DIRECT SALE INFORMATION SYSTEM

by

MS. PHONGPHUN ASAVACHAIVONG

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

November, 1996
DIRECT SALE INFORMATION SYSTEM

BY

MS. PHONGPHUN ASAVACHAIVONG

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

November, 1996
The Graduate School of Assumption University had approved this final report of the three-credit course, CS6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>i</td>
</tr>
<tr>
<td>ACKNOWLEDGMENT</td>
<td>ii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
</tbody>
</table>

## 1. INTRODUCTION

1.1 Background of the Project 1
1.2 Objective of the Project 2
1.3 Scope of the Project 2
1.4 Deliverables 3

## 2. EXISTING SYSTEM

2.1 Background of the Organization 4
2.2 Future of Business 4
2.3 Existing Business Functions 7
2.4 Current Problems and Areas for improvement 9
2.5 The Existing System of the Project 10
2.6 Existing Documents 11

## 3. THE PROPOSED SYSTEM

3.1 User Requirements 12
3.2 Proposed Procedures 13
3.3 Product of Proposed System 16
3.4 Documentation for the Proposed System 16

## 4. SYSTEM REQUIREMENTS

4.1 Hardware and Software Requirements 40
4.2 Cost/Benefit Analysis 41
4.3 Security and Control 45
5. DETAILED SYSTEM DESIGN

5.1 Database Design
5.2 Software Design
5.3 Output Design
5.4 Input Design
5.5 Project Implementation

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions
6.2 Recommendations

REFERENCES

APPENDIX A:
Data Structure, Data Dictionary,
Data Store and File Layout

APPENDIX B:
Input Screen

APPENDIX C:
Printer Report

APPENDIX D:
Input Form and Leaflet

APPENDIX E:
Context Diagram and Data Flow Diagram
of Existing System
ABSTRACT

Now distribution business is rapidly expanding, especially imported products. The business expansion has impacts on company operations. This project presents the development of a Direct Sale Information System for DECOROUS LIMITED. The proposed system are designed for Marketing and Sale Department to increasing sale volume and inventory control.

On this project, the System Analysis phase includes several tasks such as to study the existing system functions, equipments and documents, to identify the current problem and areas which have to be improved and the organization planning. The System Design phase covers the new system for use's requirements in detail design such as Inventory control, Purchasing and Sale Activity. Incremental cost and benefit are compared.

This project, therefore, intended to provide the better solution to the existing problems and increasing the efficiency of the back office's operations by applying a computerized system. The information for management and marketing are consistency, accuracy, timeliness, completeness and relevance. So management can make the right decision and planning.
ACKNOWLEDGMENT

Several people who have contributed to this project. She would like to
know the effort from those persons and thanks them for their
contributions.

First, she would like to thank, Mrs. Niyada Suthanasareporn who is
Managing Director and Owner of DECOROUS LIMITED. She give her the
opportunity to study her business and advised her about the distribution
business and marketing strategies.

This acknowledgment would be incompletd without an expression of
gratitude to her instructors, who teaches her about the management of
computer information system courses. She would like to thank to all of her
instructors. Special thank to her advisor, Prof. Dr. Srisakdi Charmonman, for
his kind advice, valuable suggestions and guidance.

Finally, She would like to thank to her family for their love,
understanding and encouragement her for the graduate study.
## LIST OF FIGURES

| Figure 2 - 1 | Organization Chart | 8 |
| Figure 3 - 1 | Context Diagram | 17 |
| Figure 3 - 2 | Data Flow Diagram (Level 0) | 18 |
| Figure 3 - 3 | Level 1 Data Flow Diagram of Process 1 | 19 |
| Figure 3 - 4 | Level 1 Data Flow Diagram of Process 2 | 20 |
| Figure 3 - 5 | Level 1 Data Flow Diagram of Process 3 | 21 |
| Figure 3 - 6 | Level 1 Data Flow Diagram of Process 4 | 22 |
| Figure 3 - 7 | Level 1 Data Flow Diagram of Process 5 | 23 |
| Figure 3 - 8 | Level 1 Data Flow Diagram of Process 6 | 24 |
| Figure 3 - 9 | Structure Chart | 25 |
| Figure 3 - 10 | Structure Chart of Collecting Customer Data | 26 |
| Figure 3 - 11 | Structure Chart of Preparing & Mailing Leaflet | 27 |
| Figure 3 - 12 | Structure Chart of Customer Purchase Order | 28 |
| Figure 3 - 13 | Structure Chart of Checking Inventory | 29 |
| Figure 3 - 14 | Structure Chart of Billing | 30 |
| Figure 3 - 15 | Structure Chart of Making Report | 31 |
| Figure 4 - 1 | Profit and Loss Statement | 44 |
| Figure B-1 | Input Menu | 81 |
| Figure B-2 | Member System | 82 |
| Figure B-3 | Member Information | 83 |
| Figure B-4 | Member Information - ADD | 84 |
| Figure B-5 | Member Information - CHANGE | 85 |
| Figure B-6 | Mailing Label | 86 |
| Figure B-7 | Print Error | 87 |
| Figure B-8 | Sale System | 88 |
| Figure B-9 | Inventory Control System | 89 |
Figure B-10 Purchasing System  90
Figure B-11 General Ledger  91
Figure B-12 Ledger  92
Figure B-13 Ledger - APPEND  93
Figure B-14 Sample - Ledger  94
Figure C-1 Tax Invoice  95
Figure C-2 Sale Analysis Report  96
Figure C-3 Sale Value Added Tax Report  97
Figure C-4 Invoice Summary  98
Figure C-5 Customer Mailing Label  99
Figure C-6 List of Customer  100
Figure C-7 Inventory Analysis Report (Amount)  101
Figure C-8 Customer Sale Report  102
Figure C-9 Inventory Report  103
Figure C-10 Product Sale Report  104
Figure D-1 Order Form  105
Figure D-2 Questionnaire  106
Figure D-3 Direct Mail Leaflet  107
Figure D-4 Direct Mail Leaflet  108
Figure E-1 Context Diagram of Existing System  109
Figure E-2 Data Flow Diagram of Existing System  110
<table>
<thead>
<tr>
<th>Table A-1</th>
<th>Data Store of Customers</th>
<th>65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table A-2</td>
<td>Data Store of Invoices</td>
<td>66</td>
</tr>
<tr>
<td>Table A-3</td>
<td>Data Store of LF_Records</td>
<td>67</td>
</tr>
<tr>
<td>Table A-4</td>
<td>Data Store of Cus_Orders</td>
<td>68</td>
</tr>
<tr>
<td>Table A-5</td>
<td>Data Store of Supp_Orders</td>
<td>69</td>
</tr>
<tr>
<td>Table A-6</td>
<td>Data Store of Inventories</td>
<td>70</td>
</tr>
<tr>
<td>Table A-7</td>
<td>Data Store of VATs</td>
<td>71</td>
</tr>
<tr>
<td>Table A-8</td>
<td>Data Store of Errors</td>
<td>72</td>
</tr>
<tr>
<td>Table A-9</td>
<td>File Layout of Customers</td>
<td>73</td>
</tr>
<tr>
<td>Table A-10</td>
<td>File Layout of Invoices</td>
<td>74</td>
</tr>
<tr>
<td>Table A-11</td>
<td>File Layout of LF_Records</td>
<td>75</td>
</tr>
<tr>
<td>Table A-12</td>
<td>File Layout of Customer Orders</td>
<td>76</td>
</tr>
<tr>
<td>Table A-13</td>
<td>File Layout of Supp_Orders</td>
<td>77</td>
</tr>
<tr>
<td>Table A-14</td>
<td>File Layout of Inventories</td>
<td>78</td>
</tr>
<tr>
<td>Table A-15</td>
<td>File Layout of VATs</td>
<td>79</td>
</tr>
<tr>
<td>Table A-16</td>
<td>File Layout of Errors</td>
<td>80</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

1.1. BACKGROUND OF THE PROJECT

This project is related to DECOROUS LIMITED which is the distribution business. Distributor business are the company acts as an agent to distribute or sell the product on behalf of their own product brand or the others one. Income of this business are the margin between retail price and cost of product purchased, which at least cover the total expenses of the business or have some profit. Products of this company are imported from France. There are many factor to consider about the purchasing order such as the limit of minimum order, cost of shipment and variety of products, etc.

The major concern of this business is to increase the sale volume which base on many factors, such as to find the channel to distribute the products to customers, product diversification or product development, competitive price and perfectly promotion. The other one is inventory control.

The purpose of this project is to enhance the productivity of Marketing Department by automatic existing operations such as issuing invoices, preparing customers’ label, keeping track of product sales and by establishing an Information base for Management for making appropriate decisions concerning sales in terms of revenue and helping marketing department to identify the trend of product.

Direct Sale is one of the direct marketing strategies which can approach directly to the potential customers. Otherwise this system will solve about the traffic problem, points of sale, customer’s time, competition etc.

Key success of Direct Sale are :-

1. Database of customers.
2. Fastest service to satisfy customers.
3. Product varieties.
4. Correctly and punctuality.
5. After sale service.

So it is necessary to use database and computer equipment to provide the customers data, products data for customer consideration matching to the products and use for sale and marketing planning. There are some other external entities who benefit from the system such as accounting department, warehouse, purchasing department, etc. For example accounting department get inventory report and sale report. Beside of this advantage, we can expand our business in selling the customers' information.

