Computerized System for Agriculture Co-operation

By

Ms. Sawika Opat

Submitted in Partial Fulfillment of the
Requirement for the Degree of

Master of Science

in Technology Management
Assumption University

March, 2004

Report

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ASSUMPTION UNIVERSITY OF THAILAND
SINCE 1969

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The Faculty of Science and Technology

Master Project Approval

Project Title	Computerized System for Agriculture Co-operation
By	Ms. Sawika Opat
Project Advisor	Asst. Prof. Dr. Thotsapon Sortrakul
Academic Year	2/2003

The Department of Information Technology , Faculty of Science and Technology of Assumption University has approved this final report of the **three** credits course. **IT6900 Master Project**, submitted in partial fulfillment of the requirements for the degree of Master of Science in Information Technology .

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ABSTRACT

Thaklong Agriculture Co-operation is a medium size cooperation which has more than 1,000 members with 20 million baht of annual net-profit, but each department still performs all functions manually (paper-based). Information seeking and analyzing by human operators cause some errors and redundancy. Computerized system for the co-operation is developed for resolving this problem. This system will perform all the processes, and the functions of five departments namely administrative, loaning, finance, marketing and accounting. It is used to support business activities by taking advantage of computer technology. I believe that the new system will increase speed and accuracy of business processes and customer satisfaction. This system will replace the old manual system. To achieve these goals, it requires a sophisticated computer information system as well as database management system.

This new computer-based agriculture information system is designed to be menu-driven and highly user-friendly. The advantage of this system is it allows each department to perform jobs more efficiently and effectively by sharing information on the same database. The methodology and design of computerized system is presented in this paper. An analysis of the old system needs identifing several problems, which aids us in creating new system to meet user requirement. It is much better to create a prototype for testing system before a real implementation. Also, it is able to guarantee users satisfaction. The computer security, the indispensable part of system, is also considered in this paper.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Project

Nowadays, running business requires a good way to manage the resources in organizations for efficiency and effectiveness of proceeding. Information technology (IT) has become a major facilitator of business activities in the world today. Therefore, IT is used extensively for productivity improvement of business processes.

"A computer-based information system is an information system that uses computer technology to perform some or all its intended tasks." [1] Use of the information system is usually central to operating the business processes successfully. Information technology enables people to design and implement improvement, including new processes and facilities of increasing complexity and novelty. This project is concentrated on the work or process of agriculture co-operation system. We adapt from paper-based system to computerized system.

The computerized system for agriculture co-operation will help increase productivity of operation and save the resources of organization such as time of operation, paper and etc. Moreover, this system will increase satisfaction of customers because the time in operation is faster than the old system. And, it helps to manage the organization and plan the mission.

1.2 Problem Definitions

At present, Thaklong agriculture co-operation that I use as a model is a medium sized co-operation. There are 1,000 members and the company has net-profit around 20 million baht per year. In accounting department, accountants are responsible to organize daily and annual account report. For finance department, the officers have responsibility about deposit-withdrawal money service, calculating

interest, and undertaking all works concerned. For loan department, its duty is lending out money. For marketing department, the employees are responsible for providing and selling product and organizing inventory report. For administrative department, they prepare monthly report for manager and board of co-op which is used in monthly meeting. And, they have functions about document record, employee profile and recruitment.

All the above functions are dealt manually and based on paper transaction. Although they have PCs, they just use them only for word processing and excel program which is not a worthwhile purpose. Each work takes more time in processing and often error or mistake occurs in business functions such as generating report, calculating some value in any process, recording information, etc. Accordingly, the manager and the board deem it fit to create a new computerized system for developing efficiency and effectiveness of the organization. So, the proposed system will be based on computer and Database Management System (DBMS) which enables managing and operating for maximum performance with consuming less time in many areas of work, including annual account report preparing, all jobs concerning customer services, managing budget and planning for the goal of the organization.

1.3 Objectives of the Project

The objectives of the computerized system for agriculture co-operation are as follows:

1) To analyze the process of works of each department in order to identify the cause of problems.
2) To develop and implement the new computerized system to replace the existing system to enhance efficiency of business process.

3) To use the new system for reducing time consumption in business activities.
4) To increase the quality of customer service by using the proposed system.
5) To reduce the error in business activities and reduce the operation cost such as paper cost, human error cost and overtime payments to the employees.

