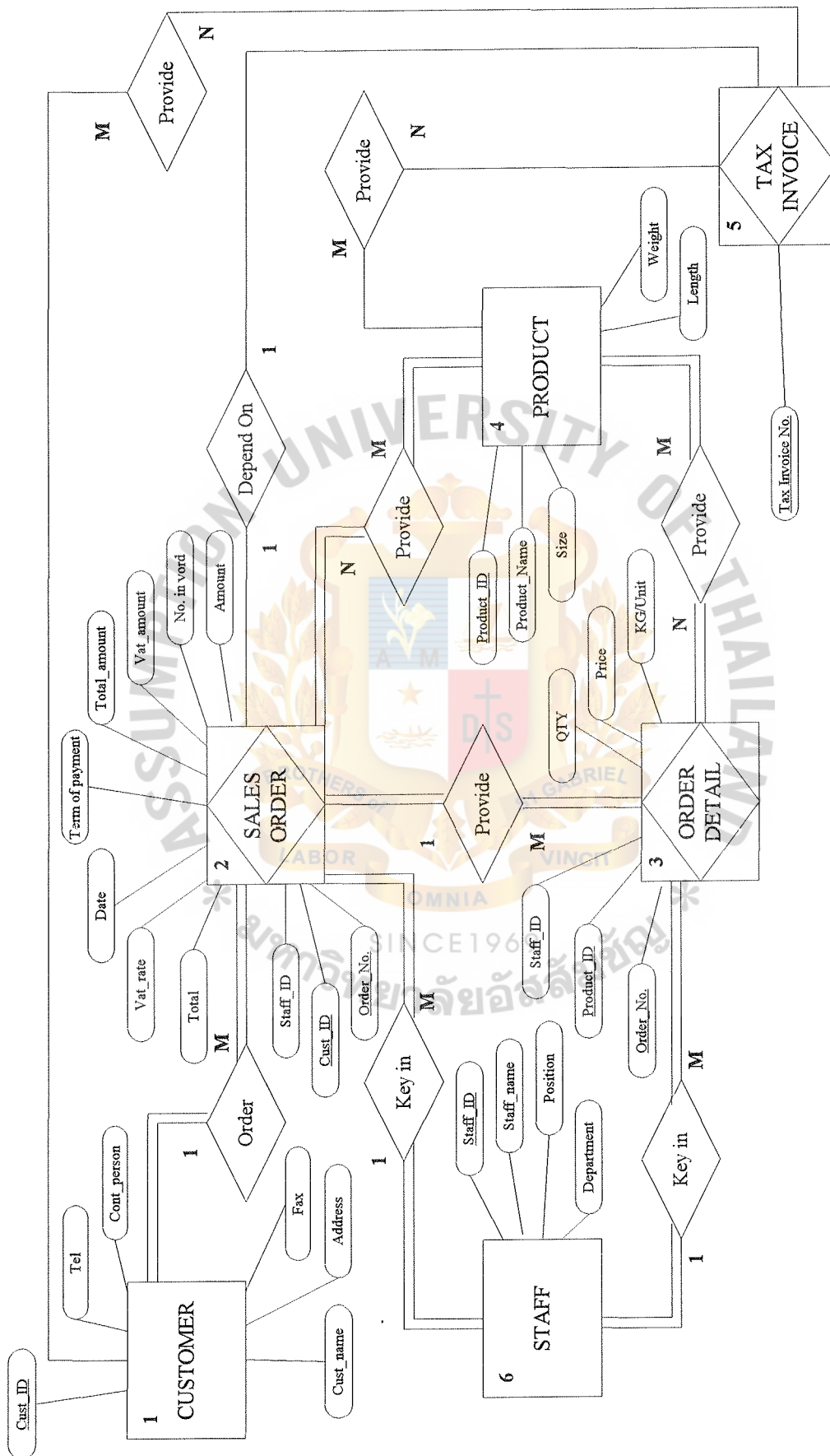


Figure H.1. Entity Relationship Diagram.

