CONVENIENCE STORE INFORMATION SYSTEM

by

MR. KOMKRIT CHAVANAVESSKUL

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

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

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November, 1995
Project Title : Convenience Store Information System
Name : Mr. Komkrit Chavanavesskul
Project Advisor : Prof. Dr. Srisakdi Charmonman
Academic Year : 1995

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

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Advisor

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Member

Dr. Thotsapon Sortrakul
Member

November, 1995
The Convenience Store Information System development project is carried out to improve the efficiency and capability in the existing functions of the convenience store. The scope of this project covers only the activities that are relevant to front offices (at branches). The existing system are subjected to many problems resulting from manual operations such as process delay, data out of date, etc. This system applying a computerized system to store data in order to improve the process time and to provide accurate information for management level.

The proposed system was designed to help the information collection function. The tools of structured analysis and design technique, such as context diagram, dataflow diagram, and data dictionary are used for analysis phase. The detail designing is carried out through file design, software design, screen design (form design), and report design. The main components of this newly design Convenience Store Information System include collecting information sale transaction, purchasing order, receiving merchandise, supplier, product, and etc. The major hard copy outputs are expired merchandise report, under/over stock report, reorder merchandise report, and stock card. Finally, the major outcome of this project is a computerized system that can help staff to fetch information more quickly and efficiently.
ACKNOWLEDGEMENTS

The project development of Convenience Store Information System is under supervision of Prof. Dr. Srisakdi Charmonman. The author is grateful to Prof. Dr. Srisakdi Charmonman for his instruction, suggestion and advice.

The author is also profoundly grateful to all lectures in the MS CIS program of Assumption University for their constant encouragement and constructive suggestion during the entire course of study.

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<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tabel 1</td>
<td>Project Plan</td>
<td>3</td>
</tr>
<tr>
<td>Table 2</td>
<td>Reports’ frequency</td>
<td>9</td>
</tr>
<tr>
<td>Table 3</td>
<td>Data Dictionary</td>
<td>17</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

1.1 Background of the project

The convenience store is a business in Thailand that is very boomly nowadays. There are more than a thousand convenience stores in Thailand. Some have licensed from other countries such as Seven-Eleven, Big Seven, AMPM, etc. Some have chained from a department store such as Central Minimart, Tuang Huo Seng, etc. Some are independent stores that changed from grocery store by redecorate the store or copied the concepts from the well-known ones. We can classify convenience store into two types. One is chained or franchises store, the other is independent store.

Managing the convenience store leads to the major problems of customer satisfaction and cost control. First, manager has to control the inventory for balancing between customers’ requirements and cost-carrying cost, opportunity cost, etc. So he has to looking at the quantity on hand of each product, forecast the demand of each product, ordering and tracing the order received, and also checking the quality of the merchandises such as milk, bread, and ones that have an expired date. Second, manager has to control the cash flow that is control the payable and payment because this kind of business credit term from vendor is very important and also tracing the cash received from cashiers.

Because of fast expansion of branches, it is very hard to find experience managers who can manage branch tide over from the high competition in this business. It is very difficult for managers to manage all things by manually. So they need tool that provides them the information.

Since the size of each branch and the location of each branch, we desired to use micro-computers with local area network to solve the problems in each branch and dial modem to connect with the head quarter.

The C.V.S.M. System has designed to serve strategic decision-marking, tactical controlling, and day-to-day operation by aiming to overcome competitors’ edge. All the information has kept in database system in order to meet users’ need today and tomorrow.
1.2 Objective of the project

The main objectives of the project on the C.V.S.M. System have summarized as follow:

1. To study the present system, identify and analyze all existing problems.
2. To obtain the management’s requirements pertaining to the new systems.
3. To develop Management System for convenience store Business that has written in Microsoft Access for Window version 2.0.

1.3 The benefits from this project

The benefits from this studying are listed below:

1.3.1 To know the document flow and system procedure of the Convenience Store and problems which occur in the system.
1.3.2 To know the way to develop and design computerization of Purchasing Order, Receive Merchandise, Sale Merchandise, and etc.
1.3.3 To know how to design the convenience store information system and having analyzed how to use it in management level.

1.4 Scope of the project

The project will cover major parts of the convenience store management system which includes

1. Identifying the sales information in order to analyze sales performance, and plan marketing & sales strategies.
2. Identifying the cost information for controlling cost purpose such as carry cost.
3. Identifying the management information for competitive advantages purpose.
1.5 PROJECT PLAN: The project plan is represented in gantt chart as follow:

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>JUN'95</th>
<th>JUL'95</th>
<th>AUG'95</th>
<th>SEP'95</th>
<th>OCT'95</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM ANALYSIS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Problem definition and solution identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop physical work flow of existing system</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>- Identify the contents of the existing data store</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DETAIL ANALYSIS AND DESIGN:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop the context diagram</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop the physical DFD of the new system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Identify the data dictionary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop the database design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop the structure chart</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Design the screen &amp; report outputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Design the screen inputs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPLEMENTATION:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Programming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Project Plan
2. THE EXISTING SYSTEM

2.1 Background of the Organization

Central Minimart Co., Ltd. was established in 1990 by Mr. Wat Jirathiwat, a shareholder of Central Group of Company. An objective of Central Minimart Co., Ltd. is to sell good, clean and high quality product to customers. Second, it is an expansion in horizontal of its retail business. Third of gives convenience to customer.

All business functions are duplicated from Central Department Store, especially back office system. Central Minimart is emphasized to sell grocery and some food. It’s target group is housewives. Nowadays all of its business function are manually. But it is developing software to serve some business function.

Central Minimart is five years old with 31 branches now. They can be classified into 3 type of business. First type is owner that Central Minimart invested all by itself which is about 20 branches. Second type is franchise that Central Minimart will give all knowledge of function and take 3% of sales amount for management fee which is about 9 branches. And the last type is joint-vencher that Central Minimart will invest 50% of the equity which is about 2 branches now.

All of management policy and many business function, such as accounting, financial, marketing, are from head-office which can call centralized management. The top management of the company is General Manager and will take care all departments as you can see the organization in next page (figure 1).
Figure 1: Organization Chart of Central Minimart Co., Ltd.
2.2 Existing Business Function

As using three of fact-finding-technique (Interview, Data Collection and Observation). We can conclude the main events of convenience store management (manual) as following.

- Sales Events
- Purchase Events
- Receive Merchandise Events

2.2.1 Sales Events

a. The customers buy merchandises from cashier
b. The customers return merchandise and refund
c. The sales transaction should reduce stock

2.2.2 Purchase Events

a. The manager should order merchandise at the right time with the right volume.
b. The manager should follow the pending purchasing order
c. The manager should planning to purchase promotion merchandise

2.2.3 Receive Events

a. The manager should looking at invalid merchandise receive.

2.3 Problem Definition

2.3.1 Lack of information for planning
2.3.2 Manual stock card is late
2.3.3 Sales tax and Purchase tax Report is manually and it is very heavy duty to do it intime
2.3.4 The head office know all management information late
2.3.5 High competition in this business
Figure 2: Context Diagram of Existing System
Figure 3: Data Flow Diagram (Level 0) of Existing System
3. PROPOSED SYSTEM

3.1 Users Requirement

To meet the objective of the system, user requirements must be defined as follow:-

3.1.1 Input Requirement:

The inputs are needed as database to generate the output requirement. Please see the input screen on Figure 36.

3.1.2 Output Requirement:

The outputs are reports that can be divided into two types. One is daily report, and the other is monthly reports.

<table>
<thead>
<tr>
<th>REPORTS</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expired Merchandise Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Death Stock Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Under Stock Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Over Stock Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Reorder Merchandise Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Purchasing order</td>
<td>Daily</td>
</tr>
<tr>
<td>Pending Purchasing Order Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Invalid Merchandise Receive Report</td>
<td>Daily</td>
</tr>
<tr>
<td>Merchandise Label</td>
<td>Daily</td>
</tr>
<tr>
<td>Stock Card</td>
<td>Monthly</td>
</tr>
<tr>
<td>Physical Check Report</td>
<td>Monthly</td>
</tr>
<tr>
<td>Purchase Tax Report</td>
<td>Monthly</td>
</tr>
<tr>
<td>Sales Tax Report</td>
<td>Monthly</td>
</tr>
</tbody>
</table>
3.2 System Design

3.2.1 Context Diagram

Figure 4: Context Diagram of Proposed System
FIGURE 5 Data Flow Diagram (Level 0)-Purpose System
Figure 6: Dataflow Diagram (Level 1) - Issue Stock
Fig. 7 Dataflow 4 Receive Goods (Level 1)
Figure 8: Dataflow Diagram (Level 1): Send Data to Headquater
Figure 9: Dataflow Diagram 9 Generate Inventory Reports
Figure 10: Dataflow Diagram 10 Generate Purchase Report
3.2.3 Data Dictionary

Data dictionary in computer’s system design is a tool to control the system fields and system variable and relation of each table. It can show all the data elements in description, the format of each data element such as data length, type of each data element. So in designing data dictionary has to be done and this system’s data dictionary is shown as following (Table 3.).