1.2. OBJECTIVE OF THE PROJECT

The objective of the project on the Direct Sale Information System are as follow:

1. Study the existing system of sale system and identify the user requirements and major objectives for the new system that need to be added.
2. Identify the sale information in order to bill customers, analyze sale performance, marketing plan and sale channels.
3. Identify the inventory information for controlling and planning for product diversification.
4. To design the Direct Sale Information System for new system.
5. To implement the Direct Sale Information System software which is written in Fox Pro.

1.3. SCOPE OF THE PROJECT:

The project will cover major parts of the Direct Sale Information System which includes:
1. Collecting the Customers data. Collecting and classify the customer data for sale planning and inventory management.

2. Preparing and Mailing Leaflet. Design leaflet and use the database for mailing them to customers.


4. Checking Inventory. Handles of checking customers order with the inventory. Notify to Purchasing Department for customers’ product requirements.


1.4. DELIVERABLES:

The deliverables for the project on Direct Sale Information System are as follow:

1. Screen layouts for user - interfaces.

2. Various Hard Copy layouts containing:
   2.1. Collecting Customer Data Form.
   2.2. Customer order Form.
   2.3. List of Customer Form.
   2.5. Inventory Report.
   2.6. Inventory Analysis Report.
   2.7. Tax Invoice.
   2.8. Invoice Summary Report.
   2.10. Sale Analysis Report.

(3)
2. EXISTING SYSTEM

2.1. BACKGROUND OF THE ORGANIZATION

Decorous Limited is now a distributor business, which imported the products from France such as perfume, leather goods, jewelry, cosmetic and ladies' wear and distribute by selling in department stores.

It was established in 1993, located at Royal Castle Condominium, Pattanakarn Road, Bangkok. The operation are expanding rapidly, started from imported ladies' wear in 1993 and in 1994 are imported the other luxury products. Staff increase from 10 to be 50 persons. The sale amount increase from 200,000.- per month to be 500,000.- per month. Advertising in magazine and sale promotion in department store are used for increase sale volume.

2.2. FUTURE OF BUSINESS

Because of this business have high margin and the reduce of imported duty in 1997, so in the next year there will have many competitors come to this business.

Marketing Strategies are necessary for helping to increase sale volume. Direct Marketing is the one of marketing’s strategy to increase the target group of customer by using media. This strategy can be approached to the customer by using many method such as direct mail, knock door or salesman which can be measured the response of the customers. It is called Direct Response Advertising. Direct Marketing is also solve the customers' problem about the traffic jam and do not have the showroom which are save cost.
Direct Mail is like the letter which have the name, address of the potential customers. Direct Mail is also the advertisement media that can be approached directly to the target group.

Because of the high technology, the computer or Artificial Intelligence are advantaged. The information of the target customers can be collected, classified and input to be database.

**Characteristic of Direct Mail**

1. Approach to the potential customers.
2. High potential for customer to read.
3. Can be selected the target group of customer.
4. Advertising to the right person at the right time.
5. Do not strict about the format and detail.
6. Quickly response and clearly result.
7. Support the salesman to sale the product.

**Responsible of Direct Mail**

1. To promote or advertising the new product and expensive product. These products have to have more detail in catalog for the customer in imagine and make the division.
2. To support the salesman.
3. After sale service.
4. Combination with the other media. (Media Mix)

**The Advantage of Direct Mail**

1. Do not have the showroom.
2. Inventory control.
3. Can be estimate the cost and expense.
4. Database can help the company to classify the target group of customers.

Collecting the Potential Customer Information
1. Telephone Directory.
2. Member of the Association.
3. Staff of the organization or university.
4. Questionnaire.

Difference between Direct Response Advertising and General Advertising

**Direct Response Advertising**
1. Sale directly to target customers who have name, address and their behaviors.
2. Advertise to the potential customers for helping in response and make the purchase.
3. Measurement of the response by each customer, such as request for more information and also can be calculated the cost per response.

**General Advertising**
1. Sale to the customers who have the roughly information, for example: - sex, education and status, etc.
2. Advertising for promotion the products, good image and to make the product royalty.
3. Measurement of the response are roughly and can be calculated the cost per mille (CPM) or ratio of 1 : 1000
2.3. EXISTING BUSINESS FUNCTIONS

2.3.1. Front Office

2.3.1.1. Sale Department
Sale Department is responsible for selling the product to customers and take action according to the marketing plan.

2.3.1.2. Marketing Department
Marketing Department is responsible for all sale channel and sale promotion.

2.3.2. Back Office

2.3.2.1. Purchasing Department.
This department is responsible for importing the products from abroad. Planning the schedule of importation for which product and timing to serve the Marketing plan.

2.3.2.2. Accounting Department.
This department is responsible for preparing costing of the product, invoicing, collecting and book keeping.

2.3.2.3. Warehouse Department.
This department is responsible for keeping products, sending products to customers.
FIGURE 2 - 1: ORGANIZATION CHART
2.4. CURRENT PROBLEMS AND AREAS FOR IMPROVEMENT

2.4.1. CURRENT PROBLEM

The company in the past 2 years has rapidly expansion and all of products are imported. There are many categories for serving customers' demand, and there are the limitation of suppliers' minimum orders. So the problem of this company is to find the sale channel to manage inventory and increase sale volume for maximize profit. Because of the rapidly expansion but the back office's operation are done manually. Computer are used for preparing reports and worksheet. The slowing report of inventory, invoicing and selling transactions. So, the front office can not plan or find the strategy of sale for increasing sale and minimize the inventory.

2.4.2. THE AREA FOR IMPROVEMENT

2.4.2.1. Back Office Operations.

The operations are selling invoices and inventory control. Because of operations is manually, so there are some errors and slowly issuing of invoices and making reports. Management and marketing department do not get the reports in time and correctly. They do not making correctly planning and making the right decision. The problems are:

- Slowly and error in issuing invoice.
- Slowly in making report.
- Inventory control.

2.4.2.2. Front Office Operation.

The operation are planning for new sale channels for increasing sale volume, managing the inventory and keep track of customers for their
satisfaction
- Find the new sale strategy
- To satisfy the customers

2.4.2.3. Management Actions
- To set up the computerize system in back office operation.
- To set up the Direct Sale Information System.

2.5. THE EXISTING SYSTEM OF THE PROJECT

Process of the existing system are :-

2.5.1. Customers make the sale order, the sale's staff will verify the order by checking product available, product price and customers' details
- The old customers
  Customer_ID
  Customer name and address
  Credit Limit
  Outstanding balance of credit
- The new customers
  Customer_ID
  Customer name and address
  Set up the credit limit

2.5.2. Checking the inventory. The customers' order will be checked against the existing products by warehouse's inventory report. The order which the products are available will be issuing invoice, if there are not available it will be pending or reject that order.

2.5.3. Issuing the sale invoice. After checking the order and inventory. The available orders are produced manually sale invoice. The
products are packed after received the invoice from Accounting Department and delivery to customer by Warehouse Officer.

2.5.4. Update Invoice. Once the invoice is issued, it is then recorded in the books, which is done manually.

2.5.5. At the end of each month. The staffs of each department will separately prepare the reports :-

- Customer order report.
- Sale report classify by group of product and group of customers.
- Inventory report.
- VAT report.
- Account Receivable report.

2.6. EXISTING DOCUMENTS

1. Customer's Order Form.
2. Sale Card.
3. Inventory Card.
4. Invoice.
5. Purchase Order Form.
6. Account Payable Card.
7. Account Receivable Card.
8. VAT report.
3. THE PROPOSED SYSTEM

3.1. USER REQUIREMENTS

3.1.1. Input Requirements. The input requirement are those information that must be input into the system to get the needed information as follows:

1. Customer Details. Contains the detail of customer such as customer id., customer name, address, birth-date, sex, age, career, nationality, salary, etc.

2. Product Detail. Contains the detail of product such as product id, product name, product type, size, color, etc.

3. Customer Order Detail. Contains the detail of order such as customer id, customer name, customer address, invoice number, product id, product name, quantity, unit price, etc.

4. Purchasing Detail. Contains the detail of purchasing such as supplier id, supplier name, PO number, product id, product name, quantity, cost price etc.

5. VAT Detail. Contain of VAT id, Vat rate, etc.

3.1.2. Output Requirements:

1. Invoice. The invoice is a source document in sale report, VAT report, etc.

2. Customer Labels. The customer labels are helpful for marketing department in making customer labels, computer printouts so that they can be simply attached them to leaflet for mailing to customer without having the need to type a very long lists of customers.

3. Purchasing Order Slip. The PO slip are documents
4. Sale Report. This report provides the sale information which show the total sale classify by product type, product id, customer id from any period to any period. It is used by Marketing department, Sale department, Accounting department.

5. Inventory Report. This report provides the detail of the products available in the company.


3.1.3 The Level of Detail or Aggregate Required.

The reports to be generated may be either detailed or summarized depend on the users' requirement. The proposed system must be designed such that the required level of detail or aggregation is met. The frequency of report may be daily report, monthly report, etc.

3.2. PROPOSED PROCEDURES

Proposed procedures are presented by using data flow diagrams as a tool for structured analysis and design. The new system design divides the whole system into six processes as follows:

PROCESS 1: COLLECTING DATA

Customer information are collected by Marketing staff.

The channel of collection are
- Telephone Directory.
- Member of the Association.
- Staff of the organization or university.
- Questionnaire.
- Purchase from other company.