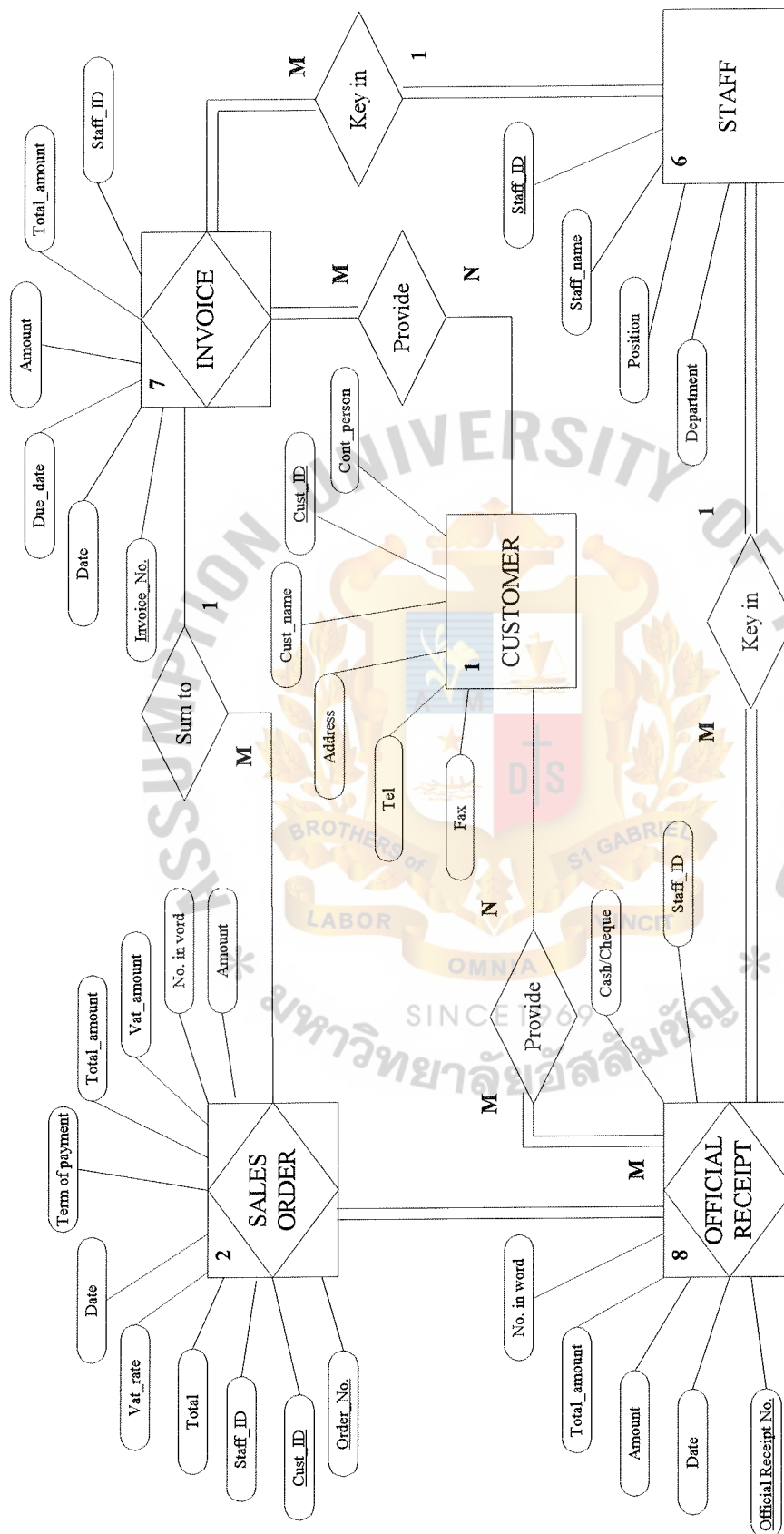


Figure H.2. Entity Relationship Diagram.