Tabel 3: Data Dictionary

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>address</td>
<td><em>100 characters that contain address of supplier</em></td>
</tr>
<tr>
<td>amountsold</td>
<td><em>number that represent amount of each product sold</em></td>
</tr>
<tr>
<td>availablelot</td>
<td><em>maximum lot or last lot that each product have</em></td>
</tr>
<tr>
<td>bf_amt</td>
<td><em>number that show balance forward amount to next year</em></td>
</tr>
<tr>
<td>bf_qty</td>
<td><em>number that show balance forward quantity to next year</em></td>
</tr>
<tr>
<td>cf_amt</td>
<td><em>number that represent carry forward amount from last year</em></td>
</tr>
<tr>
<td>cf_qty</td>
<td><em>number that represent carry forward quantity from last year</em></td>
</tr>
<tr>
<td>character</td>
<td><em>characters that represent the name of salesman of each supplier</em></td>
</tr>
<tr>
<td>contact_name</td>
<td>[A-Z,a-z,0-9]</td>
</tr>
<tr>
<td>currentlot</td>
<td><em>number that show the lot number which will be deducted</em></td>
</tr>
<tr>
<td>description</td>
<td><em>detail explain fro each group</em></td>
</tr>
<tr>
<td>doc_date</td>
<td><em>date that represent sale document occured</em></td>
</tr>
<tr>
<td>doc_no</td>
<td><em>number that represent sale document number</em></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>doc_type</td>
<td><em>character show type of document that effect to stock balance of each product</em></td>
</tr>
<tr>
<td>expected_date</td>
<td><em>date that expect to receive product</em></td>
</tr>
<tr>
<td>expired_date</td>
<td><em>date that show expired data merchandise of each lot of each product</em></td>
</tr>
<tr>
<td>fax_no</td>
<td><em>number of represent fax number</em></td>
</tr>
<tr>
<td>GROUP</td>
<td>{group_info}</td>
</tr>
<tr>
<td>group_abbr</td>
<td><em>10 characters of shortname of group use in ECR or P.O.S. ticket</em></td>
</tr>
<tr>
<td>group_id</td>
<td><em>Number represent group</em> Range 1,99</td>
</tr>
<tr>
<td>group_info</td>
<td>group_id+group_name+group_abbr+description</td>
</tr>
<tr>
<td>group_name</td>
<td><em>Name of group, contain 30 characters</em></td>
</tr>
<tr>
<td>issuedstockflag</td>
<td>*a character that show the status of issued stock</td>
</tr>
<tr>
<td>lastbuy</td>
<td><em>date that show the last date purchase of each product</em></td>
</tr>
<tr>
<td>lastsale</td>
<td><em>date that show the last date sale of each product</em></td>
</tr>
<tr>
<td>lot</td>
<td><em>number that represent lot number of each product</em></td>
</tr>
<tr>
<td>max</td>
<td><em>maximum point of each product</em></td>
</tr>
<tr>
<td>min</td>
<td><em>minimum point of each product</em></td>
</tr>
<tr>
<td>mtd_is_amt</td>
<td><em>month-to-date accumulative amount for each product issued</em></td>
</tr>
<tr>
<td>mtd_is_qty</td>
<td><em>month-to-date accumulative quantity for each product issued</em></td>
</tr>
<tr>
<td>mtd_re_amt</td>
<td><em>month-to-date accumulative amount for each product received</em></td>
</tr>
</tbody>
</table>
Table 3: Data Dictionary (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mtd_rc_qty</td>
<td><em>month-to-date accumulative quantity for each product received</em></td>
</tr>
<tr>
<td>note</td>
<td><em>note is the comment field for notify user for special condition of each supplier</em></td>
</tr>
<tr>
<td>number</td>
<td>[0-9]</td>
</tr>
<tr>
<td>oh_qty</td>
<td><em>number represent quantity left of each lot</em></td>
</tr>
<tr>
<td>onorder</td>
<td><em>quantities of each product that pending receive from purchasing order</em></td>
</tr>
<tr>
<td>payment_term</td>
<td><em>characters to notify the credit term of each supplier</em></td>
</tr>
<tr>
<td>phone_no</td>
<td><em>number of represent phone number</em></td>
</tr>
<tr>
<td>po_cost</td>
<td><em>number that show the cost of each product buy</em></td>
</tr>
<tr>
<td>po_date</td>
<td><em>date that show purchasing order date</em></td>
</tr>
<tr>
<td>po_no</td>
<td><em>number that represent purchasing order</em></td>
</tr>
<tr>
<td>po_qty</td>
<td><em>number that represent quantity for each product buy</em></td>
</tr>
<tr>
<td>PRODUCT</td>
<td>{product_info}</td>
</tr>
<tr>
<td>PRODUCT DETAIL</td>
<td>{product_detail}</td>
</tr>
<tr>
<td>product_detail</td>
<td>product_id+lot+expirdate+rc_qty+oh_qty</td>
</tr>
<tr>
<td>product_id</td>
<td><em>15 characters that represent the product</em></td>
</tr>
<tr>
<td>product_info</td>
<td>product_id+product_name+product_type+VAT_Status+group_id+supplier_id+unitcost+unitprice +min+max+reorder+onorder+currentlot+available+lelot+lastsale+lastbuy+cf_qty+cf_amt+ytd_rc_qty+ytd_rc_amt+ytd_is_qty+</td>
</tr>
<tr>
<td>product_name</td>
<td><em>name of product that it represent</em></td>
</tr>
<tr>
<td>product_type</td>
<td><em>type of product, eg: product, service</em></td>
</tr>
</tbody>
</table>
### Table 3: Data Dictionary (continued)

<table>
<thead>
<tr>
<th>PURCHASING ORDER</th>
<th>{purchasing_order}</th>
</tr>
</thead>
<tbody>
<tr>
<td>PURCHASING ORDER DETAIL</td>
<td>{purchasing_order_detail}</td>
</tr>
<tr>
<td>purchasing_order</td>
<td>po_no+po_date+supplier_id+expected_date</td>
</tr>
<tr>
<td>purchasing_order_detail</td>
<td>po_no+product_id+po_qty+po_cost</td>
</tr>
<tr>
<td>quantity</td>
<td><em>number that represent the volume of product</em></td>
</tr>
<tr>
<td>rc_cost</td>
<td><em>number that show cost per unit of each product received</em></td>
</tr>
<tr>
<td>rc_date</td>
<td><em>date that represent the date of receive document</em></td>
</tr>
<tr>
<td>rc_no</td>
<td><em>number that represent the receive document no</em></td>
</tr>
<tr>
<td>rc_qty</td>
<td><em>number represent quantity received of each lot</em></td>
</tr>
<tr>
<td>REceive</td>
<td>{receive_info}</td>
</tr>
<tr>
<td>RECEIVE DETAIL</td>
<td>{receive_detail}</td>
</tr>
<tr>
<td>receive_detail</td>
<td>rc_no+product_id+rc_qty+rc_cost</td>
</tr>
<tr>
<td>receive_info</td>
<td>rc_no+rc_date+po_no</td>
</tr>
<tr>
<td>reorder</td>
<td><em>reorder point of each product</em></td>
</tr>
<tr>
<td>SALE TRANSACTION</td>
<td>{sales_transaction}</td>
</tr>
<tr>
<td>sales_transaction</td>
<td>doc_no+product_id+doc_date+unitsold+amountsold+issuedstockflag</td>
</tr>
<tr>
<td>STOCK CARD</td>
<td>{stock_card}</td>
</tr>
<tr>
<td>stock_card</td>
<td>product_id+doc_date+doc_type+doc_no+quantity+unitcost</td>
</tr>
<tr>
<td>SUPPLIER</td>
<td>{supplier}</td>
</tr>
<tr>
<td>supplier</td>
<td>supplier_id+supplier_name+contact_name+address+zip_code+phone_no+fax_no+payment_term+note</td>
</tr>
<tr>
<td>supplier_id</td>
<td><em>number that represent supplier</em></td>
</tr>
<tr>
<td><strong>supplier_name</strong></td>
<td><em>characters that represent the name of supplier</em></td>
</tr>
<tr>
<td><strong>unitcost</strong></td>
<td><em>number show each cost of product that had buy</em></td>
</tr>
<tr>
<td><strong>unitprice</strong></td>
<td><em>number show each price of product that will sell</em></td>
</tr>
<tr>
<td><strong>unitsold</strong></td>
<td><em>number that represent quantity of each product sold</em></td>
</tr>
<tr>
<td><strong>VAT_Status</strong></td>
<td><em>a character that show VAT status of a product</em></td>
</tr>
<tr>
<td><strong>ytd_is_amt</strong></td>
<td><em>year-to-date accumulative amount for each product issued</em></td>
</tr>
<tr>
<td><strong>ytd_is_qty</strong></td>
<td><em>year-to-date accumulative quantity for each product issued</em></td>
</tr>
<tr>
<td><strong>ytd_rc_amt</strong></td>
<td><em>year-to-date accumulative amount for each product received</em></td>
</tr>
<tr>
<td><strong>ytd_rc_qty</strong></td>
<td><em>year-to-date accumulative quantity for each product received</em></td>
</tr>
<tr>
<td><strong>zip_code</strong></td>
<td><em>number that represent postage area code, usually 5 digit</em></td>
</tr>
</tbody>
</table>
3.2.4 Relationship Diagram

Relation Diagram is a tool to show how fields in each table linking to another. The relationship between fields are in relational database. Microsoft Access is a relational database management program which run on window, so it has a relation diagram tool for user to link fields together. The C.V.S.M. system is designed base on relational database concept and show the relation diagram as follow.

Figure 11 : Table Relationship Diagram under Microsoft Access on Window
3.2.5 Structure Chart

![Structure Chart of C.V.S.M. system](image)

Figure 12: Structure Chart of C.V.S.M. system
Figure 13: Structure Chart of Daily Transaction Process
Fig 14: Structure Chart of Reports
Figure 15: Structure Chart of File Maintenance Process

- Get Next Command Tag
- Group Master Process
- Product Master Process
- Supplier Master Process

File Maintenance Process

Command Tag
Figure 16: Structure Chart of Daily Report Process
Figure 17: Structure Chart of Monthly Report Process

- Monthly Report Process
  - Get Next Command Tag
  - Stock Card Process
  - Physical Check Report Process
  - Purchase Tax Report Process
  - Sales Tax Report Process
Figure 18: Structure of Purchasing Order Process
Figure 19: Structure of Receive Goods Process
Figure 20: Structure Chart of Issue Stock Process
Expired Merchandise Report Process

Figure 21: Structure Chart of Expired Merchandise Report

Death Stock Report Process

Figure 22: Structure Chart of death stock report
Figure 23: Structure Chart for Over Stock Report

Figure 24: Structure Chart for Under Stock Report
Figure 25: Structure Chart for Reorder Merchandise Report

Figure 26: Structure Chart for Pending P/O Report
Figure 27: Structure Chart for Invalid Merchandise Receive Report

Figure 28: Structure Chart for Merchandise Label
Figure 29: Structure Chart of Stock Card Process

Figure 30: Structure Chart of Physical Check Report
Figure 31: Structure Chart of Purchase Tax Report

Figure 32: Structure Chart of Sales Tax Report
Figure 33: Structure of Group Master Process
Figure 34: Structure of Product Master Process
Figure 35: Structure of Supplier Master Process
3.2.6 Input & Output Screens

The input and output screens are designed to be user friendly and easy to understand. Input screens are designed to match with the document forms to save input time. The choice lists or combo boxes are designed to help avoid problem of wrong input and time consuming. See Figures 36 - 63.