The customers' data are verified by marketing staff, the verified customer data are set up the customer id and recorded to the customers' file.

PROCESS 2: PREPARING MAILING LEAFLET.

Marketing department will check the existing product that want to promote and setting the period of sale promotion and making leaflet which contains period of sale, product details, unit price, method of payment. The leaflets are mailed to customers by attaching labels which are produced by using customer information.

PROCESS 3: CUSTOMER ORDERING.

When a customer makes an order, the sale staff in Sale department checks the customer information, credit Limitable verify customers, order are recorded and kept in the customer orders file.

PROCESS 4: CHECKING INVENTORY.

From the customers' order, the sale staff will check whether the stock is available or not. If the stock is available, the order are verified. The information is sent to the next process. If the stock is not available, that product id are kept in errors file for issuing the Purchasing Order Slip to supplier. Purchasing order details are recorded in the supplier orders file.
PROCESS 5: BILLING.

From the verify customer order, the company will issue an invoice. In order to issue an invoice the details of the invoices are prepared by entering the invoice number, date, customer details, product-id, quantity, unit price and credit term. Date is the day invoice is issued, and invoice number are designed by user. Once all the information is processed, the invoice is printed out and sent to customer with the products. The invoice details are stored in invoices file.

PROCESS 6: MAKING REPORT.

Reports to various entities are generated by this process. For examples:

Sale report. Sale report is prepared by using information from invoices file. This report are presented to marketing department for marketing planning and accounting department for sale book.

Inventory report. Inventory report is prepared by using information from invoices file and inventories file. The inventory report are presented to marketing department and management for inventory planning and accounting department for inventory control and for accounting report.

Customer Order report. This report is prepared by using information from customer orders file and presented to marketing department for inventory forecast and to find another sale channel.

VAT report. VAT report is the value added tax

(15)
report which is prepared by using the information from VATs file. This report is presented to accounting department which is used for present to the Revenue Department.

3.3. PRODUCT OF PROPOSED SYSTEM

The product of proposed system is a Computerized Direct Sale Information System. It generates the accurate and timely reports.

For example:
3. Customer List.
4. Tax Invoice.
5. VAT Report.
6. Inventory Report.

3.4. DOCUMENTATION FOR THE PROPOSED SYSTEM

The proposed system is represented by following documents
1. Context Diagram
2. Data flow Diagram
3. Structured Chart
4. Process Specification

Data Documentation
1. Data Dictionary
2. Data Store
3. Data Structure
4. File Layout
FIGURE 3-1 CONTEXT DIAGRAM
FIGURE 3 - 2 : DATA FLOW DIAGRAM (LEVEL 0)
FIGURE 3-3 : LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 1
FIGURE 3 - 4 : LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 2
FIGURE 3 - 5: LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 3
FIGURE 3 - 6 : LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 4
FIGURE 3-7: LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 5
FIGURE 3-8: LEVEL 1 DATA FLOW DIAGRAM OF PROCESS 6
FIGURE 3-9: STRUCTURE CHART
FIGURE 3-10: STRUCTURE CHART OF COLLECTING CUSTOMER DATA
FIGURE 3-11: STRUCTURE CHART OF PREPARING & MAILING LEAFLET
FIGURE 3-12: STRUCTURE CHART OF CUSTOMER PURCHASE ORDER
FIGURE 3-13: STRUCTURE CHART OF CHECKING INVENTORY
FIGURE 3-14: STRUCTURE CHART OF BILLING
FIGURE 3-15: STRUCTURE CHART OF MAKING REPORT
PROCESS SPECIFICATION

PROCESS 1.1 VERIFY CUSTOMER DATA
BEGIN
    Get customer name
    Find customer record in CUSTOMERS with matching customer name
    If record is found
        Read found record
        Checking response = customer id + customer detail
    Else
        Checking response = "CUSTOMER NAME IS NOT FOUND"
    End-if;
    Display checking response
END.

PROCESS 1.2 ADD NEW CUSTOMER DATA
BEGIN
    customer id = the next available customer id
    Accept customer detail
    Create customer detail record FROM accept customer detail
    Append customer detail record to CUSTOMERS
END.

PROCESS 1.3 UPDATE CUSTOMER DATA
BEGIN
    Accept customer detail
    Update customer record from customer detail
END.
PROCESS 2.1  
PREPARING HEADING
BEGIN
    Get customer id range
    Find customer detail in CUSTOMERS with matching with customer id
    If record is found
        Read found record in CUSTOMERS
    End-if;
END.

PROCESS 2.2  
PRODUCE MAILING LABEL
BEGIN
    Read first customer id
    Do While there are no more customer id in valid customer id range
        Print label
        Read next customer id record
    End-do;
END.

PROCESS 2.3  
CHECKING PRODUCT
BEGIN
    Read first
    Do While product id in LF-RECORDS
        Find record in INVENTORIES with matching product id
        If quantity in read record > 0
            Accept product id
        End-if;
    Read next product id

End-do;
END.

PROCESS 3.1  VALIDATE CUSTOMER
BEGIN
Enter customer id
Find customer record in CUSTOMERS with matching customer id
If record is found
    Display customer detail
Else
    End-if;
END.

PROCESS 3.2  CHECK CREDIT
BEGIN
    If customer_bal > customer_limit
        Valid = ' OVER credit limit'
        Display valid
    End-if;
END.

PROCESS 3.3  ENTRY CUSTOMER ORDER
BEGIN
    Read first
    Do While there are more customer order records in valid
        CUST_ORDERS
            Find product record in INVENTORIES with matching product id
        End-do;
    END.
If record is found
Add product id + product detail + quantity + unit price as a new line of valid order detail
End-if;
Read next record in customer order detail
End-do;
Display valid order detail
END.

PROCESS 4.1 ENTRY PRODUCT ID
BEGIN
Enter product id
Find product id in INVENTORIES with matching product id
If record is found
Checking response = product id + product name + unit price + quantity
Else
checking response = "PRODUCT ID IS NOT FOUND"
End-if;
Display checking response
END.

PROCESS 4.2 CHECKING PRODUCT AVAILABILITY
Read first
Do While there are more records in order detail
If quantity in read record > quantity in valid order detail
Add product id + unit price + quantity as a new line of
valid order
End-if;
Read next record in valid order detail
End-do;
Display valid order
End.

PROCESS 4.3 ISSUE PO. SLIP
BEGIN
PO number = the next available PO number
Add PO number as a new line in PO slip
Read first from ERRORS
Do While there are more records in valid purchase order
Create purchase order record product id, quantity and cost price from ERRORS
Append new purchase order record into SUPP-ORDERS
Read next record in valid purchase order
End-do;
END.

PROCESS 5.1 PRINT INVOICE HEADING
BEGIN
Get customer id
Find customer detail in CUSTOMERS with matching with customer id
If record is found
Print invoice heading
End-if;
END.
**PROCESS 5.2 GET VALID ORDER**

BEGIN

Get order number

Find order number in CUS_ORDERS with matching order number

If record found

check response = customer id + order number + product id +
product detail + quantity + unit price

Else

check response = "ORDER NUMBER IS NOT FOUND"

End-if;

END.

**PROCESS 5.3 PRINT INVOICE**

BEGIN

invoice number = the next available invoice number

invoice date = the current date

Add invoice number and invoice date as a new line in invoice

Read first

Do While there are more order record in valid order detail

Print invoice from valid order record

Add product id, product detail, unit price, quantity, VAT

as a new line in invoice

Read next record in valid order

End-do;

END.
PROCESS 6.1  MAKING SALE REPORT

BEGIN

report date = the current date
report time = the current time
Read first

total-sale = 0

Do While there are no more invoice amount in INVOICES

Print invoice amount to total-sale to the next line of sale report
Read next invoice record

End do;

END.

PROCESS 6.2  MAKING INVENTORY REPORT

BEGIN

report date = the current date
report time = the current time
Read first

inventory-total = 0

Do While there are no more products id in INVENTORIES

Print inventory_quantity to inventory-total to the next line of inventory report
Read next product record

End do;

END.
PROCESS 6.3  MAKING CUSTOMER ORDER REPORT

BEGIN

report date = the current date
report time = the current time
Read first
order-total = 0
Do While there are no more order record in CUS_ORDERS

Print order amount to order-total to the next line of customer

Read next order record

End do;

END.

PROCESS 6.4  MAKING VALUE ADDED TAX REPORT

BEGIN

report date = the current date
report time = the current time
Read first
vat-total = 0
Do While there are no more value added tax in VATS

Print vat_amount to vat-total to the next line of vat report

Read next vat record

End do;

END.
4. SYSTEM REQUIREMENTS

4.1. HARDWARE AND SOFTWARE ARE REQUIREMENTS

Following are the hardware and software requirements for the proposed system.