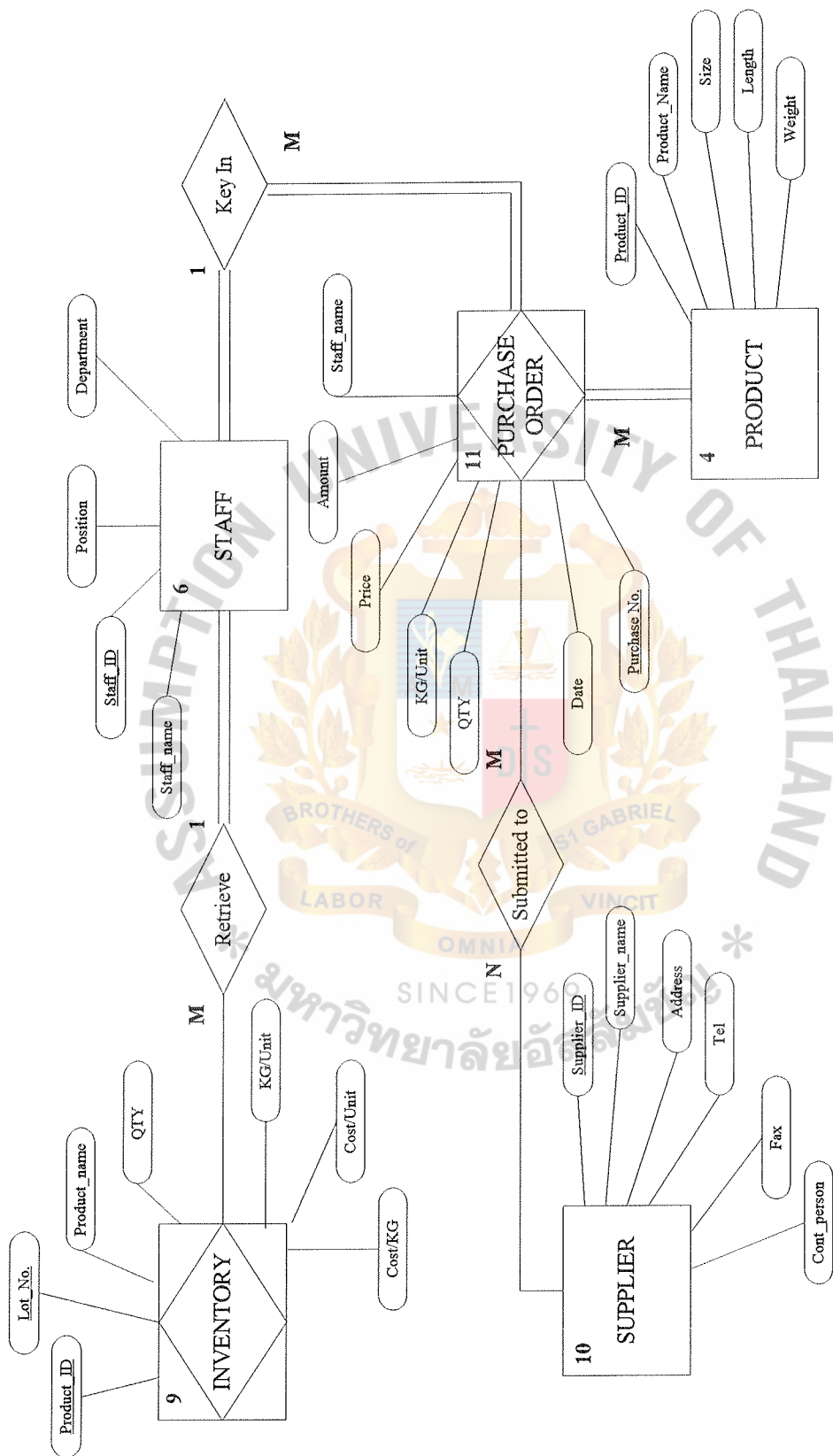


Figure H.3. Entity Relationship Diagram.





Database : CUSTOMER

Primary key : Customer\_ID

Foreign key : -

Index key : Customer\_ID

Table I.1. Customer File Layout Format.

Field name	Type	Length	Format
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
Telephone	Character	30	xxx...xxx
Fax	Character	15	xxx...xxx
Contact_person	Character	20	xxx...xxx

Database : \*STAFF

Primary key : Staff\_ID

Foreign key : -

Index key : Staff\_ID

Table I.2. Staff File Layout Format.

Field name	Type	Length	Format
Staff_ID	Character	6	x-xxxx
Staff_Name	Character	25	xxx...xxx
Position	Character	20	xxx...xxx

Table I.2. Staff File Layout Format (continue).

Field name	Type	Length	Format
Department	Character	20	xxx...xxx

Database : PRODUCT

Primary key : Product\_ID

Foreign key : -

Index key : Product\_ID

Table I.3. Product File Layout Format.

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	25	xxx...xxx
Weight	Character	4	xxxx
Thickness	Character	6	xx.xxx
Length	Character	4	xxxx

Database : SUPPLIER

Primary key : Supplier\_ID

Foreign key : -

Index key : Supplier\_ID

Table I.4. Supplier File Layout Format.