Figure 36 Form: Main Form (Main Menu) of C.V.S.M. system
Figure 37 Form: Daily Transaction

Figure 38 Form: Purchasing Order
Figure 39 Form: Received Merchandise
Figure 44 Form: Group Master Table

Figure 45 Form: Supplier Master Table
Figure 46 Form: Product Master Table

Figure 47 Form: Product Detail (Subform of Product Form)
Figure 48 Form: Product Accumulation (Subform of Product Form)
<table>
<thead>
<tr>
<th>Group ID</th>
<th>Group Name</th>
<th>Description</th>
<th>Group Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Soap/Facial Foam</td>
<td></td>
<td>Soap</td>
</tr>
<tr>
<td>11</td>
<td>Shampoo/Treatment</td>
<td>Shampoo &amp; Treatment and all kind of product use with head</td>
<td>Shampoo</td>
</tr>
<tr>
<td>12</td>
<td>Toothpaste/Toothbrush</td>
<td>Toothpaste/Toothbrush/Dental Frost and all kind of product use in mouth</td>
<td>Toothpaste</td>
</tr>
<tr>
<td>13</td>
<td>Powder/Colonge/Lotion</td>
<td>Powder/Colonge/Lotion/Oil/Roll-On</td>
<td>Lotion</td>
</tr>
<tr>
<td>14</td>
<td>Cosmetic/Comb</td>
<td></td>
<td>Cosmetic</td>
</tr>
<tr>
<td>15</td>
<td>Stationary</td>
<td></td>
<td>Stationary</td>
</tr>
<tr>
<td>16</td>
<td>Plastic/Kitchen Ware</td>
<td></td>
<td>Plastic</td>
</tr>
</tbody>
</table>

**Figure 49: Group List**
## Suppliers Listing

**20-Oct-95**

<table>
<thead>
<tr>
<th>Supplier ID</th>
<th>Supplier Name</th>
<th>Contact Name</th>
<th>Address</th>
<th>Zip Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supplier#1 Co., Ltd.</td>
<td>Mr. A</td>
<td>Srinakarin Rd, Suan Luang, Suan Luang District, Bangkok</td>
<td>10240</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1234567</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1234567</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit 60 Days</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Supplier#2</td>
<td>Mr. B</td>
<td>Ploenchit Rd., Pratumwan, Bangkok</td>
<td>10500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345678</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2345678</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit 60 Days</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Supplier#3</td>
<td>Mr. C</td>
<td>Petchaburi Rd., Pratumwan, Bangkok</td>
<td>10500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3456789</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3456789</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cash</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 50 : Supplier Listing**
# Product Listing

20-Oct-95

<table>
<thead>
<tr>
<th>Supplier ID</th>
<th>Supplier Name</th>
<th>Contact Name</th>
<th>Product ID</th>
<th>Product Name</th>
<th>VAT</th>
<th>Unit Cost</th>
<th>Unit Price</th>
<th>Min</th>
<th>Max</th>
<th>Reorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Supplier#1</td>
<td>Mr. A</td>
<td></td>
<td>7777777777777777</td>
<td>50</td>
<td>Product#7</td>
<td>Yes</td>
<td>21.50</td>
<td>23.00</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>2 Supplier#2</td>
<td>Mr. B</td>
<td></td>
<td>1111111111111111</td>
<td>10</td>
<td>Product#1</td>
<td>Yes</td>
<td>20.00</td>
<td>25.00</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>2 Supplier#2</td>
<td>Mr. B</td>
<td></td>
<td>2222222222222222</td>
<td>20</td>
<td>Product#2</td>
<td>Yes</td>
<td>3.75</td>
<td>5.00</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>3 Supplier#3</td>
<td>Mr. C</td>
<td></td>
<td>8888888888888888</td>
<td>21</td>
<td>Product#3</td>
<td>Yes</td>
<td>100.00</td>
<td>120.00</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>3 Supplier#3</td>
<td>Mr. C</td>
<td></td>
<td>3333333333333333</td>
<td>30</td>
<td>Product#3</td>
<td>Yes</td>
<td>39.75</td>
<td>44.00</td>
<td>48</td>
<td>240</td>
</tr>
</tbody>
</table>

Figure 51 : Product List Report
## Death Stock Report

**20 Oct 95**

<table>
<thead>
<tr>
<th>Supplier#</th>
<th>Last Sale Date</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co., Ltd. [ID#: 1]</td>
<td>77777777777777</td>
<td>145</td>
</tr>
<tr>
<td>Supplier#2 [ID#: 2]</td>
<td>88888888888888</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>22222222222222</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>11111111111111</td>
<td>55</td>
</tr>
<tr>
<td>Supplier#3 [ID#: 3]</td>
<td>99999999999999</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>33333333333333</td>
<td>145</td>
</tr>
<tr>
<td>Supplier#4 [ID#: 4]</td>
<td>44444444444444</td>
<td>45</td>
</tr>
<tr>
<td>Supplier#5 [ID#: 5]</td>
<td>55555555555555</td>
<td>55</td>
</tr>
<tr>
<td>Supplier#6 [ID#: 6]</td>
<td>66666666666666</td>
<td>130</td>
</tr>
</tbody>
</table>

**Figure 52 Death Stock Report**
## Expired Merchandise Report

20 Oct 95

<table>
<thead>
<tr>
<th>Supplier#1 Co., Ltd.</th>
<th>[ID#: 1]</th>
<th>Expired Date</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7777777777777777777777 Product#7</td>
<td></td>
<td>30/09/1995</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#2</th>
<th>[ID#: 2]</th>
<th>Expired Date</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>11111111111111 Product#1</td>
<td></td>
<td>30/09/1995</td>
<td>5</td>
</tr>
<tr>
<td>2222222222222 Product#2</td>
<td></td>
<td>12/08/1995</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30/09/1995</td>
<td>100</td>
</tr>
<tr>
<td>8888888888 Product#3</td>
<td></td>
<td>30/09/1995</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#3</th>
<th>[ID#: 3]</th>
<th>Expired Date</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>3333333333 Product#3</td>
<td></td>
<td>30/09/1995</td>
<td>45</td>
</tr>
<tr>
<td>9999999999 Product#9</td>
<td></td>
<td>30/09/1995</td>
<td>35</td>
</tr>
</tbody>
</table>

---

*Figure 53: Expired Merchandise Report*
# Under Stock Report

**20 Oct 95**

<table>
<thead>
<tr>
<th>Supplier#1 Co., Ltd.</th>
<th>[ID#: 1]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7777777777777777</td>
<td>Product#1</td>
<td>10</td>
<td>145</td>
</tr>
<tr>
<td>7777777777777777</td>
<td>Product#2</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>7777777777777777</td>
<td>Product#3</td>
<td>100</td>
<td>130</td>
</tr>
<tr>
<td>7777777777777777</td>
<td>Product#4</td>
<td>12</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#2 Co., Ltd.</th>
<th>[ID#: 2]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111111111111111</td>
<td>Product#5</td>
<td>60</td>
<td>55</td>
</tr>
<tr>
<td>1111111111111111</td>
<td>Product#6</td>
<td>48</td>
<td>45</td>
</tr>
<tr>
<td>1111111111111111</td>
<td>Product#7</td>
<td>48</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#3</th>
<th>[ID#: 3]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>3333333333333333</td>
<td>Product#8</td>
<td>48</td>
<td>45</td>
</tr>
<tr>
<td>3333333333333333</td>
<td>Product#9</td>
<td>48</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#4</th>
<th>[ID#: 4]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>4444444444444444</td>
<td>Product#10</td>
<td>60</td>
<td>130</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#5</th>
<th>[ID#: 5]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>5555555555555555</td>
<td>Product#11</td>
<td>60</td>
<td>130</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#6</th>
<th>[ID#: 6]</th>
<th>Min</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>6666666666666666</td>
<td>Product#12</td>
<td>60</td>
<td>130</td>
</tr>
</tbody>
</table>

---

**Figure 54:** Under Stock Report
# Over Stock Report

## Table

<table>
<thead>
<tr>
<th>Supplier#1 Co., Ltd.</th>
<th>[ID#]: 1</th>
<th>Max</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Supplier#4</td>
<td>[ID#]: 4</td>
<td>120</td>
<td>145</td>
</tr>
<tr>
<td>Supplier#5</td>
<td>[ID#]: 5</td>
<td>120</td>
<td>138</td>
</tr>
</tbody>
</table>

```
Over Stock Report
20-Oct-95

<table>
<thead>
<tr>
<th>Supplier#1 Co., Ltd.</th>
<th>[ID#]: 1</th>
<th>Max</th>
<th>Available Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>28</td>
</tr>
<tr>
<td>Supplier#4</td>
<td>[ID#]: 4</td>
<td>120</td>
<td>145</td>
</tr>
<tr>
<td>Supplier#5</td>
<td>[ID#]: 5</td>
<td>120</td>
<td>138</td>
</tr>
</tbody>
</table>
```

Figure 55: Over Stock Report
**PO Pending Query**

20 Oct 95

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Product Name</th>
<th>Order Quantity</th>
<th>Order Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier#1 Co., Ltd.</td>
<td>[ID#: 1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P/O No:</td>
<td>1</td>
<td>P/O Date</td>
<td>04/10/1995</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22222222222222</td>
<td>Product#2</td>
<td>10</td>
<td>250.00</td>
</tr>
<tr>
<td>7777777777777</td>
<td>Product#7</td>
<td>60</td>
<td>21.50</td>
</tr>
</tbody>
</table>

Figure 56: Purchasing Pending Report
## Invalid Received Report

*20 Oct 95*

<table>
<thead>
<tr>
<th>Receive No.</th>
<th>Receive Date</th>
<th>P/O Ref. No</th>
<th>Product ID</th>
<th>Product Name</th>
<th>Unit Received</th>
<th>Receive Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>20/10/1995</td>
<td>1</td>
<td>555555555555</td>
<td>Product#5</td>
<td>50</td>
<td>7,500.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>777777777777</td>
<td>Product#7</td>
<td>25</td>
<td>250.00</td>
</tr>
</tbody>
</table>

Figure 57: Invalid Received Report
Figure 58: Purchasing Order
Reorder Merchandise Report

20 Oct 95

<table>
<thead>
<tr>
<th>Supplier#2</th>
<th>ID#: 2</th>
<th>Reorder Point</th>
<th>Available Qt</th>
</tr>
</thead>
<tbody>
<tr>
<td>111111111111111 Product#1</td>
<td></td>
<td>75</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplier#6</th>
<th>ID#: 6</th>
<th>Reorder Point</th>
<th>Available Qt</th>
</tr>
</thead>
<tbody>
<tr>
<td>666666666666666 Product#6</td>
<td></td>
<td>96</td>
<td>82</td>
</tr>
</tbody>
</table>

Figure 59: Reorder Merchandise Report
<table>
<thead>
<tr>
<th>Product#</th>
<th>ID</th>
<th>Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product#1</td>
<td>11111111111111</td>
<td>G#10</td>
<td>$25.00</td>
</tr>
<tr>
<td>Product#2</td>
<td>22222222222222</td>
<td>G#20</td>
<td>$5.00</td>
</tr>
<tr>
<td>Product#3</td>
<td>33333333333333</td>
<td>G#30</td>
<td>$44.00</td>
</tr>
<tr>
<td>Product#4</td>
<td>44444444444444</td>
<td>G#40</td>
<td>$6.00</td>
</tr>
<tr>
<td>Product#5</td>
<td>55555555555555</td>
<td>G#50</td>
<td>$23.00</td>
</tr>
<tr>
<td>Product#6</td>
<td>66666666666666</td>
<td>G#60</td>
<td>$120.00</td>
</tr>
<tr>
<td>Product#7</td>
<td>77777777777777</td>
<td>G#70</td>
<td>$107.00</td>
</tr>
<tr>
<td>Product#8</td>
<td>88888888888888</td>
<td>G#80</td>
<td>$24.00</td>
</tr>
</tbody>
</table>

Figure 60: Merchandise Label
### Sales Tax Report

**20-Oct-95**

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Doc.Date</th>
<th>Amount</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20-Oct-95</td>
<td>625.00</td>
<td>40.89</td>
</tr>
<tr>
<td>2</td>
<td>20-Oct-95</td>
<td>210.00</td>
<td>13.74</td>
</tr>
<tr>
<td>3</td>
<td>20-Oct-95</td>
<td>300.00</td>
<td>19.63</td>
</tr>
<tr>
<td>4</td>
<td>20-Oct-95</td>
<td>600.00</td>
<td>39.25</td>
</tr>
</tbody>
</table>