4.1.1 Hardware Requirements:

1. The 586/133 MHz MULTIMEDIA INTEL PENTIUM 1.
   - 1 * 1.2 MB Floppy Disk Drive
   - 1 serial and 1 parallel multi I/O port
   - Keyboard 101 Thai/English
   - 14" Super VGA Color Monitor
   - Power Supply 200 Watts.
2. UPS Power Saver 1 Set
3. Epson LQ-21701 1 Set

4.1.2 Software Requirements:

2. System Development Software: Fox Pro Version 2.0
3. Documentation Preparation Software:
   - Window for Workgroups
   - Microsoft Windows 3.11
   - Microsoft Excel 5.0
   - Microsoft Word 6
4.2. COST/BENEFIT ANALYSIS

4.2.1. Tangible Benefits. The problems of Decorous Limited are solved, as the inventory management, product diversification and the slowly of issuing invoice and reports. It can be converted to be monetary terms per year as follows:

1. Faster Issuing of Invoices (Decrease overtime) 10,000.-
2. Control the imported products' order (Interest) 15,500.-
3. Reduce Invoice Cancellation 1,500.-
4. Reduce Advertising and Promotion Expense 30,000.-

Total: 57,000.-

4.2.2. Intangible Benefits. Following are the intangible benefits expected from the system.

1. Improved customer services.
2. Improved inventory management.
3. Increase sale channel and volume.
4. Reduced the problem of redundancy of the existing system.
5. Better Information base for the Marketing and Management.

4.2.3. Software Development Costs.

The software should be designed for all system. Two clerks who will undergo about 2 weeks of training at a computer center.

1. System Design and Programming costs 100,000.-
2. Training & Development costs 10,000.-

Total: 110,000.-
4.2.4. Hardware Cost.

1. The 586/133 MHz MULTIMEDIA INTEL PENTIUM 1 Set
   
   - 1 * 1.2 MB Floppy Disk Drive
   - 1 serial and 1 parallel multi I/O port
   - Keyboard 101 Thai/ English
   - Color Monitor
   - Power Supply 200 Watts.

2. UPS Power Saver 1 Set

3. Epson LQ-21701 1 Set

4.2.5. Operating Costs.

The operating cost are the cost necessary for the computer to be able to operate without any problems. This includes maintenance charge and computer accessory.

1. Computer accessory (per year) 20,000.-
2. Computer maintenance cost (per year) 5,000.-
   25,000.-

4.2.5. Incremental Revenue/Cost. The increase amount of cost and estimate revenue are compared

   a) Increase of Revenue

   - Sale (Gross Profit) per year 150,000.-
   - Reduce Expense (4.2.1) 57,000.-
   - Total 207,000.-
b) Increase of Expense

- Software cost and Training expense 110,000.-
- Hardware cost 74,000.-
- Operating cost 25,000.-
- Total 209,000.-

4.2.6. Payback Period in Install the Proposed System.

Using the basic formula after-tax payback of:

\[
\text{Payback Period} = \frac{I}{(1 - T)R}
\]

Where

- \( I \) = Investment or Capital Expense
- \( T \) = Tax Rate
- \( R \) = Annual Saving

\[
\text{Payback Period} = \frac{184,000}{(1 - 0.3) \times 207,000}
\]

\[
= 1.27 \text{ years or 1 year and 3 months}
\]

4.2.7. Profit and Loss Statement of Incremental Cost and Revenue

Depreciation/year = \( \frac{\text{Capital Cost} - \text{Salvage Value}}{\text{Useful Life}} \)

Salvage Value = 0
Useful Life = 5 years
Depreciation / year = \( \frac{184,000 - 0}{5} \)

\[
= 36,800.-
\]

(43)
DECOROUS LIMITED

PROFIT AND LOSS STATEMENT
(INCREMENTAL COST AND REVENUE)
FOR ONE YEAR

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale</td>
<td>300,000.00</td>
</tr>
<tr>
<td>Cost of Sale 50%</td>
<td>150,000.00</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>150,000.00</td>
</tr>
<tr>
<td>Add: Save Expense (4.2.1)</td>
<td>57,000.00</td>
</tr>
<tr>
<td></td>
<td>207,000.00</td>
</tr>
<tr>
<td>Operating Expense</td>
<td></td>
</tr>
<tr>
<td>- Computer Supplies</td>
<td>20,000.00</td>
</tr>
<tr>
<td>- Maintenance Expense</td>
<td>5,000.00</td>
</tr>
<tr>
<td>Profit after Operating Expense</td>
<td>182,000.00</td>
</tr>
<tr>
<td>- Depreciation</td>
<td>36,800.00</td>
</tr>
<tr>
<td></td>
<td>145,200.00</td>
</tr>
<tr>
<td>- Corporate Tax</td>
<td>43,560.00</td>
</tr>
<tr>
<td>Net Profit After Tax</td>
<td>101,640.00</td>
</tr>
</tbody>
</table>

Figure 4-1 Profit and Loss Statement
4.3. SECURITY AND CONTROL

Security in computing is a very vital issue. The major assets of computing system are hardware, software and data. They are susceptible to attacks. An attack to a hardware is that it becomes lost or unusable. Somebody might steal it or maliciously destroy the hardware device. Software faces the threat of illicit copying of programs. Software can also be destroyed maliciously or it can be modified or deleted. Data attack is another serious problem as an unauthorized party might try to have an access to it and modify it. Considering the attacks that computing system faces, the following security and control methods are proposed for Direct Sales Information System of Decorous Limited:

1. Only authorized party can have a physical access to the system. Password are provided into the program for the users to have an access to certain sensitive area in the data.

2. To prevent loss of data during a power failure a UPS (Uninterrupted Power Supply) is recommended.

3. All application programs should be copied to diskettes and kept in a safe and secured place. A backup process should be performed at the end of each day. Backup copies should be created every time the database is updated or modified.

4. Hardware and printer should not be left unattended when it is printing any information. The computer hardware must be locked in the office at office closing time, and the key should be kept by the authorized person.

5. Ensure the authorized persons signs source documents such as invoices, purchasing orders, etc.

6. The distribution of reports should be controlled to ensure that they are sent to the proper destination.

12. The recovery of data can be done by using backup diskettes.
5. DETAILED SYSTEM DESIGN

Following aspects will be covered for the detailed system design:

5.1. Database Design
5.2. Software Design
5.3. Output Design
5.4. Input Design

5.1. DATABASE DESIGN OR FILE DESIGN.

5.1.1. THE OBJECTIVE OF DATABASE DESIGN are
1. The data has to be available when the user wants to use it.
2. The data must be accurate and consistent.
3. The efficiency storage of data as well as efficient updating and retrieval.
4. The information obtained from the stored data must be in a form useful for managing, planning, controlling, or decision making.

5.1.2. CONCEPTUAL SCHEMA DESIGN PROCEDURE

The conceptual schema of this project was developed by Professors G.M. Nijssen and E.D Falkenberg. The idea to base conceptual schema concepts on elementary natural language sentences was proposed by Falkenberg, and was influenced by the work of Linguist Fillmore. The fundamental approach of building a design by starting with specific examples with meaningful diagrams was originally developed by Professor Nijssen while working at control data, this methodology was called NIAM (Nijssen’s Information Analysis Methodology) by control data. It is also recognized as one of a few accepted conceptual schema model accepted by ISO.
5.2. SOFTWARE DESIGN

5.2.1. APPROACH TO SOFTWARE DESIGN:

The following qualities of software have been considered in order to design a software.

5.2.1.1. It is user friendly, as users can interact with it easily, and it does not take long for the user to master the system.

5.2.1.2. It is easy to understand, as there are no intricacies to understand to program, and it requires minimum number of key presses to call up the desired screen.

5.2.1.3. It can be evolved according to the future requirements of the used.

5.2.1.4. It is reliable, as users can depend on it.

5.2.2. MODULARITY

A system that is composed of modules is called modular. Modularity is the single attribute of software that allows a program to be intellectually manageable. It achieves three goals in practice: capability of decomposing a complex system, of composing if from existing modules, and of understanding a system in pieces.

The system that was developed has followed the above approach to assure that

1. Each function in each abstraction has a single, well-defined purpose.

2. It is easy to identify all routines that share a major data structure.

This approach enhances design clarity which in turn eases implementation, debugging, testing, documenting and maintenance of the system.
5.2.3. TOP-DOWN APPROACH

The system is typically based on above approach. As the system progresses, the system is decomposed into subsystems. It provides an orderly and systematic framework for the system. Top down approach of the system is illustrated in tree diagrams of the program.

5.2.4. COUPLING AND COHESION

Coupling is a measure of interconnection among modules, and cohesion is the measure of functional relatedness of elements within a module.

In this system development project concepts of coupling and cohesion are being used to guide the design process. Direct Sale Information System for Decorous Limited has been designed to exhibit a low degree of coupling between modules, and a high degree of cohesion among each module in order to achieve an effective design.
5.3. OUTPUT DESIGN

5.3.1. The objective of Output Design. Output is information delivered to users through the information system should accomplish one or more of the following objectives.

1. Convey information about the past activities, current status, or projections of the future.
2. Signal important events, opportunities, problems, or warnings
3. Trigger an action.
4. Confirm an action

5.3.2 Method of output are:
1. Hard copy of printer reports.
2. Soft copy such as VDT Screen.

5.3.2.1. SCREEN DESIGN

It is at this step the logical model of the new system is converted to the physical model of the new system. The logical design of the new system such as data flow diagrams are converted to physical model of Screen Design. The use of the screen design is handled by MENU SELECTION. The Main Menu for Direct Sale Information System is designed. Submenu for each selected menu is designed in order to view the reports on the screen, as well as print them on the printer. User can add, edit, append and delete the date according to his or her requirements.
5.3.2.2. **REPORT DESIGN**

The greatest demand of the users is to get output reports. Therefore, reports designing is a real vital issue of the project. Reports are generated by considering the criteria of making good reports such as the right amount of reports, at the right time with the right amount of information to the right people. The reports have an element of performance that has a significant bearing on the goals of the area receiving the reports. System puts out reports that are timely and relevant. The reports appear in a format that is easy to understand and expressed in the language of the user's report.