Field name	Type	Length	Format
Supplier_ID	Character	6	x-xxxx
Supplier_Name	Character	25	xxx...xxx
Supplier_Address	Character	80	xxx...xxx
Telephone	Character	30	xxx...xxx
Fax	Character	15	xxx...xxx
Contact_person	Character	20	xxx...xxx

Database : SALES ORDER  
 Primary key : Order\_No. + Customer\_ID  
 Foreign key : Customer\_ID + Product\_ID + Staff\_ID  
 Index key : Order\_No. + Customer\_ID

Table I.5. Sales Order File Layout Format.

Field name	Type	Length	Format
Order_No.	Numeric	4	9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
Date	Date	10	99/99/9999
Term	Numeric	2	99

Table I.5. Sales Order File Layout Format (continue).

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

Database : ORDER DETAIL

Primary key : Order\_No. + Product\_ID

Foreign key : Product\_ID + Staff\_ID

Index key : Order\_No. + Product\_ID



Table I.6. Order Detail File Layout Format.

Field name	Type	Length	Format
Order_No.	Numeric	4	9999
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxxx
Price	Numeric	10	9999999.99
Staff_ID	Character	7	xx-xxxx

Database : INVENTORY  
 Primary key : Product\_ID + Lot\_No.  
 Foreign key : -  
 Index key : Product\_ID + Lot\_No.

Table I.7. Inventory File Layout Format.

Field name	Type	Length	Format
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Lot_No.	Character	2	xx
Quantity	Numeric	4	9999

Table I.7. Inventory File Layout Format (continue).

Field name	Type	Length	Format
Unit	Character	10	xxxxxxxxxxx
Cost per kilogram	Numeric	10	9999999.99
Cost per unit	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99

Database : TAX INVOICE

Primary key : Tax\_invoice\_No.

Foreign key : Order\_No. + Customer\_ID + Product\_ID + Staff\_ID

Index key : Tax\_invoice\_No.

Table I.8. Tax Invoice File Layout Format.

Field name	Type	Length	Format
Tax_invoice_No	Numeric	4	9999
Order_No.	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
Term	Numeric	2	99
Product_ID	Character	7	xx-xxxx

Table I.8. Tax Invoice File Layout Format (continue).

Field name	Type	Length	Format
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

Database : OFFICIAL RECEIPT

Primary key : Official\_receipt\_No.

Foreign key : Order\_No. + Customer\_ID + Staff\_ID

Index key : Official\_receipt\_No.

Table I.9. Official Receipt File Layout Format.

Field name	Type	Length	Format
Official_receipt_No	Numeric	4	9999

Table I.9. Official Receipt File Layout Format (continue).

Field name	Type	Length	Format
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
No.	Numeric	2	99
Order_No.	Numeric	4	9999
Order_date	Date	10	99/99/9999
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Payment	Boolean	1	(0/1)
Bank_name	Character	20	xxx...xxx
Bank_branch	Character	30	xxx...xxx
Cheque_No	Character	7	xxxxxxx
Cheque_date	Date	10	99/99/9999
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

Database : INVOICE

Primary key : Invoice\_No.

Foreign key : Order\_No. + Customer\_ID + Staff\_ID

Index key : Invoice\_No.

Table I.10. Invoice File Layout Format.

Field name	Type	Length	Format
Invoice_No	Numeric	4	9999
Date	Date	10	99/99/9999
Customer_ID	Character	6	x-xxxx
Customer_Name	Character	25	xxx...xxx
Customer_Address	Character	80	xxx...xxx
No.	Numeric	2	99
Order_No.	Numeric	4	9999
Order_date	Date	10	99/99/9999
Due_date	Date	10	99/99/9999
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

Database : PURCHASE ORDER

Primary key : Purchase\_No.

Foreign key : Supplier\_ID + Product\_ID + Staff\_ID



Index key : Puchase\_No.

Table I.11. Purchase Order File Layout Format.

Field name	Type	Length	Format
Purchase_order_No.	Numeric	4	9999
Date	Date	10	99/99/9999
Supplier_ID	Character	6	x-xxxx
Supplier_Name	Character	25	xxx...xxx
Supplier_Address	Character	80	xxx...xxx
Product_ID	Character	7	xx-xxxx
Product_Name	Character	35	xxx...xxx
Quantity	Numeric	4	9999
Unit	Character	10	xxxxxxxxxx
Price	Numeric	10	9999999.99
Amount	Numeric	10	9999999.99
Total_Amount	Numeric	11	99999999.99
Tax_rate	Numeric	4	9.99
Tax_amount	Numeric	8	99999.99
Total_sales_amount	Numeric	11	99999999.99
Amount_in_word	Character	50	xxx...xxx
Staff_ID	Character	7	xx-xxxx

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