1.4 Scope of the Project

The project is focused on the system adaptation to the computerized system from the old system for supporting the agriculture co-operation operations, so I separate the main functions to be main menus of the new system. Therefore, the scope of this project covers main functions that include the following:

1) The system will be run on two PCs which are connected in the form of peer-to-peer structure to facilitate information sharing.
2) The system provides functions for each department, namely loaning, accounting, marketing, finance and administrative work.
3) The system provides searching function by using keyword such as customer's name, customer's ID, account book no, loaning no or other keys in each activities.
4) The system provides performance report for the head of each department and manager.
5) All information will be stored in the database for supporting all the above jobs.

CHAPTER 2

EXISTING SYSTEM

2.1 Background of the Organization

Thaklong agriculture co-operation has been established since March 1, 1985 for service members almost all of whom are farmers. Its main business concerns about loaning and deposit services and selling low-priced products for members.

Figure 2-1 Organization Chart

According to the organization chart, there are five departments which include account, finance, loaning, marketing, and administrative. The responsibilities of each department are defined as follow:

1. Accounting Department
    - Responsible for generating account receivable and account payable.
    - Responsible for organizing daily, monthly account and annual report.
2. Finance Department
    - Responsible for deposit services.
    - Responsible for recording stock of members.
    - Responsible for paying employee salary.
    - Responsible for member application.

- Responsible for generating report about deposit, stock and the number of members.

3. Loan Department
    - Responsible for servicing loans for members.
    - Responsible for generating report for controlling loan.
4. Marketing Department
    - Responsible for providing products for selling.
    - Responsible for organizing the product inventory.
    - Responsible for allocating dividend of members.
    - Responsible for generating report about purchased product, product inventory and dividend money.
5. Administrative Department
    - Responsible for generating document for board meeting.
    - Responsible for organizing document record.
    - Responsible for recording employee profile.
    - Responsible for recruitment of appropriate personnel.
    - Responsible for all administrative tasks.

2.2 Overview of Existing Co-operation's Operating Functions

The existing system is described according to the details of operating functions of each department as follows:

In Accounting Department, accountants will collect all operating documents from other departments such as invoice, receipt, deposit and withdrawal paper, loaning receipt, etc. Then, they will summarize the account receivable and payable after service time ending (3:00 p.m.). Next, they will organize daily account report.

And, they will generate monthly and annual report for submitting to the manager, committee and auditor of Office of Inspector of Cooperative Accounts. All of this is done manually.

In Finance Department, officers will respond to customers and control stock and money in process. When members want to deposit or withdraw, they will fill the deposit or withdrawal form and place to the officer together with their accounting book. Then, the officer will continue the process of deposit or withdrawal service by using typewriter. They also will respond to new member application. They will help fill the member form and attach the copy of their ID card and census record. Then, the officer will file this data and generate member identifying book. Next, they will deal with stock holding of members which is 10 baht per stock and members will have at least 50 stocks (500 baht). They will generate monthly report about the amount of deposits, stocks and members and submit to the manager and committee by using Microsoft Excel.

In Loaning Department, members, wanting to get a loan, must mortgage their property at Land Department Office of district before loaning process is started. Then, the officer will begin with consideration of the petition. When it is admitted, the member will be contracted with the co-operation. Then, they will get money and 5% of it will be deducted to become their stock. For example, if a member borrows 100,000 baht, they will get 95,000 baht and the rest will become to his/her stock. For the repayment of a debt, the officer will process manually by using calculator and writing the detail on the loan form. They will generate monthly report for controlling loan and submit to the manager and the committee by using Microsoft Excel.

In Marketing Department, officers will generate receipt when a member purchases products such as rice, paddy seeds, chemical fertilizers, and gasoline. And,

they will provide products for sales. They will contact the supplier and propose price to the manager for approval. Then, they will buy products. After that, they will record information in the product purchasing book. They will organize product inventory every day. At the year-end, they will allocate dividend by looking from total of products purchased by members. All of the process is done manually.

In Administrative Department, officers deal with all the works that are related to employees and the whole office. They will prepare and generate documents for board meeting by using Microsoft Word. They will organize the document number for both received-document and sent-document. Then, they continue to record the document number in file by hand writing. They are also responsible for employee profile recording.