**Total:** 1,735.00 113.50

---

**Figure 61: Sales Tax Report**
**Purchase Tax Report**

20-Oct-95

<table>
<thead>
<tr>
<th>Document No.</th>
<th>Date</th>
<th>Amount</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>20-Oct-95</td>
<td>6,250.00</td>
<td>437.50</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td>6,250.00</td>
<td>437.50</td>
</tr>
</tbody>
</table>

Figure 62 : Purchase Tax Report
## Physical Check Report

**20-Oct-95**

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Product Name</th>
<th>Available Qty</th>
<th>Physical Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111111111 1</td>
<td>Product#1</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>222222222222</td>
<td>Product#2</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>333333333333</td>
<td>Product#3</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>444444444444</td>
<td>Product#4</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>555555555555</td>
<td>Product#5</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>666666666666</td>
<td>Product#6</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>777777777777</td>
<td>Product#7</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>888888888888</td>
<td>Product#8</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>999999999999</td>
<td>Product#9</td>
<td>115</td>
<td></td>
</tr>
</tbody>
</table>

---

Figure 63: Physical Check Report
3.3 Hardware and Software Specification

The C.V.S.M. system was implemented on LAN and installed at office of each branch and wiring to P.O.S. machine at cashier. Installation plan in each branch is illustrated in Figure 3.xxx

3.3.1 Hardware Specification

a. PC Server 1 Set
   CPU 486DX2-66, RAM 16MB, Harddisk 1 GB,
   Floppy Drive 1.44MB, 14"VGA monitor
   Cost: 50,000

b. PC Workstation 2 Set (@32,000*2 set)
   CPU 486DX2-66, RAM 8 MB, Harddisk 540 MB,
   Floppy Drive 1.44 MB, 14"SVGA monitor
   Cost: 64,000

c. Network peripheral
   c.1 Network interface card for one server and the workstation and two P.O.S. (@2,500*5 pcs.)
   Cost: 12,500
   c.2 Thin Ethernet cable [10Base2] (@30*2 meters)
   Cost: 60
   c.3 UTP Ethernet cable [10BaseT] (@20*150 meters)
   Cost: 3,000
   c.4 HUB 8 Ports 1 Set
   Cost: 8,500
   c.5 Jack BNC 2 pcs. (@60*2 pcs.)
   Cost: 120
   c.6 Jack RJ-45 8 pcs. (@15*8 pcs.)
   Cost: 120
   c.7 Terminator 2 pcs. (@100*2 pcs.)
   Cost: 200

d. UPS 1 KVA. for Server
   Cost: 20,000

e. UPS 500 VA. for 2 workstations (@9,000*2 sets)
   Cost: 18,000

f. P.O.S. 2 Sets (@80,000*2 sets)
   Cost: 160,000

g. Laser Printer 2 Sets (@16,500*2 sets)
   Cost: 33,000

Total Hardware Costs
   Cost: 369,500
Figure 64: LAN's Configuration of C.V.S.M. system
### 3.3.2 Software Specification

<table>
<thead>
<tr>
<th>Software</th>
<th>Version</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Network Operating System</td>
<td>Netware V.3.12</td>
<td>5 Users/License</td>
<td>40,000</td>
</tr>
<tr>
<td>b. Operating System</td>
<td>MS-DOS V.6.22 Thai Ed.</td>
<td>5 Sets (@2,200*5 sets)</td>
<td>11,000</td>
</tr>
<tr>
<td>c. Microsoft Window</td>
<td>MS-Window V.3.11 Thai Ed.</td>
<td>2 Set (@4,900*2 sets)</td>
<td>9,800</td>
</tr>
<tr>
<td>d. Microsoft Access</td>
<td>MS-Access V.2.0</td>
<td>2 Set(@15,000*2 sets)</td>
<td>30,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50,800</td>
</tr>
</tbody>
</table>
3.4 Security and Controls

To emphasize the need for controls further, it should be noted that in recent years, organizations increasingly have become dependent upon computer hardware, software, and data processing. This commitment to computerization has changed the potential vulnerability of the organization's asset because the traditional security, audit, and control mechanism take on a new and different form in a computer-based system.

A complex on-line data communication-oriented system consists of various combination of hardware, software, facilities, people, policies, and procedures that interrelate these components. The many divers components and potential entry points into a complex on-line system make it possible for a person with sufficient technical or applications knowledge to enter the system to make unauthorized manipulate of data program, or operational procedure. Furthermore, control procedure for an on-line system cut across many lines of responsibility either an organization, creating a control problem in itself. For instance, several departments within an organization may share in exercise of the control procedures and each department may be responsible for only segment of the overall control plan. The integration of controls among the various components of such a complex on-line system is the infrastructure upon which secure on-line data communication-oriented system must be based.

Compatible with access needs, a comprehensive security system must be provide to accommodate all requirements: database, program, machine, terminal access, authentication, cryptography, user manipulation. All users who-work with the system must be registered (i.e., each user has one or more under ID(s) and an associated password). They are responsible for keeping their passwords secure and changing them periodically. The system, including the turnkey software, must be able to identify its user correctly. Such as issuing a user ID and changing access rights, initializing privileged operations such as to kill an ongoing job stream or authorizing some important operations such as replacing an operational program with a new version typically involving security. All changes to the operational environment, must be controlled, verified and authorized.

The following security and controls should be concerned for the computer based Convenience Store Information System
3.4.1 Database Security

The security must cover both an unauthorized access to information and accidental or malicious deletion or corruption of data. The initial security of database is the joint responsibility of system analyst and programmer(s) in charge. Database once created must handed over to the system analyst. All access authorizations are now transferred to the system analyst who may change the master password. Each database has an access control list which specifies who may read, write, delete, and change information in the database. An audit trial of database activity (is, access and Update) must be recorded and report made available to the system analyst. Additionally, it must be possible to selectively report from the database activity log. There is also the need to alert the user whenever there is an access violation or unauthorized attempt to access a database, archived databases and on-line databases need encryption and password protection as an optional extra security measure.

All the database entry and modification must be double checked either from the screen display or form the printout that generate after process.

3.4.2 Program Security

The accepted turnkey software has to protected against illegal modification through a well-designed change control mechanism. Subsequent change in the program must be thoroughly documented in respect of:

- Reasons for changes
- The acceptance of the change; that is verification and authorization modified programs or system software (Netware) can be accept into the operational system
- Persons involved
- Audit trails

Control tables, decision table, and other data tables are considered as programs since they affect program behavior, the object programs need to have some security measures against illegal patching by human begins (programmer) or by other programs (virus, worm, Trojan horse).

All the data files and system programs must be stored on secondary storage medium such as floppy diskette to ensure the correctness of data and operations. Backup all the files every times the database are update or modified and it recommended the backup should be done within that day and seperately keep all the file in safe place.
3.4.3 Machine Security

Physical protection against fire, instructions and environmental hazards is provided by site design. Therefore, it is necessary to install a compute-controlled door lock on computer rooms media store at each node site so that physical access to the system can be monitored.

3.4.4 Terminal Accessy

On-line access of information always requires a user ID and password. Information can be accessed and displayed or update transaction accepted only if the user is authorized to do so at the commencement of a session. Some functions need an extra authorized password before accessing the information. Destructive and potentially harmful functions need some authentication procedures explained below. Application programs may need to check the terminal identification (note ID. in terms of network definitions) before performing the specified function (i.e., transactions and inquiries may be restricted to specific 12s).
3.5 Cost and Benefit Analysis

3.5.1 Cost Analysis

There are three categories which we must recognize at the stage of cost analysis.

a. Investment cost
   - Hardware
     369,500
   - Software
     50,800
   - System Development cost
     40,000
   - Training
     50,000
   Total Investment Cost
     510,300

b. Annual Operation Cost (New System)
   - Staffs
     726,000
   - A4 Paper 70g. (@60*100)
     6,000
   - Toner (@800*10 pcs.)
     8,000
   - Electricity and Air
     420,000
   - Others
     60,000
   Total Annual Operation Cost
     1,220,000

c. Annual Operation Cost (Old System)
   - Staffs
     840,000
   - Electricity and Air
     600,000
   - A4 Paper 70g. (@60*150)
     9,000
   - Others
     100,000
   Total Cost
     1,549,000

3.5.2 Cost and Benefit Analysis

The benefit are divided into tangible and intangible. The proposed system provide several benefits as follows
a. Tangible Benefit
   - Cost reduction due to the elimination of manual operation and time

b. Intangible Benefit
   - Provide better executive information in decision making
   - Improve the quality of services and efficiency of operation
   - Improve security and control
   - To be good image of the company
   - Provide better standard system

3.5.3 Payback Period to Install the New System

The formula is

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

where

- \( P \) = payback period
- \( I \) = investment
- \( R \) = average annual return on investment

\( R = \frac{\text{Annual cost per old system} - \text{Annual cost per new system}}{(\text{Annual cost per old system} - \text{Annual cost per new system})} \)
- \( T \) = corporate tax rate (30%)

Payback Period = \( \frac{\text{Bahts} 510,300}{(1 - 0.30)(1,549,000 - 1,220,000)} \) = 2.22 Years
4. PROJECT IMPLEMENTATION

4.1 Project Management

Project management is the ongoing process of directing and coordination all the steps in the development of an information system. Effective project management is necessary throughout the entire system development life cycle, not just during the system development phase. General management functions are planning, staffing, organizing, directing, and controlling. A project manager’s planning activities include identifying an planning project tasks and estimating project times and costs, staffing activities include selecting the project team and assigning specific tasks to team members. Organizing activities include structuring and scheduling the project work. Monitoring the progress of the project team and guiding, supervising, and coordinating the team’s work load are part of a project manager’s directing activities.

4.2 Coding

The program is presented in the format of queries and macros. See Appendices.

4.3 Testing

Programmers are responsible for unit testing the individual programs they develop. After the programmers have tested each program, then the programs within the system related to one another must be tested together, and finally the entire system must be tested.

4.3.1 Test by Programmers: The programmers must thoroughly test a program to ensure it function correctly before the program processes actual data and produces information that people will rely on. The several different types of tests on an individual program are implemented.

a. The programmers complies the program to identify syntax errors, which are language violations caused by data entry mistakes, inconsistencies in the program,
and language grammar errors. They test and correct the programs until they obtain a clean compilation.

b. The programmers perform desk checking, which is the process of reading the program and mentally reviewing its logic.

c. The programmers test an individual program. This technique is called as unit testing. The objective of unit testing is to identify and eliminate both execution errors, which are errors that cause the program to abnormally terminate, and logic errors which are errors in the accuracy and completeness of a program’s processing.