5.4. **INPUT DESIGN**

Well-design input forms and visual display terminal (VDT) screens should meet the goals of effectiveness, accuracy, ease of use, consistency, and attractiveness. Type of input are forms and visual display terminal (VDT) screen.

5.4.1. **Good Form Design.** Forms are important instruments for steering the course of work. By definition, they are preprinted or duplicated papers that require people to fill in response in a standardized way. Four guidelines for form design:

1. Make forms easy to fill out.
2. Ensure that forms meet the purpose for which they are designed.
3. Design forms to assure accurate completion.
4. Keep forms attractive.

(50)
5.4.2. Good Screen Design. Screen display a cursor which continually orients the user. The four guideline for well-designed VDT screens:

1. Keep the screen simple.
2. Keep the screen presentation consistent.
3. Facilitate user movement among screens.
4. Create an attractive screen.

5.5. PROJECT IMPLEMENTATION

The new system which consists of hardware and software is installed at this stage. Three tasks have to be performed in order to get new system to the operational stage.

5.5.1. Program the system.

This is the point at which the program for the direct sale information system is coded. The program is developed from the program flowchart and data flow diagram. Each module of the program is debugged until each module runs properly. Each module of the program is then connected together and the overall system is debugged again so that the system of program can operate as a complete application system. After that, the documentation of the program is prepared.

5.5.2. Test the program.

Testing is the process of executing a program with intent of finding and error. Testing may be described as follows:

5.5.2.1. Program Testing. Each module of the program is tested to make sure it perform satisfactory. A test data is created and input to the
system and the program is run in order to test all possible situations that might occur in the future.

5.5.2.2. System Testing. The objective of entire system testing is to ensure that users have adequate documentation to run the system. To ensure that the uses are able to input the data properly and to ensure that the overall system flow works properly. Above all, to ensure that the entire system functions as a whole.

5.5.3. Implementation.
This is a point at which users actually interacts with the system. The users will undergo a training and will get into the stream of the system.
6. CONCLUSIONS AND RECOMMENDATIONS

6.1. CONCLUSIONS

DECOROUS LIMITED which is the Distributor Business. Most of the products are imported from France and are selling in the Department Store. Management are considered about the potential market and competitors because of the high margin and the reduce of the imported duty in 1997. So management team are decided to increase sale volume, product diversify and expanding the product line. But there are some problems in the existing system which can not be served the expanding of the business. The major problem is the back office operation which are done by manual, there are slowly and have some error in inventory data, sale report and customer detail. Existing computer is used for preparing reports and worksheet. Management can not make the decision at the right time about the sale channels, marketing strategies and inventory control.

Direct Sale Information System is the method that can be used to solve that problem, by using the potential customer information and direct marketing strategy like direct sale. This strategy is directly approached to the potential customers and quickly response, the marketing staff can make the plan about sale channels, inventory turnover and product diversification. Computerized is used for helping this system.

Proposed System Development Project is a starting point of a Computerization. The system can be involved according to the future requirements of the users. The analysis face was conducted using structured analysis techniques such as use of context diagrams, data flow diagrams, and data dictionary, etc. When the computerized is modified, it could bring better results, as it could generate more Direct Sale Information as well as
enhance the productivity of the Marketing Department by providing efficiency for the existing back operations. Database design, software design, report design and screen design were designed for the detail systems design.

The major product of a new system is a Computerization of Direct Sale Information System which computerizes product details, customer details and sales details etc. The reports generated can be seen on the screen or can be hard copy. The major outputs that can be produced by the system are Inventory Report, Customer Report, Customer Label, Sales Analysis Report, Value Added Tax Report, etc. Authorized person who can access to the system and password are necessary to be provided.

This Proposed System Development Project cost are hardware, software cost which are Baht 184,000.00 but the increase revenue are baht 207,000.00. Payback period in install the proposed system is 1.27 years or 1 year and 3 months. Net Profit from comparison between incremental cost and revenue are Baht 101,640.00 per year.

Direct Sale Information System Program is coded, testing and implementation.

6.2. RECOMMENDATIONS

The present system was designed to serve the immediate needs of Marketing Department of Direct Sale Information System in calculating the product sales, inventory value and type as well as the issuing the invoices. Management wants to expand this system further by linking it without inventory system.

In order to have present system to be linked to the inventory system, Local Area Network is recommended. Local Area Network (LAN) is an interconnected collection of autonomous computers, as many computers can
exchange information, and they are independent at the same time, for no computer on the network can start, stop or control another. It has many potential advantages such as follows:

1. Sharing.
   This is a very attractive feature of LAN, as users can share resources in the network.

2. Incremental Growth.
   The system can be expanded easily. New resources can be added according to future requirements of the users.

3. Autonomy.
   Each node is independent to its own right.

4. Placing Power Where it is NEEDED AND USED.
   Computing power, be it processors, and peripherals, can be physically placed where it is needed and used.

5. Resiliency
   This can be easily built into the system e.g. two copies of the same file can be easily stored at different nodes. Thus if one is temporality unavailable or overused, the information can be obtained from the second copy. This, an increased availability of resources leads to improved performance.
REFERENCES


4. MRS. PASSARA ITTIRAVIWONG, Sheet of Marketing Society of Thailand. 1995


APPENDIX A
DATA STRUCTURE

CUSTOMERS

Customer_ID
Customer_name
Sex
Age
Nationality
Birth_date
Career
Address_Number
Soi
Street
Amphor
Changwad
Postal_code
Telephone_number
Invoice_Date
Invoice_Number
Invoice_Amount
VAT_Amount
Total_Amount

INVOICES

Leaflet_ID
Leaflet_Name
Period_of_Leaflet
Product_Type
Unit_Price
Description

(57)
Cus ORDERS = Customer_ID
            Order_Number
            Product_ID
            Product_Type
            Quantity
            unit_Price
            receipt_date

Supp ORDERS = Supplier_ID
              Supplier_name
              Purchasing_Order_No.
              Address
              Product_ID
              Product_Type
              Size
              Colour
              Quantity
              Cost_Price
              payment_date

Inventories = Product_ID
             Product_Name
             Product_Type
             Size
             Colour
             Product_Group
             Quantity

(58)
VATS

Unit_Cost

Amount

= Tax_Code

Tax_Rate

Tax_Amount

Total_Tax_Amount

(59)
DATA DICTIONARY

CUSTOMERS = {customer}
customer = customer id + customer detail + sex + age +
nationality + birth-date + career + salary
customer id = *IDENTIFICATION OF CUSTOMER*
              {character + number}
customer detail = customer name + customer address
customer name = courtesy title + first name + last name
courtesy title = [Mr.|Miss|Mrs.]
customer address = address no. + soi + street + amphor +
                    changwad + postal_code + telephone
                    number.
sex = *A DESCRIPTION OF CUSTOMERS' SEX
      ARE MALE FOR FEMALE. ONE
      CHARACTER CAN BE ENTER*
age = number of age
date of birth = date
nationality = *A DESCRIPTION OF NATIONALITY OF
              CUSTOMER 10 CHARACTERS CAN BE
              ENTER*
career = *A DESCRIPTION OF CUSTOMER
         OCCUPATION 25 CHARACTERS CAN BE
         ENTER*
salary = salary of customer per month
         {number}

(60)
INVOICES = {invoice}
invoice = invoice date + invoice number + customer id + customer detail + product id + product detail + invoice amount + total amount
invoice date = date of issuing invoice {date}
invoice number = *IDENTIFICATION OF INVOICE* {number}
product id = *IDENTIFICATION OF PRODUCT* {number}
product detail = product type + product name + size +
colour
product type = *A DESCRIPTION OF TYPE OF PRODUCT UP TO 7 CHARACTERS CAN BE ENTERED*
product name = *A DESCRIPTION OF THE PRODUCT UP TO 25 CHARACTERS CAN BE ENTERED*
size = *A DESCRIPTION OF SIZE OF PRODUCT CAN BE NUMERIC OR CHARACTER OR BOTH*
colour = *THE COLOUR OF PRODUCT* {number}
quantity = *THE QUANTITY OF THE PRODUCT SPECIFIED IN TERMS OF THE PRODUCT'S UNIT OF MEASURE*
unit price = *THE NORMAL SELLING PRICE OF A PRODUCT PER UNIT OF MEASURE*
invoice amount = quantity + unit price
total amount = invoice amount + VAT amount

LF_RECORDS = {leaflet record}
leaflet record = leaflet id + leaflet name + period of leaflet +
product type + unit price
leaflet id = *IDENTIFICATION OF LEAFLET*
{number}
leaflet name = *A DESCRIPTION OF THE LEAFLET UP
TO 25 CHARACTERS CAN BE ENTER*
period of leaflet = date of start and end of leaflet
{date}

CUS_ORDERS = {customer order}
customer order = customer id + order number + order date +
product id + product type + quantity + unit
price + receipt date
order number = *IDENTIFICATION OF THE ORDER*
{number}
order date = date
receipt date = date of collection

SUPP_ORDERS = {supplier order}
supplier order = supplier id + supplier detail + PO number +
PO_date + product id + product detail +
quantity + cost price + payment date