2.3 Areas for Improvement

As I described in the problem statement above, there are sequential problems namely inaccurate data, redundant tasks, inefficient report and unsatisfied customer. So, I will determine the areas of improvement as follows:-

2.3.1 To provide data accuracy. The proposed system will provide calculating and managing information accuracy because the proposed system will be based on computerized program (Microsoft Access program) which has high capability in information management.

2.3.2 To reduce task redundancy. The proposed system is designed to reduce tasks in generating reports. It can generate report automatically by using information from system database instead of reentering.

2.3.3 To increase customer satisfaction. Therefore, the proposed system can reduce the time of processing customer services that can improve customer satisfaction.

The proposed system can respond to the organization's requirements and resolve the problems of the existing system. It helps reduce time consuming in operating. It is developed to adapt the existing system functions to become a computerized system for supporting the agriculture co-operation's operations.

CHAPTER 3

PROPOSED SYSTEM

3.1 Project Methodology

"The System Development Life Cycle (SDLC) is a model for developing a system by dealing with sequential steps and options for revisiting steps when problems appear." [2] So, I use SDLC as a model to develop this proposed system of co-operation. There are 6 phases in this methodology:

- Project identification and selection

  In this phase, I will identify needs of the company and the proposed system. Then, I will determine the priority of the need and plan to schedule the activities of system development.

- Project initiation and selection

  I will explain why the system should be developed and define the problem of the old system. Then, I will determine the scope of the proposed system. Next, I will start to plan the step for developing the system by using the SDLC steps. And , I will determine the cost of developing and benefit of the project.

- Analysis

  The first thing that I do on this phase is requirement determination after I interviewed with users about requirements that they need from the proposed system. Then, I will study the old system for comparing with user's want. Next, I will generate initial design to match the requirements within cost and technical levels.

- Design

  I will design the new system in all aspects from input, output, database, and computer processes which must be suitable with hardware and software specification.

- Implementation

  Coding is the first work of this step. After that, I will progress to test the system until it meets the acceptance of user in each department. Next, I will check security of personnel who can access the system. Then, I start to install the new system by using parallel installation. And, I will organize the documentation and training for users.

- Maintenance

  When the system is being operated, users may find problems with work process and want a better ways to perform their functions. So, the programmer will modify the system for responding to the changing business conditions.

3.2 User Requirements

In the process of collecting the requirements, I obtain it by interviewing group of users and using the existing system operation. This system is developed for responding their routine jobs. The requirements are concluded as follows:-

1. All information is provided with accuracy such as the details of members, deposit and loan process, product, selling and account.
2. To reduce human error in operation which can lead to waste of time and money. The users want the system that has accuracy in calculating and retrieving information.
3. To improve the speed in operation, this system will reduce the steps of business functions.

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4. Input and output screen should be designed with user friendly interface.
5. The user should be able to easily generate any report on a daily, monthly or yearly basis.

3.3 System Requirements

1. The new system should have security control in operation by having login page that can verify the user name and password.
2. The system should be menu driven and the function should be user friendly so the users, having low computer skill, can also work with it.
3. The form and report should be generated in a standard way because the Department of Inspector of Cooperative Accounts will assign the documents in easy-to-audit format.

3.4 Hardware and Software Requirements

- Workstation (2 units)
  - 128MB DDR-RAM
  - 40GB HDD
  - CD Drive: 52X
  - Monitor 15"
  - Embedded VGA AGP 32MB (1 AGP slot available)
  - Built-in 3D sound
  - 10/100 Mbps built-in LAN
  - Mouse and Ketboard
- Dot Matrix Printer
- Printer sharing box
- UPS
- Operating System: Windows 2000 or latest version

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- DBMS: Microsoft Access 2000
- Development Tool: Microsoft Access 2000

3.5 Cost and Benefit Analysis

"The purpose for accessing economic feasibility is to identify the financial benefits and costs associated with development of the project. Economic feasibility is often referred to as cost-benefit analysis. It helps in decisions on spending or investment by determining if it is the worthwhile to develop a project or not." [2]

3.5.1 Benefit Analysis

An information system can provide many benefits to an organization. The new system can automate routine jobs, reduce errors, provide innovative customer services, and improve organizational efficiency, speed, and flexibility.