4.3.2 Testing by System Analysis: The system analysis are responsible for link testing which is testing two or more programs together that depend on one another. Sometime it is called as string testing, or series testing, or integration testing. For example, the output from Product Form must be properly contain the correct data to be input GroupID. The GroupID, which are input in Product Form, must be retrieved as choices so the user can choose from choices list as an input. (please see figure 65 on next page)

4.3.3 Test by Users: The system testing is performed by users. The system test is a test of the entire C.V.S.M. system using live data supplied by the end users in attempt to exercises all processing situations under typical conditions. The major objectives of system testing are:

- To perform a final test of all programs against the design specifications.
- To ensure that the operations group has adequate documentation and instructions to operate the system properly, process the incoming, and distribute outgoing information from the system.
- To guarantee that the end users can successfully interact with system.
- To test the backup and restart capabilities of the C.V.S.M. system to be ensure they are adequate under actual processing conditions.
- To verify that all C.V.S.M. system components are correctly integrated.
- To confirm that the C.V.S.M. system can handle normal production volumes of data in a timely and responsive manner.
Figure 65: Show integration testing that GroupID in Product Form retrieved from Group Form
5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The purposed information system for Convenience Store Information System is the first step towards computerization. This system can be further enhanced according to the user requirements evolving over the time period.

The new system is developed to collect information such as sale transactions, purchasing order, receiving document, group of product, supplier, product.

This system produces various reports including sales tax/purchasing tax report, death stock report, expired merchandise report, under/over stock report, reorder merchandise report, physical check report, group listing, supplier listing, product listing and stock card.

The screens are designed according to user's requirements to be ease of use and understanding by using graphically interface of window application. There are 13 reports which can help store manager to manage store better than ever by manual.

Because of fast expansion of stores, more competitors branches, lack of professional store manager to support this business and lack of information for manage store. So it was high time for this company to move towards computerization in this present age of technology. Information being major benefit for this company, timely and up-to-date information is the key to increase efficiency, improve performance and overcome competitors.
5.2 Recommendations

The proposed system is changed the present system to computerize that has a workgroup functionality. With the new system all information will be automated and sharing information resources can be shared. Reports will be produced in time and up-to-date reports. Store manager and staff who work with present system have to be training the new system for properly use.

In addition, After the new system was installed for a period of time and users become familiar with the system, it is recommended that the guidelines given as belows:

- to expand an information service by designing a user friendly interface that allow the other departments to access the information they need such as physical merchandise checking report for internal audit department to random check with each store.

- to redesign a more sophisticated control and security procedure for other department

- to improve performance of the system by change the application into workstation hard drive and data files store in file server for reduce traffic in network. Because graphically interface screen was use much more bytes than text mode screen.

- to ensure the system worked, it is recommended that backup process must be made everyday. The bigger data are, the worse case get when the system failure occur with the non-backup system.

Information is the major asset of organizations because it is the essential parts for analysis and manage any business areas. If we lack it, we may become looser in business war.
REFERENCES

Sub Button0_Click()
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "DailyTransaction Submenu"
    DoCmd.OpenForm DocName,, LinkCriteria
    Exit Button0_Click:
    Exit Sub
End Sub

Sub Button5_Click()
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "DailyTransaction Submenu"
    DoCmd.OpenForm DocName,, LinkCriteria
    Exit Button5_Click:
    Exit Sub
End Sub

Sub Button7_Click()
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "Report Submenu"
    DoCmd.OpenForm DocName,, LinkCriteria
    Exit Button7_Click:
    Exit Sub
End Sub
52   End Sub
53
54   Sub Button9_Click ()
55       On Error GoTo Err_Button9_Click
56
57       Dim DocName As String
58       Dim LinkCriteria As String
59
60       DocName = "File Maintenance Submenu"
61       DoCmd.OpenForm DocName, , , LinkCriteria
62
63       Exit_Button9_Click:
64           Exit Sub
65
66   Err_Button9_Click:
67       MsgBox Error$
68           Resume Exit_Button9_Click
69
70   End Sub
71

DailyReportSubMenu
1   Option Compare Database 'Use database order for string comparisons
2
3   Sub Button11_Click ()
4       On Error GoTo Err_Button11_Click
5
6       Dim DocName As String
7
8       DocName = "PO Pending Report"
9       DoCmd.OpenReport DocName, a_NORMAL
10
11       Exit_Button11_Click:
12           Exit Sub
13
14   Err_Button11_Click:
15       MsgBox Error$
16           Resume Exit_Button11_Click
17
18   End Sub
19
20   Sub Button13_Click ()
21       On Error GoTo Err_Button13_Click
22
23       Dim DocName As String
24
25       DocName = "Reorder Merchandise Report"
26       DoCmd.OpenReport DocName, a_NORMAL
27
28       Exit_Button13_Click:
29           Exit Sub
30
Err_Button13_Click:
    MsgBox Error$
    Resume Exit_Button13_Click
End Sub

Sub Button15_Click()
    On Error GoTo Err_Button15_Click
    Dim DocName As String
    DocName = "Over Stock Report"
    DoCmd.OpenReport DocName, A_NORMAL
Exit_Button15_Click:
    Exit Sub
Err_Button15_Click:
    MsgBox Error$
    Resume Exit_Button15_Click
End Sub

Sub Button17_Click()
    On Error GoTo Err_Button17_Click
    Dim DocName As String
    DocName = "Under Stock Report"
    DoCmd.OpenReport DocName, A_NORMAL
Exit_Button17_Click:
    Exit Sub
Err/Button17_Click:
    MsgBox Error$
    Resume Exit_Button17_Click
End Sub

Sub Button19_Click()
    On Error GoTo Err_Button19_Click
    Dim DocName As String
    DocName = "Death Stock Report"
    DoCmd.OpenReport DocName, A_NORMAL
Exit_Button19_Click:
    Exit Sub
Err/Button19_Click:
Sub Button21_Click()
On Error GoTo Err_Button21_Click
Dim DocName As String
DocName = "Expired Merchandise Report"
DoCmd.OpenReport DocName, a_NORMAL
Exit_Button21_Click:
Exit Sub
Err_Button21_Click:
MsgBox Error$
Resume Exit_Button21_Click
End Sub
Sub Button7_Click()
On Error GoTo Err_Button7_Click
Dim DocName As String
DocName = "Merchandise Label"
DoCmd.OpenReport DocName, a_NORMAL
Exit_Button7_Click:
Exit Sub
Err_Button7_Click:
MsgBox Error$
Resume Exit_Button7_Click
End Sub
Sub Button9_Click()
On Error GoTo Err_Button9_Click
Dim DocName As String
DocName = "Invalid Received Report"
DoCmd.OpenReport DocName, a_NORMAL
Exit_Button9_Click:
Exit Sub
Err_Button9_Click:
MsgBox Error$
Resume Exit_Button9_Click
End Sub
Sub Exit_Click()
On Error GoTo Err Exit_Click
DoCmd Close
Exit Exit_Click:
Exit Sub
Err Exit_Click:
MsgBox Error$
Resume Exit Exit_Click
End Sub

DailyTransaction Submenu
Option Compare Database 'Use database order for string comparisons
Sub Exit_Click()
On Error GoTo Err Exit_Click
DoCmd Close
Exit Exit_Click:
Exit Sub
Err Exit_Click:
MsgBox Error$
Resume Exit Exit_Click
End Sub
Sub Issue_Stock_Click()
On Error GoTo Err Issue_Stock_Click
Dim DocName As String
Dim LinkCriteria As String
DocName = "Supplier Address Subform"
DoCmd OpenForm DocName, , , LinkCriteria
Exit Issue_Stock_Click:
Exit Sub
Err Issue_Stock_Click:
MsgBox Error$
Resume ExitIssue_Stock_Click

End Sub

Sub POform_Click ()
On Error GoTo Err_POform_Click

Dim DocName As String
Dim LinkCriteria As String

DocName = "Purchasing Order Form"
DoCmd OpenForm DocName, , , LinkCriteria

Exit_POform_Click:
    Exit Sub

Err_POform_Click:
    MsgBox Error$
    Resume Exit_POform_Click

End Sub

Sub RCForm_Click ()
On Error GoTo Err_RCForm_Click

Dim DocName As String
Dim LinkCriteria As String

DocName = "Receive Form"
DoCmd OpenForm DocName, , , LinkCriteria

Exit_RCForm_Click:
    Exit Sub

Err_RCForm_Click:
    MsgBox Error$
    Resume Exit_RCForm_Click

End Sub

Sub Senddata_Click ()
On Error GoTo Err_Senddata_Click

Dim x As Integer
Dim stDialStr As String
Dim PrevCtl As Control
Const ERR_OBJNOTEXIST = 2467

Set PrevCtl = Screen.PreviousControl

If TypeOf PrevCtl Is TEXTBOX Then
    stDialStr = IIf(VarType(PrevCtl) > V_NULL, PrevCtl, "")

End Sub
ElseIf TypeOf PrevCtl Is LISTBOX Then
    stDialStr = IIf(VarType(PrevCtl) > _NULL, PrevCtl, "")
ElseIf TypeOf PrevCtl Is COMBOBOX Then
    stDialStr = IIf(VarType(PrevCtl) > _NULL, PrevCtl, "")
Else
    stDialStr = ""
End If
x = wlib_AutoDial(stDialStr)

Exit_Senddata_Click:
    Exit Sub

Err_Senddata_Click:
    If (Err = ERR_OBJNOTEXIST) Then
        Resume Next
    End If
    MsgBox Error$  
    Resume Exit_Senddata_Click
End Sub

File Maintenance Submenu
Option Compare Database  'Use database order for string comparisons

Sub Exit_Click ()
    On Error GoTo Err_Exit_Click
    DoCmd Close
    Exit_Exit_Click:
        Exit Sub
    End Sub

Err_Exit_Click:
    MsgBox Error$  
    Resume Exit_Exit_Click
End Sub

Sub GroupForm_Click ()
    On Error GoTo Err_GroupForm_Click
    Dim DocName As String  
    Dim LinkCriteria As String
    DocName = "Group Form"
    DoCmd OpenForm DocName, , , LinkCriteria
    Exit_GroupForm_Click:
        Exit Sub
Err_GroupForm_Click:
    MsgBox Error$
    Resume Exit_GroupForm_Click
End Sub

Sub ProductForm_Click ()
    On Error GoTo Err_ProductForm_Click
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "Product Form"
    DoCmd OpenForm DocName, , , LinkCriteria
    Exit_ProductForm_Click:
    Exit Sub
    Err_ProductForm_Click:
    MsgBox Error$
    Resume Exit_ProductForm_Click
End Sub

Sub SupplierForm_Click ()
    On Error GoTo Err_SupplierForm_Click
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "Supplier Form"
    DoCmd OpenForm DocName, , , LinkCriteria
    Exit_SupplierForm_Click:
    Exit Sub
    Err_SupplierForm_Click:
    MsgBox Error$
    Resume Exit_SupplierForm_Click
End Sub

Group Form
Option Compare Database 'Use database order for string comparisons
Sub Add_Btn_Click ()
    On Error GoTo Err_Add_Btn_Click
    DoCmd GoToRecord , , A_NEWREC
Sub btnAdd_Click()
On Error GoTo Err_btnAdd_Click
DoCmd GoToRecord,, A_NEWREC
Exit btnAdd_Click:
Exit Sub
Err_btnAdd_Click:
MsgBox Error$
Resume Exit_btnAdd_Click
End Sub