(62)
supplier id = "IDENTIFICATION OF SUPPLIER*
{number}
supplier detail = supplier name + supplier address
supplier name = courtesy title + first name + last name
supplier address = address no. + soi + street = ampher +
changwad + postal_code + telephone
number
PO number = purchase number
{number}
cost price = purchasing price
payment date = date

INVENTORIES = {inventory}
inventory = product id + product detail + quantity + cost
price + average price
average price = last cost price + previous price + quantity

VATS = {value added tax}
vat = tax code + tax rate + tax amount + total tax amount
tax code = "IDENTIFICATION OF TAX RATE*
{number}
tax rate = "RATE OF VALUE ADDED TAX*
{number}
tax amount = invoice amount + tax rate
total tax amount = total tax rate per invoice

(63)
ERRORS = \{\text{error}\}

\text{error} = \text{product id + product detail + quantity order + cost price}

\text{quantity order} = \text{number of quantity to order}
<table>
<thead>
<tr>
<th>NAME OF DATA STORE : CUSTOMERS</th>
<th>NAME OF DATA STRUCTURE : CUSTOMERS</th>
<th>NAME OF DATA ELEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMERS</td>
<td>CUSTOMERS</td>
<td>Customer_ID +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer_detail +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sex +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Age +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nationality +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birth_date +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Career +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salary</td>
</tr>
</tbody>
</table>

**Notation :** Customer ID must be unique

**Index File :** Customer ID
<table>
<thead>
<tr>
<th>NAME OF DATA STORE : INVOICES</th>
<th>NAME OF DATA STRUCTURE</th>
<th>NAME OF DATA ELEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICES</td>
<td></td>
<td>Invoice Number +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Invoice date +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer_ID +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer_detail +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product_ID +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product_detail +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Invoice amount +</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total amount</td>
</tr>
</tbody>
</table>

Notation : Invoice Number must be unique

Index File : Invoice Number
<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>LF_RECORDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
</tbody>
</table>
| LF_RECORDS | Leaflet-ID  
Leaflet_name  
Period of Leaflet  
Product_type  
Unit price  
Description |

Notation : Leaflet ID must be unique

Index File : Leaflet ID
### TABLE A-4 DATA STORE OF CUS-ORDERS

<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>CUS_ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
<tr>
<td>CUS_ORDERS</td>
<td>Customer_ID +</td>
</tr>
<tr>
<td></td>
<td>Order_number +</td>
</tr>
<tr>
<td></td>
<td>Order_date +</td>
</tr>
<tr>
<td></td>
<td>Product_ID +</td>
</tr>
<tr>
<td></td>
<td>Product_type +</td>
</tr>
<tr>
<td></td>
<td>Quantity +</td>
</tr>
<tr>
<td></td>
<td>Unit_price +</td>
</tr>
<tr>
<td></td>
<td>Receipt_date</td>
</tr>
</tbody>
</table>

**Notation**: Customer ID, Order_number must be unique

**Index File**: Customer ID, Order number
**TABLE A-5** DATA STORE OF SUPP-ORDERS

<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>SUPP_ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
<tr>
<td>SUPP_ORDERS</td>
<td>Supplier ID +</td>
</tr>
<tr>
<td></td>
<td>Supplier detail +</td>
</tr>
<tr>
<td></td>
<td>PO_number +</td>
</tr>
<tr>
<td></td>
<td>Product_ID +</td>
</tr>
<tr>
<td></td>
<td>Product_detail +</td>
</tr>
<tr>
<td></td>
<td>Quantity +</td>
</tr>
<tr>
<td></td>
<td>Cost price +</td>
</tr>
<tr>
<td></td>
<td>Payment date</td>
</tr>
</tbody>
</table>

Notation: Supplier ID must be unique

Index File: Supplier_ID
<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>INVENTORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
<tr>
<td>INVENTORIES</td>
<td>Product ID +</td>
</tr>
<tr>
<td></td>
<td>Product_detail +</td>
</tr>
<tr>
<td></td>
<td>Quantity +</td>
</tr>
<tr>
<td></td>
<td>Cost price +</td>
</tr>
<tr>
<td></td>
<td>Average price</td>
</tr>
</tbody>
</table>

Notation: Product ID must be unique

Index File: Product ID
### TABLE A-7  DATA STORE OF VATS

<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>VATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
<tr>
<td>VATS</td>
<td>Tax Code +</td>
</tr>
<tr>
<td></td>
<td>Tax_rate +</td>
</tr>
<tr>
<td></td>
<td>Tax amount +</td>
</tr>
<tr>
<td></td>
<td>Total_tax_amount</td>
</tr>
</tbody>
</table>

Notation: Tax Code must be unique

Index File: Tax Code
## TABLE A-8  DATA STORE OF ERRORS

<table>
<thead>
<tr>
<th>NAME OF DATA STORE</th>
<th>ERRORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME OF DATA STRUCTURE</td>
<td>NAME OF DATA ELEMENT</td>
</tr>
<tr>
<td>ERRORS</td>
<td>Product ID +</td>
</tr>
<tr>
<td></td>
<td>Product_detail +</td>
</tr>
<tr>
<td></td>
<td>Quantity_order +</td>
</tr>
<tr>
<td></td>
<td>Cost_price +</td>
</tr>
</tbody>
</table>

Notation: Product ID must be unique

Index File: Product ID

(72)
### TABLE A-9  FILE LAYOUT OF CUSTOMERS

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMER_ID</td>
<td>CN</td>
<td>7</td>
<td>-</td>
<td>Y</td>
<td>PA00010</td>
</tr>
<tr>
<td>CUST_NAME</td>
<td>C</td>
<td>35</td>
<td>-</td>
<td>N</td>
<td>Mrs. Phongphun Asavachaivong</td>
</tr>
<tr>
<td>CUST_ADDR</td>
<td>C</td>
<td>45</td>
<td>-</td>
<td>N</td>
<td>363/25 Soi Ladpraw Ladyao</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chatuchak BKK</td>
</tr>
<tr>
<td>SEX</td>
<td>C</td>
<td>1</td>
<td>-</td>
<td>Y</td>
<td>F</td>
</tr>
<tr>
<td>AGE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>Y</td>
<td>40</td>
</tr>
<tr>
<td>BIRTH_DATE</td>
<td>D</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>22/03/1955</td>
</tr>
<tr>
<td>NATIONALITY</td>
<td>A</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>THAI</td>
</tr>
<tr>
<td>CAREER</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>N</td>
<td>Employee</td>
</tr>
<tr>
<td>SALARY</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>25,000.00</td>
</tr>
<tr>
<td>POSTAL_CODE</td>
<td>N</td>
<td>5</td>
<td>-</td>
<td>Y</td>
<td>10900</td>
</tr>
<tr>
<td>TELEPHONE</td>
<td>N</td>
<td>35</td>
<td>-</td>
<td>N</td>
<td>01-4871320, 5113115</td>
</tr>
</tbody>
</table>

TOTAL RECORD LENGTH 187
# Table A-10  File Layout of Invoices

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Type</th>
<th>Length</th>
<th>Dec</th>
<th>Index</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>INV_NO</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>Y</td>
<td>1000101</td>
</tr>
<tr>
<td>INV_DATE</td>
<td>D</td>
<td>10</td>
<td></td>
<td>Y</td>
<td>01/08/1995</td>
</tr>
<tr>
<td>CUST_ID</td>
<td>CN</td>
<td>7</td>
<td></td>
<td>Y</td>
<td>PA00010</td>
</tr>
<tr>
<td>CUST_NAME</td>
<td>C</td>
<td>35</td>
<td>-</td>
<td>N</td>
<td>Mrs. Phongphun Asavachaivong</td>
</tr>
<tr>
<td>CUST_ADDR</td>
<td>C</td>
<td>45</td>
<td>-</td>
<td>N</td>
<td>363/25 Soi Ladpraw Ladyao Chatuchak BKK</td>
</tr>
<tr>
<td>PROD_ID</td>
<td>N</td>
<td>13</td>
<td>-</td>
<td>Y</td>
<td>1121030038</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>Y</td>
<td>11</td>
</tr>
<tr>
<td>PROD_NAME</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>N</td>
<td>Blouse</td>
</tr>
<tr>
<td>SIZE</td>
<td>CN</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>39</td>
</tr>
<tr>
<td>COLOUR</td>
<td>C</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>Noir</td>
</tr>
<tr>
<td>INV_AMT</td>
<td>N</td>
<td>12</td>
<td>2</td>
<td>N</td>
<td>25,000.00</td>
</tr>
<tr>
<td>TOT_AMT</td>
<td>N</td>
<td>12</td>
<td>2</td>
<td>N</td>
<td>100,000.00</td>
</tr>
<tr>
<td>QTY</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>N</td>
<td>10,000</td>
</tr>
<tr>
<td>UNIT_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>12,000.00</td>
</tr>
</tbody>
</table>
### TABLE A-11 FILE LAYOUT OF LF-RECORDS