The benefits of the system are classified as tangible and intangible:

1. Tangible benefits are benefits that can be measured in terms of profit to the company. The following benefits could be derived from the proposed system:-

- Reduce overtime cost

Because of using the new computerized system, it can increase the speed of business processes and it can reduce error of works such as deposit and withdraw service, loaning service, accounting and inventory. These works used to take more time in processing and sometimes errors occur in the existing system. On average, employees work overtime around 2 months per year because they have to prepare the information which begins from mid of January to end of March for generating their annual reports so they must work overtime to finish their works by the fiscal year-end (end of March).

Therefore, the organization must pay overtime cost approximately 140,000 bath which equals to 2 month salary of all employees. When the organization begins to use the new system, it can save this overtime cost.

- Reduce cost of papers

The organization pay cost of papers around 100,000 bath per year. Normally, the existing system stores all information on papers or books so when we change to use the new computerized system every report can be updated and generated on database without printing everything. Calculating data and collecting information are done on the notepad so the new system can reduce 30 percent of paper cost. Therefore, using the new system can save 30,000 bath in paper cost.

Table 3-1 Tangible benefits worksheet

TANGIBLE BENEFITS WORKSHEET **COMPUTERIZED SYSTEM FOR AGRICULTURE CO-OPERATION**		Year 1 through 5
A.	Reduce overtime cost	140,000
B.	Reduce cost of papers	30,000
	TOTAL tangible benefits	**170,000**

2. Intangible benefits are benefits which are believed to be difficult or impossible to quantify such as improving efficiency and effectiveness of business functions, increasing user satisfaction, supporting to generate report for manager for decision making, and improving user's computer skill.

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3.5.2 Cost Analysis

The major cost analysis can be classified into 2 types:

- "One-Time Costs refer to those associated with project initiation and development and the start-up of the system such as system development, new hardware and software purchase, users training, site preparation and data or system conversion." [2]

- "Recurring Costs refer to those costs resulting from the ongoing evolution and use of the system such as application software maintenance, incremental data storage expense, and incremental communications." [2]

- The estimated costs and benefits over the period are discounted to present day values using a range of discount rates (5 percent rates). Now, Thaklong Agriculture Co-operation uses a discount rate of 10 percent for interest because the co-operation has to borrow money from bank at 5% interest. So they had to add another 5% for their profits.

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Project Feasibility Study
Economic Feasibility Analysis

BENEFITS	
Reduce overtime cost	140,000.00
Reduce cost of papers	30,000.00
TOTAL BENEFITS	170,000.00
ONE TIME COSTS	
1. HARDWARE	
3 PC & Accessories	84,000.00
2 UPS	7,500.00
1 Printer sharing box	8,000.00
1 Dot-Matrix Printer	11,500.00
Total Cost of Hardware	111,000.00
2. SOFTWARE	
Microsoft Window 2000 workstation	15,000.00
Microsoft Office 2000	28,000.00
Total Cost of Software	43,000.00
3. DEVELOPMENT & CONSULTANT	
System Analysis and Requirement Determination	15,000.00
System Design	25,000.00
Implement	15,000.00
Total Cost of Development & Consultant	55,000.00
4. INSTALLATION & TRAINING	
Installation	10,000.00
Training & Document	15,000.00
Total Cost of Installation & Training	25,000.00
TOTAL ONE TIME COSTS	234,000.00
RECURRING COSTS	
Application Software Maintenance	18,500.00
Hardware Maintenance	7,500.00
Supplies	20,000.00
TOTAL RECURRING COSTS	46,000.00