Sub btnDel_Click()
On Error GoTo Err_btnDel_Click
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, A_MENU_VER20
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_DELETE_V2, A_MENU_VER20
Exit btnDel_Click:
Exit Sub
Err_btnDel_Click:
MsgBox Error$
Resume Exit_btnDel_Click
End Sub

Sub btnExit_Click()
On Error GoTo Err_btnExit_Click
DoCmd Close
Exit btnExit_Click:
Exit Sub
Err_btnExit_Click:
  MsgBox Error$
  Resume Exit_btnExit_Click
End Sub

Sub btnFind_Click()
On Error GoTo Err_btnFind_Click
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, 10, , A_MENU_VER20
Exit_btnFind_Click:
  Exit Sub
Err_btnFind_Click:
  MsgBox Error$
  Resume Exit_btnFind_Click
End Sub

Sub btnFirst_Click()
On Error GoTo Err_btnFirst_Click
DoCmd GoToRecord , , A_FIRST
Exit_btnFirst_Click:
  Exit Sub
Err_btnFirst_Click:
  MsgBox Error$
  Resume Exit_btnFirst_Click
End Sub

Sub btnLast_Click()
On Error GoTo Err_btnLast_Click
DoCmd GoToRecord , , A_LAST
Exit_btnLast_Click:
  Exit Sub
Err_btnLast_Click:
  MsgBox Error$
  Resume Exit_btnLast_Click
End Sub

Sub BtnNext_Click ()
On Error GoTo Err_btnNext_Click

DoCmd GoToRecord,, A_NEXT

Exit_btnNext_Click:
Exit Sub

Err_btnNext_Click:
MsgBox Error$
Resume Exit_btnNext_Click
End Sub

Sub BtnPrev_Click ()
On Error GoTo Err_btnPrev_Click

DoCmd GoToRecord,, A_PREVIOUS

Exit_btnPrev_Click:
Exit Sub

Err_btnPrev_Click:
MsgBox Error$
Resume Exit_btnPrev_Click
End Sub

Sub btnPrint_Click ()
On Error GoTo Err_btnPrint_Click

DoCmd DoMenuitem A_FORMBAR, A_EDITMENU,
A_SELECTRECORD_V2, A_MENU_VER20

Exit_btnPrint_Click:
Exit Sub

Err_btnPrint_Click:
MsgBox Error$
Resume Exit_btnPrint_Click
End Sub

Sub btnUndo_Click ()
On Error GoTo Err_btnUndo_Click

DoCmd DoMenuitem A_FORMBAR, A_EDITMENU, A_UNDOFIELD,,
A_MENU_VER20
Sub Del_Btn_Click()
  On Error GoTo Err_Del_Btn_Click
End Sub

Sub Button10_Click()
  On Error GoTo Err_Button10_Click
  Dim DocName As String
  DocName = "Physical Check Report"
  DoCmd OpenReport DocName, A_NORMAL
End Sub
Sub Button6_Click()
On Error GoTo Err_Button6_Click
Dim DocName As String
DocName = "Sales Tax Report"
DoCmd.OpenReport DocName, A_NORMAL
Exit_Button6_Click:
  Exit Sub
End Sub

Sub Button8_Click()
On Error GoTo Err_Button8_Click
Dim DocName As String
DocName = "Purchase Tax Report"
DoCmd.OpenReport DocName, A_NORMAL
Exit_Button8_Click:
  Exit Sub
End Sub

Sub Exit_Click()
On Error GoTo Err.Exit_Click
DoCmd.Close
Exit_Exit_Click:
  Exit Sub
End Sub

Err_Button10_Click:
  MsgBox Error$
  Resume Exit_Button10_Click
End Sub

Sub Button6_Click()
On Error GoTo Err_Button6_Click
Dim DocName As String
DocName = "Sales Tax Report"
DoCmd.OpenReport DocName, A_NORMAL
Exit_Button6_Click:
  Exit Sub
End Sub

Err_Button6_Click:
  MsgBox Error$
  Resume Exit_Button6_Click
End Sub

Err_Exit_Click:
  MsgBox Error$
  Resume Exit_Exit_Click
Product Accumulation Form
1 Option Compare Database 'Use database order for string comparisons
2 Sub btnReturn_Click()
3 On Error GoTo Err_btnReturn_Click
4
5 DoCmd Close
6
7 Exit_btnReturn_Click:
8 Exit Sub
9
10 Err_btnReturn_Click:
11 MsgBox Error$  
12 Resume Exit_btnReturn_Click
13
14 End Sub
15
16 Sub Button3$ _Enter()
17 Me![CFOly].SetFocus
18 End Sub
19

Product Detail Form
1 Option Compare Database 'Use database order for string comparisons
2 Sub btnReturn_Click()
3 On Error GoTo Err_btnReturn_Click
4
5 DoCmd Close
6
7 Exit_btnReturn_Click:
8 Exit Sub
9
10 Err_btnReturn_Click:
11 MsgBox Error$  
12 Resume Exit_btnReturn_Click
13
14 End Sub
15

Product Form
1 Option Compare Database 'Use database order for string comparisons
2 Sub btnAdd_Click()
3 On Error GoTo Err_btnAdd_Click
4
5
DoCmd GoToRecord, , A_NEWREC

Exit_btnAdd_Click:
    Exit Sub

Err_btnAdd_Click:
    MsgBox Error$
    Resume Exit_btnAdd_Click
End Sub

Sub btnDel_Click()
    On Error GoTo Err_btnDel_Click

DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, , A_MENU_VER20
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_DELETE_V2, , A_MENU_VER20

Exit_btnDel_Click:
    Exit Sub

Err_btnDel_Click:
    MsgBox Error$
    Resume Exit_btnDel_Click
End Sub

Sub btnExit_Click()
    On Error GoTo Err_btnExit_Click

DoCmd Close

Exit_btnExit_Click:
    Exit Sub

Err_btnExit_Click:
    MsgBox Error$
    Resume Exit_btnExit_Click
End Sub

Sub btnFind_Click()
    On Error GoTo Err_btnFind_Click

DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, 10, , A_MENU_VER20

Exit_btnFind_Click:
56     Exit Sub
57
58     Err_btnFind_Click:
59         MsgBox Error$
60         Resume Exit_btnFind_Click
61
62     End Sub
63
64     Sub btnFirst_Click()
65         On Error GoTo Err_btnFirst_Click
66
67         DoCmd GoToRecord,, A_FIRST
68
69         Exit_btnFirst_Click:
70             Exit Sub
71
72     Err_btnFirst_Click:
73         MsgBox Error$
74         Resume Exit_btnFirst_Click
75
76     End Sub
77
78     Sub btnLast_Click()
79         On Error GoTo Err_btnLast_Click
80
81         DoCmd GoToRecord,, A_LAST
82
83         Exit_btnLast_Click:
84             Exit Sub
85
86     Err_btnLast_Click:
87         MsgBox Error$
88         Resume Exit_btnLast_Click
89
90     End Sub
91
92     Sub BtnNext_Click()
93         On Error GoTo Err_btnNext_Click
94
95         DoCmd GoToRecord,, A_NEXT
96
97     Exit_btnNext_Click:
98         Exit Sub
99
100     Err_btnNext_Click:
101         MsgBox Error$
102         Resume Exit_btnNext_Click
103
104     End Sub
Sub btnOpen_Click()
    On Error GoTo Err_btnOpen_Click
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "Product Accumulation Form"
    LinkCriteria = "[ProductID] = Forms![Product Form] ![ProductID]"
    DoCmd OpenForm DocName, , LinkCriteria
    Exit_btnOpen_Click:
    Exit Sub
End Sub

Err_btnOpen_Click:
    MsgBox Error$,
    Resume Exit_btnOpen_Click
    End Sub

Sub btnOpenProdet_Click()
    On Error GoTo Err_btnOpenProdet_Click
    Dim DocName As String
    Dim LinkCriteria As String
    DocName = "Product Detail Form"
    LinkCriteria = "[ProductID] = Forms![Product Form] ![ProductID]"
    DoCmd OpenForm DocName, , LinkCriteria
    Exit_btnOpenProdet_Click:
    Exit Sub
End Sub

Err_btnOpenProdet_Click:
    MsgBox Error$,
    Resume Exit_btnOpenProdet_Click
    End Sub

Sub BtnPrev_Click()
    On Error GoTo Err.BtnPrev_Click
    DoCmd GoToRecord , , A_PREVIOUS
    Exit_btnPrev_Click:
    Exit Sub
End Sub

Err.BtnPrev_Click:
    MsgBox Error$,
    Resume Exit_btnPrev_Click
160  End Sub
161
162  Sub btnPrint_Click ()
163  On Error GoTo Err_btnPrint_Click
164
165  DoCmd DoMenuitem A_FORMBAR, A_EDITEMENU, A_SELECTRECORD_V2, A_MENU_VER20
166  DoCmd Print A_SELECTION
167
168  Exit_btnPrint_Click:
169  Exit Sub
170
171  Err_btnPrint_Click:
172  MsgBox Error$
173  Resume Exit_btnPrint_Click
174
175  End Sub
176
177  Sub btnUndo_Click ()
178  On Error GoTo Err_btnUndo_Click
179
180  DoCmd DoMenuitem A_FORMBAR, A_EDITEMENU, A_UNDOFIELD, A_MENU_VER20
181
182  Exit_btnUndo_Click:
183  Exit Sub
184
185  Err_btnUndo_Click:
186  MsgBox Error$
187  Resume Exit_btnUndo_Click
188
189  End Sub
190
191
192

**Purchasing Order Form**

1  Option Compare Database 'Use database order for string comparisons
2
3  Sub btnAdd_Click ()
4  On Error GoTo Err_btnAdd_Click
5
6  DoCmd GoToRecord ,, A_NEWREC
7
8  Exit_btnAdd_Click:
9  Exit Sub
10
11  Err_btnAdd_Click:
12  MsgBox Error$
13  Resume Exit_btnAdd_Click
14
End Sub

Sub btnDel_Click()
On Error GoTo Err_btnDel_Click

DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, A_MENU_VER20
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_DELETE_V2, A_MENU_VER20

Exit btnDel_Click:
Exit Sub

Err_btnDel_Click:
MsgBox Error$
Resume Exit_btnDel_Click
End Sub

Sub btnExit_Click()
On Error GoTo Err_btnExit_Click
DoCmd Close

Exit_btnExit_Click:
Exit Sub

Err_btnExit_Click:
MsgBox Error$
Resume Exit_btnExit_Click
End Sub

Sub btnFind_Click()
On Error GoTo Err_btnFind_Click

DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, 10, A_MENU_VER20

Exit_btnFind_Click:
Exit Sub

Err_btnFind_Click:
MsgBox Error$
Resume Exit_btnFind_Click
End Sub

Sub btnFirst_Click()
On Error GoTo Err_btnFirst_Click
DoCmd GoToRecord,, A_FIRST

Exit_btnFirst_Click:
   Exit Sub

Err_btnFirst_Click:
   MsgBox Error$
   Resume Exit_btnFirst_Click

End Sub

Sub btnLast_Click ()
   On Error GoTo Err_btnLast_Click

   DoCmd GoToRecord,, A_LAST

Exit_btnLast_Click:
   Exit Sub

Err_btnLast_Click:
   MsgBox Error$
   Resume Exit_btnLast_Click

End Sub

Sub btnNext_Click ()
   On Error GoTo Err_btnNext_Click

   DoCmd GoToRecord,, A_NEXT

Exit_btnNext_Click:
   Exit Sub

Err_btnNext_Click:
   MsgBox Error$
   Resume Exit_btnNext_Click

End Sub

Sub btnPrev_Click ()
   On Error GoTo Err_btnPrev_Click

   DoCmd GoToRecord,, A_PREVIOUS

Exit_btnPrev_Click:
   Exit Sub
Err btnPrev_Click:
    MsgBox Error$
    Resume Exit btnPrev_Click
End Sub