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF_ID</td>
<td>N</td>
<td>5</td>
<td>-</td>
<td>Y</td>
<td>00011</td>
</tr>
<tr>
<td>LF_NAME</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>Y</td>
<td>SUMMER COLLECTION</td>
</tr>
<tr>
<td>LF_PERIOD</td>
<td>D</td>
<td>25</td>
<td>-</td>
<td>Y</td>
<td>01/03/1995-30/04/1995</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>Y</td>
<td>11</td>
</tr>
<tr>
<td>PROD_NAME</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>N</td>
<td>Blouse</td>
</tr>
<tr>
<td>SIZE</td>
<td>CN</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>39</td>
</tr>
<tr>
<td>COLOUR</td>
<td>C</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>Noir</td>
</tr>
<tr>
<td>UNIT_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>12,000.00</td>
</tr>
<tr>
<td>FIELD NAME</td>
<td>TYPE</td>
<td>LENGTH</td>
<td>DEC</td>
<td>INDEX</td>
<td>EXAMPLE</td>
</tr>
<tr>
<td>------------</td>
<td>------</td>
<td>--------</td>
<td>-----</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>CUST_ID</td>
<td>CN</td>
<td>7</td>
<td>Y</td>
<td></td>
<td>PA00010</td>
</tr>
<tr>
<td>ORDER_NO</td>
<td>N</td>
<td>7</td>
<td>Y</td>
<td></td>
<td>2100011</td>
</tr>
<tr>
<td>ORDER_DATE</td>
<td>D</td>
<td>10</td>
<td>N</td>
<td></td>
<td>11/10/1994</td>
</tr>
<tr>
<td>PROD_ID</td>
<td>N</td>
<td>13</td>
<td>-</td>
<td>Y</td>
<td>1121030038</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>N</td>
<td>11</td>
</tr>
<tr>
<td>REC_DATE</td>
<td>D</td>
<td>10</td>
<td>N</td>
<td></td>
<td>11/11/1994</td>
</tr>
<tr>
<td>QTY</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>N</td>
<td>10,000</td>
</tr>
<tr>
<td>UNIT_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>12,000.00</td>
</tr>
</tbody>
</table>
TABLE A-13  FILE LAYOUT OF SUPP-ORDERS

<table>
<thead>
<tr>
<th>FILE NAME</th>
<th>SUPP_ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL RECORD LENGTH</td>
<td>193</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO_NO</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>Y</td>
<td>00000001</td>
</tr>
<tr>
<td>PO_DATE</td>
<td>D</td>
<td>10</td>
<td>-</td>
<td>Y</td>
<td>01/08/1995</td>
</tr>
<tr>
<td>SUPP_ID</td>
<td>CN</td>
<td>7</td>
<td>-</td>
<td>Y</td>
<td>LP00111</td>
</tr>
<tr>
<td>SUPP_NAME</td>
<td>C</td>
<td>35</td>
<td>-</td>
<td>N</td>
<td>LALIQUE PARFUME CO., LTD.</td>
</tr>
<tr>
<td>SUPP_ADDR</td>
<td>C</td>
<td>45</td>
<td>-</td>
<td>N</td>
<td>4 Lious Ave, Paris</td>
</tr>
<tr>
<td>PROD_ID</td>
<td>N</td>
<td>13</td>
<td>-</td>
<td>Y</td>
<td>1121030038</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>Y</td>
<td>11</td>
</tr>
<tr>
<td>PROD_NAME</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>N</td>
<td>Blouse</td>
</tr>
<tr>
<td>SIZE</td>
<td>CN</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>39</td>
</tr>
<tr>
<td>COLOUR</td>
<td>C</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>Noir</td>
</tr>
<tr>
<td>PAY_DATE</td>
<td>D</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>01/10/1995</td>
</tr>
<tr>
<td>QTY</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>N</td>
<td>10,000</td>
</tr>
<tr>
<td>COST_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>7,500.00</td>
</tr>
</tbody>
</table>
TABLE A-14  FILE LAYOUT OF INVENTORIES

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROD_ID</td>
<td>N</td>
<td>13</td>
<td>-</td>
<td>Y</td>
<td>1121030038</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>Y</td>
<td>11</td>
</tr>
<tr>
<td>PROD_NAME</td>
<td>C</td>
<td>25</td>
<td>-</td>
<td>N</td>
<td>Blouse</td>
</tr>
<tr>
<td>SIZE</td>
<td>CN</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>39</td>
</tr>
<tr>
<td>COLOUR</td>
<td>C</td>
<td>10</td>
<td>-</td>
<td>N</td>
<td>Noir</td>
</tr>
<tr>
<td>QTY</td>
<td>N</td>
<td>7</td>
<td>-</td>
<td>N</td>
<td>10,000.00</td>
</tr>
<tr>
<td>AVR_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>7,250.00</td>
</tr>
<tr>
<td>PRE_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>7,000.00</td>
</tr>
<tr>
<td>COST_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>7,500.00</td>
</tr>
</tbody>
</table>

TOTAL RECORD LENGTH 103
## TABLE A-15  FILE LAYOUT OF VATS

<table>
<thead>
<tr>
<th>FILE NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAX_CODE</td>
<td>N</td>
<td>1</td>
<td>-</td>
<td>Y</td>
<td>1</td>
</tr>
<tr>
<td>TAX_RATE</td>
<td>N</td>
<td>2</td>
<td>-</td>
<td>N</td>
<td>7%</td>
</tr>
<tr>
<td>TAX_AMT</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>750.00</td>
</tr>
<tr>
<td>TOT_TAX_AMT</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>10,000.00</td>
</tr>
</tbody>
</table>
# TABLE A-16  FILE LAYOUT OF ERRORS

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>TYPE</th>
<th>LENGTH</th>
<th>DEC</th>
<th>INDEX</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROD_ID</td>
<td>N</td>
<td>13</td>
<td></td>
<td>Y</td>
<td>1121030038</td>
</tr>
<tr>
<td>PROD_TYPE</td>
<td>N</td>
<td>2</td>
<td></td>
<td>Y</td>
<td>11</td>
</tr>
<tr>
<td>PROD_NAME</td>
<td>C</td>
<td>25</td>
<td></td>
<td>N</td>
<td>Blouse</td>
</tr>
<tr>
<td>SIZE</td>
<td>CN</td>
<td>10</td>
<td></td>
<td>N</td>
<td>39</td>
</tr>
<tr>
<td>COLOUR</td>
<td>C</td>
<td>10</td>
<td></td>
<td>N</td>
<td>Noir</td>
</tr>
<tr>
<td>ORD_QTY</td>
<td>N</td>
<td>7</td>
<td></td>
<td>N</td>
<td>1,000</td>
</tr>
<tr>
<td>COST_PRICE</td>
<td>N</td>
<td>10</td>
<td>2</td>
<td>N</td>
<td>7,500.00</td>
</tr>
</tbody>
</table>
APPENDIX B
DECOROUS LIMITED

MAIN MENU

1 MEMBER SYSTEM
2 SALE SYSTEM
3 INVENTORY CONTROL SYSTEM
4 PURCHASING SYSTEM
5 GENERAL LEDGER

99 EXIT

Select ..........

FIGURE B-1 INPUT MENU
DECOROUS LIMITED

MEMBER SYSTEM

1 MEMBER INFORMATION
2 MAILING LABEL
3 INVOICING
4 PRINT ERROR

99 EXIT

Select

FIGURE B-2 MEMBER SYSTEM
DECOROUS LIMITED

MEMBER INFORMATION

CHOOSE:

1 ADD
2 CHANGE
3 DELETE
4 REPORT
99 EXIT

Select

FIGURE B-3  MEMBER INFORMATION
<table>
<thead>
<tr>
<th>DATE</th>
<th>CUSTOMER - ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMER NAME</td>
<td>ENG.</td>
</tr>
<tr>
<td></td>
<td>THAI</td>
</tr>
<tr>
<td>ADDRESS</td>
<td>PROVINCE</td>
</tr>
<tr>
<td>TEL.</td>
<td></td>
</tr>
</tbody>
</table>

**PERSONAL INFORMATION**

<table>
<thead>
<tr>
<th>SEX</th>
<th>DATE OF BIRTH</th>
<th>NATIONALITY</th>
<th>CAREER</th>
<th>SALARY</th>
</tr>
</thead>
</table>

F3 = Exit  F12 = Reverse  F1 = Search

**FIGURE B - 4**  MEMBER INFORMATION - ADD
DECOROUS LIMITED

MEMBER INFORMATION

OPTION : CHANGE

MUTATION DATE :
CUSTOMER-ID :
CHANGE TO :

CUSTOMER NAME :
ADDRESS :

PROVINCE :
TEL :
SEX :
DATE OF BIRTH :
NATIONALITY :
CAREER :
SALARY :

ZIP CODE :

F 3 = Exit  F12 = Reverse  F1 = Search

FIGURE B-5  MEMBER INFORMATION - CHANGE
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POST</td>
<td>:</td>
<td>- 99999</td>
</tr>
<tr>
<td>MEMBER NO.</td>
<td>:</td>
<td>- 9999 99</td>
</tr>
<tr>
<td>SORT</td>
<td>: 2 (1-POST, 2-MEMBER)</td>
<td></td>
</tr>
<tr>
<td>PRINT KHUN</td>
<td>:</td>
<td>Y</td>
</tr>
</tbody>
</table>