Figure 3.1 Benefits and Costs of the Project

Economic Feasibility Analysis
Computerized System for Agriculture Co-operation

	Year of Project						
	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**TOTALS**
Net Economic Benefit	0	170,000	170,000	170,000	170,000	170,000	
Discount(10%)	1.0000	0.9091	0.8264	0.7513	0.6830	0.6209	
PV of Benefit	0	154,545	140,496	127,724	116,112	105,557	
NPV of all BENEFITS	0	154,545	295,041	422,765	538,877	644,434	644,434
One-Time Costs	(285,000)						
Recurring Costs	0	(46,000)	(46,000)	(46,000)	(46,000)	(46,000)	
Discount(10%)	1.0000	0.9091	0.8264	0.7513	0.6830	0.6209	
PV of Recurring Costs	0	(41,818)	(38,017)	(34,560)	(31,419)	(28,562)	
NPV OF ALL COSTS	(285,000)	(326,818)	(364,835)	(399,395)	(430,814)	(459,376)	(459,376)
Overall NPV							185,058
Overall ROI - (Overall NPV / NPV of all COSTS)							0.40
Break-even Analysis							
Yearly NPV Cash Flow	(285,000)	112,727	102,479	93,163	84,694	76,994	
Overall NPV Cash Flow	(285,000)	(172,273)	(69,793)	23,370	108,063	185,058	

Project break-even occurs between year 2 and year 3
Use first year of positive cash flow to calculate break-even function - ((93,163 - 23,370) / 93,163) = 0.75
Actual break-even occurred at 2.75 years

Figure 3.2 Summary Spreadsheet reflecting the present value calculations of all benefits and costs for the proposed system

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3.5.3 Break-even Analysis

The Break Even Analysis shows at what point benefits equal cost. According to figure 3.2, the break-even point is occurred between year 2 and 3.

$$\text{Break-Even Ratio} = \frac{\text{Yearly NPV Cash Flow} - \text{Overall NPV Cash Flow}}{\text{Yearly NPV Cash Flow}}$$

Project break-even occurs between years 2 and 3

$$\text{Break-Even Ratio} = \frac{93{,}163 - 23{,}370}{93{,}163} = 0.75$$

Actual break-even occurred at 2.75 years

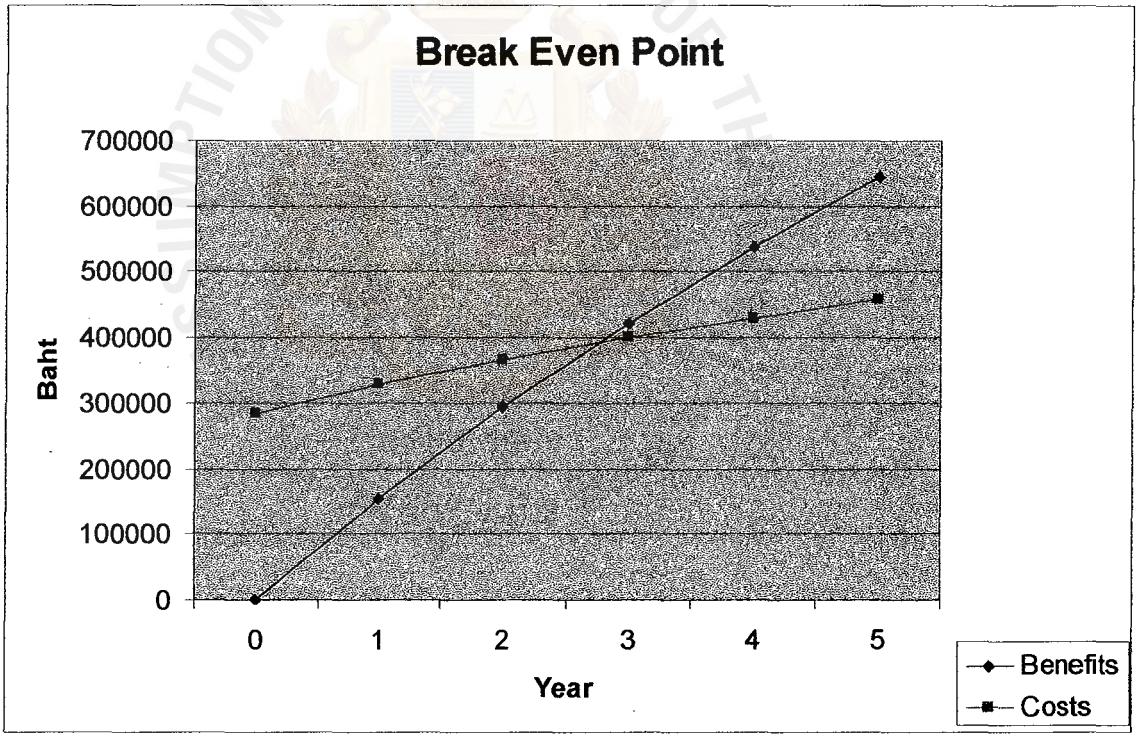

Figure 3.3 Break even point

3.6 System Design

3.6.1 Database Design

The proposed system is created as a relational database. It uses Microsoft Access 2002 as a tool for database management.