Sub btnPrint_Click()
    On Error GoTo Err_btnPrint_Click
    DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, A_MENU_V20
    DoCmd Print A_SELECTION
    Exit btnPrint_Click:
    Exit Sub
Err_btnPrint_Click:
    MsgBox Error$
    Resume Exit btnPrint_Click
End Sub

Sub btnUndo_Click()
    On Error GoTo Err_btnUndo_Click
    DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_UNDOFIELD, A_MENU_V20
    Exit btnUndo_Click:
    Exit Sub
Err_btnUndo_Click:
    MsgBox Error$
    Resume Exit btnUndo_Click
End Sub

Receive Form
Option Compare Database 'Use database order for string comparisons
Sub btnAdd_Click()
    On Error GoTo Err_btnAdd_Click
    DoCmd GoToRecord,, A_NEWREC
    Exit btnAdd_Click:
    Exit Sub
Err_btnAdd_Click:
    MsgBox Error$
    Resume Exit btnAdd_Click
End Sub
Err_btnAdd_Click:
  MsgBox Error$
  Resume Exit_btnAdd_Click
End Sub

Sub btnDel_Click()
  On Error GoTo Err_btnDel_Click
End Sub

DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, A_MENU_VER20
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_DELETE_V2, A_MENU_VER20

Exit_btnDel_Click:
  Exit Sub

Err_btnDel_Click:
  MsgBox Error$
  Resume Exit_btnDel_Click
End Sub

Sub btnExit_Click()
  On Error GoTo Err_btnExit_Click
End Sub

DoCmd Close

Exit_btnExit_Click:
  Exit Sub

Err_btnExit_Click:
  MsgBox Error$
  Resume Exit_btnExit_Click
End Sub

Sub btnLast_Click()
  On Error GoTo Err_btnLast_Click
End Sub

DoCmd GoToRecord, A_LAST

Exit_btnLast_Click:
  Exit Sub

Err_btnLast_Click:
  MsgBox Error$
  Resume Exit_btnLast_Click
Sub ButtonNext_Click()
    On Error GoTo Err_buttonNext_Click
    DoCmd GoToRecord , , A_NEXT
    Exit buttonNext_Click:
    Exit Sub

Err_buttonNext_Click:
    MsgBox Error$ 
    Resume Exit_buttonNext_Click
End Sub

Sub ButtonPrev_Click()
    On Error GoTo Err_buttonPrev_Click
    DoCmd GoToRecord , , A_PREVIOUS
    Exit buttonPrev_Click:
    Exit Sub

Err_buttonPrev_Click:
    MsgBox Error$ 
    Resume Exit_buttonPrev_Click
End Sub

Sub ButtonPrint_Click()
    On Error GoTo Err_buttonPrint_Click
    DoCmd DoMenuitem A_FORMBAR , A_EDITMENU, A_SELECTRECORD_V2 , A_MENU_VER20
    DoCmd Print A_SELECTION
    Exit buttonPrint_Click:
    Exit Sub

Err_buttonPrint_Click:
    MsgBox Error$ 
    Resume Exit_buttonPrint_Click
End Sub

Sub buttonUndo_Click()
    On Error GoTo Err_buttonUndo_Click
    Exit buttonUndo_Click:
    Exit Sub
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_UNDOFIELD,, A_MENU_VER20

Exit btnUndo_Click:
Exit Sub

Err btnUndo_Click:
MsgBox Error$
Resume Exit btnUndo_Click
End Sub

Report Submenu
Option Compare Database
'Se database order for string comparisons

Sub Button10_Click ()
On Error GoTo Err Button10_Click
Dim DocName As String
Dim LinkCriteria As String
DocName = "DailyReportSubMenu"
DoCmd OpenForm DocName,, , LinkCriteria
Exit Button10_Click:
Exit Sub
Err Button10_Click:
MsgBox Error$
Resume Exit Button10_Click
End Sub

Sub Button8_Click ()
On Error GoTo Err Button8_Click
Dim DocName As String
Dim LinkCriteria As String
DocName = "MonthlyReportSubMenu"
DoCmd OpenForm DocName,, , LinkCriteria
Exit Button8_Click:
Exit Sub
Err Button8_Click:
MsgBox Error$
Resume Exit Button8_Click
End Sub
Sub Exit_Click()
On Error GoTo Err_Exit_Click
DoCmd Close
Exit_Exit_Click:
Exit Sub
Err_Exit_Click:
MsgBox Error$
Resume Exit_Exit_Click
End Sub

Option Compare Database ‘Use database order for string comparisons
Sub btnAdd_Click()
On Error GoTo Err_btnAdd_Click
DoCmd.GoToRecord , , A_NEWREC
Exit_btnAdd_Click:
Exit Sub
Err_btnAdd_Click:
MsgBox Error$
Resume Exit_btnAdd_Click
End Sub
Sub btnDel_Click()
On Error GoTo Err_btnDel_Click
DoCmd DoMenuitem A_FORMBAR , A_EDITMENU, A_SELECTRECORD_V2 , , A_MENU_VER20
DoCmd DoMenuitem A_FORMBAR , A_EDITMENU , A_DELETE_V2, , A_MENU_VER20
Exit_btnDel_Click:
Exit Sub
Err_btnDel_Click:
MsgBox Error$
Resume Exit_btnDel_Click
End Sub
Sub btnExit_Click()
On Error GoTo Err_btnExit_Click
DoCmd Close
Exit_btnExit_Click:
    Exit Sub
Err_btnExit_Click:
    MsgBox Error$
    Resume Exit_btnExit_Click
End Sub

Sub btnFind_Click()
On Error GoTo Err_btnFind_Click
DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, 10, A_MENU_VER20
Exit_btnFind_Click:
    Exit Sub
Err_btnFind_Click:
    MsgBox Error$
    Resume Exit_btnFind_Click
End Sub

Sub btnFirst_Click()
On Error GoTo Err_btnFirst_Click
DoCmd GoToRecord A_FIRST
Exit_btnFirst_Click:
    Exit Sub
Err_btnFirst_Click:
    MsgBox Error$
    Resume Exit_btnFirst_Click
End Sub

Sub btnLast_Click()
On Error GoTo Err_btnLast_Click
DoCmd GoToRecord A_LAST
Exit btnLast_Click:
  Exit Sub

Err_btnLast_Click:
  MsgBox Error$
  Resume Exit_btnLast_Click
End Sub

Sub BtnNext_Click()
  On Error GoTo Err_btnNext_Click
  DoCmd GoToRecord,, A_NEXT
  Exit btnNext_Click:
End Sub

Sub btnPrint_Click()
  On Error GoTo Err_btnPrint_Click
  DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_SELECTRECORD_V2, A_MENU_VER20
  DoCmd Print A_SELECTION
  Exit btnPrint_Click:
  Exit Sub
Err_btnPrint_Click:
  MsgBox Error$
Resume Exit_btnPrint_Click
End Sub

Sub btnUndo_Click()
    On Error GoTo Err_btnUndo_Click
    DoCmd DoMenuItem A_FORMBAR, A_EDITMENU, A_UNDOFIELD,, A_MENU_VER20
    Exit_btnUndo_Click:
    Exit Sub
    Err_btnUndo_Click:
    MsgBox Error$
    Resume Exit_btnUndo_Click
    End Sub
Appendix B
User Manual
1. INTRODUCTION

Convenience Store Information System เป็นระบบฐานข้อมูล ที่สร้างมาจาก Microsoft Access ซึ่งประกอบด้วยขั้นตอนการจัดทำรูปแบบข้อมูล เพื่อต้องการความต้องการของ "ฝ่ายปฏิบัติการ" ทางด้านการจัดเก็บข้อมูลในระบบ และสามารถเรียกใช้ได้อย่างรวดเร็ว. รวบรวมแผนและการบริหารงานด้วยการนำงาน รวมทั้งการออกรายงานต่างๆที่จำเป็นของ Convenience Store Information System ดังนี้จะประสิทธิภาพ นอกจากนี้ Convenience Store Information System ยังได้ออกแบบจากความต้องการของผู้ใช้ และหลักวิชาการ เป็นขั้นตอน เพื่อจ่ายต่อความข้างต้นต่างๆของระบบโดยจ่าย

สำหรับระบบเอกสารของ Convenience Store Information System มีดังต่อไปนี้

1. การจัดเก็บและจัดการข้อมูลต้นต่าง (product Master File)
2. การจัดเก็บและจัดการข้อมูลแหล่งแหล่งต่าง (Supplier Master File)
3. การจัดเก็บและจัดการข้อมูลกลุ่มต่าง (Group Master File)
4. การจัดเก็บสั่งซื้อต่าง (Purchasing Order)
5. การจ่ายสินค้า (Receiving Document)
6. การออกรายงานทางการของ Convenience Store Information System

หนังสือกุ้งเม็ดเมื่อเป็นพิมพ์ตามแนวความคิด สำหรับผู้ใช้ทั่วทั้งหมด มีความรู้พื้นฐานเพียงพียง Microsoft Windows บางระดับหรือครั้ง ภายใต้ลักษณะใช้ในเครื่องคอมพิวเตอร์เพื่อให้ใช้กับระบบขั้นต่ำของความต้องการของความต้องการของพื้นฐาน เพื่อใช้ประโยชน์ในการกับระบบฐานข้อมูลซึ่งที่ต่างโดยไม่ต้องการ ถูกทำให้ผู้ใช้ต้องการเพิ่มเติมเพื่อการใช้ เพื่อใช้งานที่ผ่านไป ในระบบฐานข้อมูลซึ่งต้องการเพิ่มเติม ถ้าต้องการเสริมสร้าง Configurations และการโจมตีต่างๆ หรือให้ผู้ใช้ต้องการเพิ่มเติม

หมายเหตุ สำหรับผู้ใช้ต่างๆ ทางผู้ใช้ทั่วไปต้องการหลักการและหลักฐาน เพื่อจะได้ไปใช้งาน และพัฒนาต่อไป

คณะฯ ช่วงมณฑลธุรกิจ
บริษัท เซ็นทรัลซิตี้บิส เฮสต์ จำกัด
ฝ่ายปฏิบัติการ
โทร.7320104-8 ต่อ302
2. STARTING MICROSOFT ACCESS