**FIGURE B-6**

MAILING LABEL

F3 = Exit

(86)
FIGURE B-7 PRINT ERROR
DECOROUS LIMITED

SALE SYSTEM

1 ORDER SYSTEM
2 INVOICING
3 REPORT

99 EXIT
Select

FIGURE B-8   SALE SYSTEM
DECOROUS LIMITED

INVENTORY CONTROL SYSTEM

1  FILES MAINTENANCE
2  PURCHASE
3  RECEIVING
4  REPORT
99  EXIT

Select

FIGURE B-9  INVENTORY CONTROL SYSTEM
DECOROUS LIMITED

PURCHASING SYSTEM

1  PURCHASING REQUISITION ENTRY
2  PURCHASE FOLLOW UP
3  REPORT

99  EXIT
Select ........................................

FIGURE B-10  PURCHASING SYSTEM
DECOROUS LIMITED

GENERAL LEDGER

1 ACCOUNT MASTER FILE MAINTENANCE
2 ACCOUNT PAYABLE
3 ACCOUNT RECEIVABLE
4 LEDGER
5 REPORT
99 EXIT

Select

FIGURE B-11 GENERAL LEDGER
DECOROUS LIMITED

LEDGER

1 APPEND
2 EDIT
3 POSTING

99 EXIT

Select ...............
<table>
<thead>
<tr>
<th>VOUCHER</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Item</td>
</tr>
<tr>
<td>2</td>
<td>Account Code</td>
</tr>
<tr>
<td>3</td>
<td>Double Entry</td>
</tr>
<tr>
<td>4</td>
<td>Debit(1)/Credit(2)</td>
</tr>
<tr>
<td>5</td>
<td>Amount</td>
</tr>
<tr>
<td>6</td>
<td>Dept.</td>
</tr>
<tr>
<td>7</td>
<td>Cheque No.</td>
</tr>
<tr>
<td>8</td>
<td>Bank</td>
</tr>
<tr>
<td>9</td>
<td>Paid To/Received From</td>
</tr>
<tr>
<td>10</td>
<td>Remark</td>
</tr>
</tbody>
</table>

F12 - Back
F1 - Find (*)

FIGURE B-13  LEDGER - APPEND
<table>
<thead>
<tr>
<th>Item</th>
<th>Account Code</th>
<th>Double Entry</th>
<th>Debit(1)/Credit(2)</th>
<th>Amount</th>
<th>Dept.</th>
<th>Cheque No.</th>
<th>Bank</th>
<th>Paid To/Received From</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5211</td>
<td>1100</td>
<td>1</td>
<td>1,000.00</td>
<td>10</td>
<td>7320021334</td>
<td>TFB</td>
<td>MR. SOMCHAI</td>
<td>Medical Expense</td>
</tr>
</tbody>
</table>

**Notes:**
- VOUCHER: PV 011
- DATE: 23/12/94
- PERIOD: 4
- BRANCH: 01 DECOROUS - PATTANAKARN
- BOOK: 06 PETTY CASH
- YEAR: 1994

**Remar:**
- F12 - Back
- F 1 - FIND (*)

**FIGURE B-14** SAMPLE - LEDGER
APPENDIX C
DECOROUS LTD.
111 Royal Castle Condominium
Soi Peecha, Pattanakarn Road Bangkok
Tel. 741-5970-9 Fax No. 741-5979
Tax-ID 3 18 100051 8

TAX INVOICE

INVOICE NO:

DATE

SHIP TO:

<table>
<thead>
<tr>
<th>SALESPERSON</th>
<th>P.O. NUMBER</th>
<th>DATE SHIPPED</th>
<th>SHIPPED VIA</th>
<th>TERMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>DESCRIPTION</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SUBTOTAL

VALUE ADDED TAX 7%

TOTAL AMOUNT

Make all checks payable to DECOROUS LIMITED

If you have any questions concerning this invoice, call:

Tel. 741-5970-9

Authorized signature

FIGURE C-1

TAX INVOICE

(95)
DECOROUS LTD.

SALE ANALYSIS REPORT

FOR THE PERIOD FROM .................. TO ..................

DATE OF REPORT ..................

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>PRODUCT-I</th>
<th>PRODUCT NAME</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ORDER</td>
<td>SALE</td>
<td>PRICE</td>
</tr>
</tbody>
</table>

Prepared By: ........................................... Checked By: ...........................................

FIGURE C-2 SALE ANALYSIS REPORT
<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
<th>GRN.</th>
<th>TAX INVOIC NO.</th>
<th>NAME</th>
<th>PRODUCT AMOUNT</th>
<th>TAX AMOUNT</th>
</tr>
</thead>
</table>

**FIGURE C-3**  
SALE VALUE ADDED TAX REPORT
DECOROUS LIMITED

INVOICE SUMMARY

FOR PERIOD OF .................................. TO ..................................

<table>
<thead>
<tr>
<th>DATE</th>
<th>INVOICE NO.</th>
<th>PRODUCT AMOUNT</th>
<th>VAT AMOUNT</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FIGURE C-4  INVOICE SUMMARY
DECOROUS LIMITED

CUSTOMER MAILING LABEL

<table>
<thead>
<tr>
<th>NAME</th>
<th>MRS. PHONGPHUN ASAVACHAIVONG</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS</td>
<td>363/25 Soi Ladpraw ladyao</td>
</tr>
<tr>
<td></td>
<td>Chatuchak BKK</td>
</tr>
<tr>
<td></td>
<td>10900</td>
</tr>
</tbody>
</table>

FIGURE C-5 CUSTOMER MAILING LABEL
DECOROUS LIMITED

LIST OF CUSTOMER

FROM CUSTOMER ID ....... TO .................

AS AT ......................................... PAGE NO. ........

<table>
<thead>
<tr>
<th>CUSTOMER - ID</th>
<th>CUSTOMER NAME</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE C-6**  LIST OF CUSTOMER
DECOROUS LIMITED

INVENTORY ANALYSIS REPORT (AMOUNT)

FOR PERIOD FROM .................. TO ..................

<table>
<thead>
<tr>
<th>PRODUCT-ID</th>
<th>PRODUCT NAME</th>
<th>PURCHASE</th>
<th>SALE</th>
<th>BALANCE</th>
<th>TURNOVER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE C-7**  INVENTORY ANALYSIS REPORT (AMOUNT)
DECOROUS LIMITED

CUSTOMER ANALYSIS REPORT

CUSTOMER ID ............................................ CREDIT LIMIT ............................................

CUSTOMER NAME ............................................ CREDIT ....... DAYS

<table>
<thead>
<tr>
<th>INVOICE DATE</th>
<th>INVOICE NO.</th>
<th>QUANTITY</th>
<th>AMOUNT</th>
<th>VAT</th>
<th>TOTAL</th>
<th>DUE DATE</th>
<th>OVER DUE (DAYS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16-30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31-60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>61-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Over 90</td>
</tr>
</tbody>
</table>

FIGURE C-8  CUSTOMER SALE REPORT
DECOROUS LIMITED
INVENTORY REPORT

PRODUCT NAME .................................................. PRODUCT CODE ........................................

TYPE .................................................. PACK .................................. COUNT .....................................

<table>
<thead>
<tr>
<th>VOUCHER</th>
<th>REF.</th>
<th>QUANTITY</th>
<th>COST</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
<td>NO.</td>
<td>DETAIL</td>
<td>RECEIVE</td>
<td>ISSUE</td>
</tr>
</tbody>
</table>

FIGURE C-9 INVENTORY REPORT
<table>
<thead>
<tr>
<th>PRODUCT GROUP</th>
<th>PRODUCT ID</th>
<th>CUSTOMER CODE</th>
<th>CUSTOMER NAME</th>
<th>INVOICE NO.</th>
<th>UNIT</th>
<th>QTY</th>
<th>COST</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

**FIGURE C-10**  PRODUCT SALES REPORT
APPENDIX D
**DECOROUS LIMITED**

**ORDER FORM**

<table>
<thead>
<tr>
<th>Date</th>
<th>Ship Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer- ID</th>
<th>Customer Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ship To</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product-ID</th>
<th>Product Type</th>
<th>Product Name</th>
<th>Color</th>
<th>Size</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Order Receipt By: ...........................................

Approved By: ..............................................................

Checked By: .................................................................

**FIGURE D-1   ORDER FORM**
DECOROUS LIMITED
QUESTIONARE

1 CUSTOMER NAME (MR., MRS., MISS) .................................................................

2 ADDRESS .................................................................................................
    Soi ................................ Street ............................................................
    Amper ................................ Changwad .............................................
    Postal Code ................................ Tel. No..............................................

3 SEX  □ Female  □ Male

4 Age ................................ DATE OF BIRTH ......................................................

5 CAREER
    □ Government  □ Employee
    □ Student  □ Own Business
    □ Others .................................................................

6 Income per month
    □ Below 10,000.-  □ 30,001 - 40,000.-
    □ 10,000 - 20,000.-  □ Over 40,001.-
    □ 20,001 - 30,000.-

7 Did you ever known about the Direct Sale?
    □ Known
    □ Unknown

   If you ever known, from ...
    □ Television  □ Bill Board
    □ Newspaper/Magazine  □ Others ........................................
    □ Radio

8 Which factors you consider for decision making to buy
    □ Price  □ Brand
    □ Quantity  □ Others ..................................................
    □ Design/Pattern

9 Where do you shop the cloth, cosmetic and perfume?
    □ Department Store  □ Glossary Store
    □ Drug Store  □ Others ...........................................
    □ Special Store

10 How often do you shop per month?
    □ Once  □ Four Time
    □ Twice  □ Others ........................................
    □ Three Time
APPENDIX E
FIGURE E - 1  CONTEXT DIAGRAM OF EXISTING SYSTEM
FIGURE E-2: DATA FLOW DIAGRAM OF EXISTING SYSTEM
(LEVEL 0)