การเริ่มต้นเข้าโปรแกรม Microsoft Access มีขั้นตอนดังต่อไปนี้

1. ที่หน้าจอ DOS (c prompt ; c:\>) ให้พิมพ์ <c:\>win> แล้วกด ENTER หลังจากที่กด ENTER โปรแกรม Microsoft Windows จะทำงานและหน้าจอจะมาระบุว่า Program Manager ตาม Figure 66

2. ต่อไปให้ click mouse 2 ครั้งที่ icon "Microsoft Office" ตามที่ลูกศรชี้ใน Figure 66 ที่จะเข้าสู่หน้าจอของ Microsoft Office ตาม Figure 2

3. จากนั้นให้ click mouse 2 ครั้งที่ icon "Microsoft Access" ตามที่ลูกศรชี้ใน Figure 67 เพื่อเข้าสู่โปรแกรม Microsoft Access โปรแกรมแสดงขั้นตอนการเข้าใช้งาน Microsoft Access

![Figure 66: Program Manager in Microsoft Windows](image-url)
Figure 67: Microsoft Office
3. MICROSOFT ACCESS SECURITY AND STARTING CONVENIENCE STORE INFORMATION SYSTEM

หลังจากทำการสมัครตอนที่กำหนดแล้ว ก็จะปรากฏขึ้นตาม Figure 3 เพื่อให้ผู้ใช้ใส่ Name and Password ซึ่งเป็นระบบความปลอดภัยเพื่อความบังคับของ Microsoft Access ซึ่งผู้ใช้ต้องได้กำหนด Name and Password ของผู้ใช้งานไว้แล้ว จากนั้นลดนี้ผู้ใช้งานทราบ Name and Password และใส่ไปในช่องได้อย่างถูกต้อง โปรแกรม Microsoft Access จะเปิดตัวเองให้เข้าสู่โปรแกรมเพื่อใช้งาน แต่ถ้าผู้ใช้ไม่ทราบ Name and Password ผู้ใช้งานจะต้องความตาม Figure 68 ซึ่งจะแจ้งให้ทราบว่าไม่มีการสมัครในการ Name and Password ต้องทำขั้นตอนใหม่จึงจะใช้งาน

Figure 68: Logon Screen
Figure 69: Invalid Account Name of Password

การกำหนด Name of User Name ที่มีบน Conveniences Store Information System จะถูกใช้ภายใต้ 2 แบบ ดังนี้คือ

1. Admin. ผู้ที่มี Name เป็น Admin จะเป็นผู้ดูแลและบริหารระบบให้พนักงานอย่าง
   ถูกต้องที่สุด รวมทั้งการจัดเก็บข้อมูลของระบบของร้าน
   โดยจะเป็นผู้มีสิทธิ์เต็มที่ต่อไปนี้
   - สามารถออกบัญชีให้ผู้ใช้ใหม่ได้ โดย Admin จะสร้าง Name and Password
     แก่ผู้ใช้งานรวมทั้งการกำหนดกลุ่มผู้ใช้งาน
   - สามารถกำหนด Name and Password ของผู้ใช้งานต่างได้
   - สามารถเปลี่ยนปัจจัยความปลอดภัยต่างๆ ในระบบของร้าน
   - สามารถอ่าน แก้ไข และเพิ่มเติมข้อมูล (Permission) ของ Guest ได้ โดย
     การเปลี่ยน Name and Password ของผู้ใช้งานต่างได้

2. Guest เป็นผู้ที่Tênผู้ใช้งานระบบของร้านข้อมูลต่างๆ ที่ได้รับอนุญาตจาก Admin.
   หรือ ผู้ที่ยื่นต่อ Admin. แต่ถ้าผู้ใช้นี้ไม่ได้รับอนุญาตให้ใช้งาน Objects นั้นๆ
   พวกเขาจะใช้งาน Microsoft Access จะแสดงข้อความแจ้งให้ผู้ใช้งานทราบว่าไม่ได้รับอนุญาต
จากภาพที่ได้ก่อนมาข้างต้น ผู้ที่เป็น Admin. หนึ่งมีความ
สำคัญต่อระบบฐานข้อมูลมาก และจะต้องเก็บ Name and Password ของตนเองให้ดีให้ด้วย
รวมทั้งก่อน Name and Password ของตัวเองด้วย.

ต้องยืนยันก่อนแล้วด้วยการเข้าใช้งาน Microsoft Access หลังจากผู้ใช้งาน
ที่ได้รับอนุญาตได้ Name and Password ถูกต้อง จะปรากฏหน้าจอดำาล Figure 70 จากนั้นให้ click
mouse 2 ครั้งที่ Open Database Button ส่วนที่ลูกคลิกใน Figure 6 ต่อจากนั้นจะปรากฏช่อง Open
Database ตาม Figure 71 ให้ click mouse 2 ครั้งใน file ชื่อ CVS.MDB เพื่อเปิดใช้งาน Convenience
Store Information System.

เมื่อเสร็จสิ้นขั้นตอนตามที่กล่าวมาข้างต้น Macro ซึ่ง AutoExec ที่ซ่อนไว้ใน file
CVS.MDB จะทำงานโดยอัตโนมัติ โดยตาม Macro AutoExec จะทำงานไปที่การปิด Database
Window ปกติของ Microsoft Access จากนั้นจะทำงานเป็น Form ชื่อ Main Menu ขึ้นมาตาม
Figure 72 เพื่อพร้อมให้ใช้งาน Convenience Store Information System บน Module ต่างๆ ต่อไป

Figure 70 : Microsoft Access Window
Figure 71: Open Database Window

Figure 72: Main Menu of Convenience Store Information System
4. ADD, SEARCH, EDIT & DELETE DATA

Convenience Store Information System (CVS.MDB) จะมีการโปรแกรมข้อมูลทั้งหมด 6 tables ดังต่อไปนี้

1. Product
2. Group
3. Supplier
4. Purchasing Order
5. Receive Document
6. Stock Card

ในหน้าผู้ใช้จะมีกล่องแสดงรายการข้อมูลใน Table Supplier เพียงตัวเดียว ซึ่งต้องแยกย่อยเป็น File Maintenance ใน Main Menu จะปรากฏข้อความดัง Figure 73

**Figure 73 : File Maintenance Submenu**
จากรูปนี้ให้กดปุ่ม Add or Edit หรือ Search Supplier ก็จะปรากฏภาพตั้ง Figure 74 ซึ่งจะเป็นหน้าจอด้านบน Add, Search, Edit, and Delete Data โดยการป้อนข้อมูลเกี่ยวกับแถวต่อ กต รูปที่เป็นเครื่องหมายattiาน หน้าจอจะเปลี่ยนเป็นเครื่องว่างทั้งหมดเพื่อให้ป้อนข้อมูลดัง Figure 75

<table>
<thead>
<tr>
<th>Suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier ID:</td>
</tr>
<tr>
<td>Supplier Name: Supplier1 Co., Ltd.</td>
</tr>
<tr>
<td>Address: Srinakarin Rd., Suan Luang, Suan Luang District, Bangkok</td>
</tr>
<tr>
<td>Zip Code: 10310</td>
</tr>
<tr>
<td>Contact Name: Mr. A</td>
</tr>
<tr>
<td>Phone Number: 1234567</td>
</tr>
<tr>
<td>Fax Number: 1234567</td>
</tr>
<tr>
<td>Payment Terms: Credit 60 Days</td>
</tr>
<tr>
<td>Note:</td>
</tr>
</tbody>
</table>

Figure 74: Add, Search, Edit and Delete Data Window
Figure 75: Window for Adding Data

Figure 76: Searching Window
จาก Figure 76 เป็นการแสดงเหตุการณ์ที่มี Supplier ID เป็น 2 โดยใส่ข้อมูลลงในช่อง Find What จากนั้นกดปุ่ม Find First จากนั้น Microsoft Access ก็จะทำการหาข้อมูลที่มีชื่อสปอร์เลนและข้อมูลตาม Figure 76 ในกรณีที่ไม่มีข้อมูลนั้นก็จะปรากฏข้อความตาม Figure 77

ส่วนการ Edit Data นั้น อธิบายว่า Search Data นั้นให้ใช้เฉพาะก่อนตามขั้นตอนข้างต้น จากนั้นก็ทำการแก้ไขข้อมูลด้วย Field ต่างๆ ด้วยตัวเอง

สุดท้ายเป็นขั้นตอน Delete Data (ลบข้อมูล) ขั้นตอนทำการ Search Data ก่อน เช่นกัน เมื่อพบ Record นั้นๆ ก็กดปุ่มที่มีเครื่องหมายลบสภาพเพื่อลบข้อมูล
รายงานในระบบ Convenience Store Information System มี 13 รายงาน ดังต่อไปนี้:

1. Expried Merchandise Report
2. Over Stock Report
3. Under Stock Report
4. Death Stock Report
5. Stock Card
6. Physical Check Report
7. Recorder Merchandise Report
8. Purchasing Order
9. Pending Purchasing Order Report
10. Invalid Merchandise Order Report
11. Merchandise Label
12. Sales Tax Report
13. Purchase Tax Report

สำหรับการรายงาน Reports จะทำการ์ดนำของ Physical Merchandise Check Report เริ่มต้นจาก Main Menu ให้กดปุ่ม Report จะปรากฏ Report Submenu ดัง Figure 78 แล้วเลือก Physical Merchandise Check Report จะปรากฏ Physical Merchandise Check Report Dialog ตาม Figure 79 เพื่อใส่ชื่อ Parameter จากนั้น เลือกปุ่ม Preview Report เพื่อดู Report ก่อนที่จะตัดสินใจพิมพ์ หรือเลือกปุ่ม Print Report เพื่อพิมพ์ Report หรือกดปุ่ม Cancel เพื่อออกจาก Physical Merchandise Check Report Dialog Window

หน้า 119
Daily Report

SubMenu of

Convenience Store

Information System

Figure 78: Daily Report Submenu

Figure 79: Physical Merchandise Check Report Dialog
6. BACK UP AND RESTORE DATABASE

บัพนั้นจะกล่าวถึงการ Back Up ฐานข้อมูลเก็บไว้ เพื่อที่จะนำกลับมาใช้ใหม่ ในกรณีที่เกิดปัญหากับข้อมูลใน Hard Disk หรือมีข้อมูลสูญหาย ขั้นตอนการ Back Up และ Restore มีดังต่อไปนี้

ขั้นตอนการ Back Up

1. ไปทำการใช้ฐานข้อมูลโดยเฉพาะใน Multiuser Environment ให้ยืนยันว่าถูกครับ มันเป็นการใช้ฐานข้อมูลเรียบร้อย ทุกครั้งที่จะทำการ Back Up ฐานข้อมูล


หมายเหตุ

สิ่งที่ทำการ Back Up File “SYSTEM.MDA” ซึ่งเป็น Workgroup Database File เพราะกลา File นี้สูญหาย เราจะไม่สามารถเปิดใช้งาน Microsoft Access ได้เลย

ขั้นตอนการ Restore

ใช้ Microsoft Windows File Manager, Back Up Software, หรือ Restore Command ของ DOS ทำการ Restore File (.MDB File) ไป Directory ที่เคยเก็บฐานข้อมูล

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