3.6.2 Data Flow Diagram of the proposed system

A Data Flow Diagram is a tool of process modeling, which helps to view overall data flow in the system. I will show the Data Flow Diagram of the proposed system as follows:

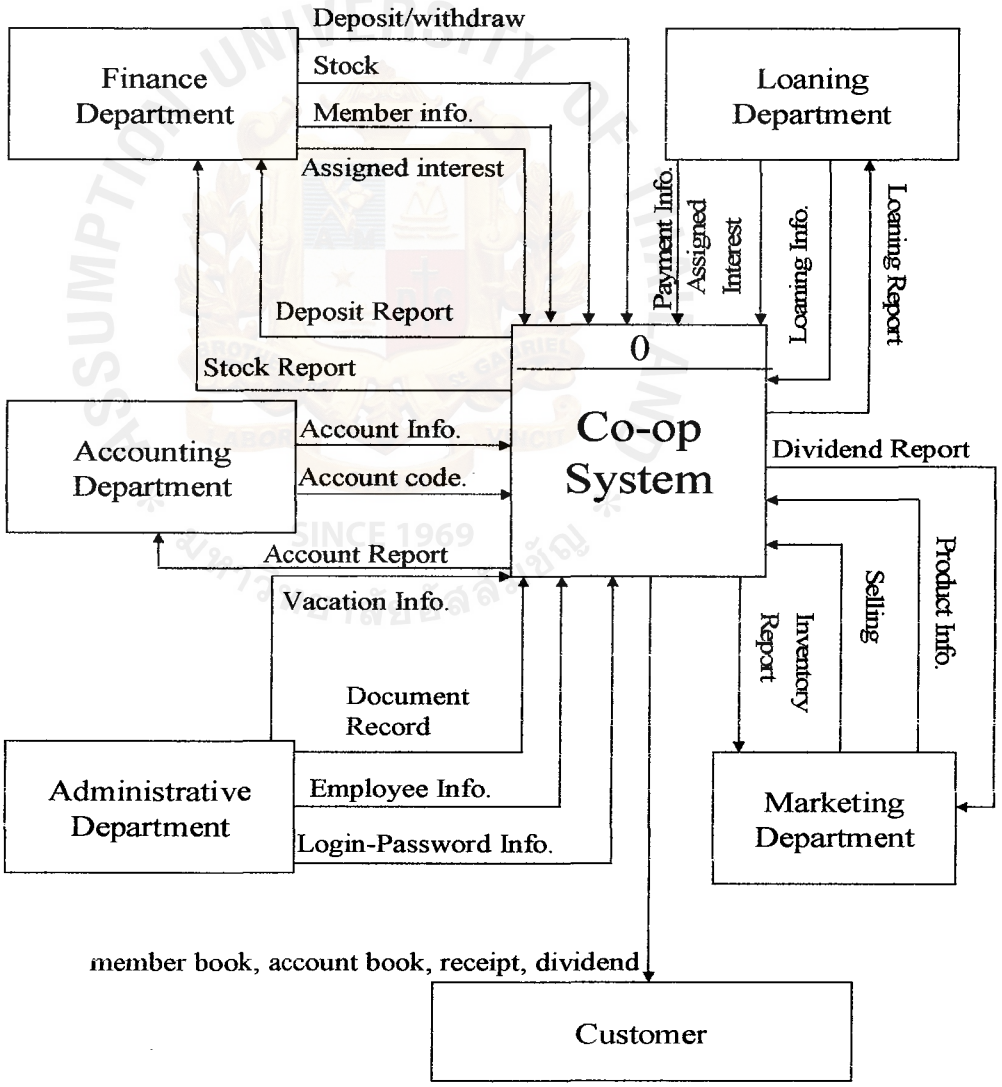

Figure 3.4 Context Diagram of the proposed system

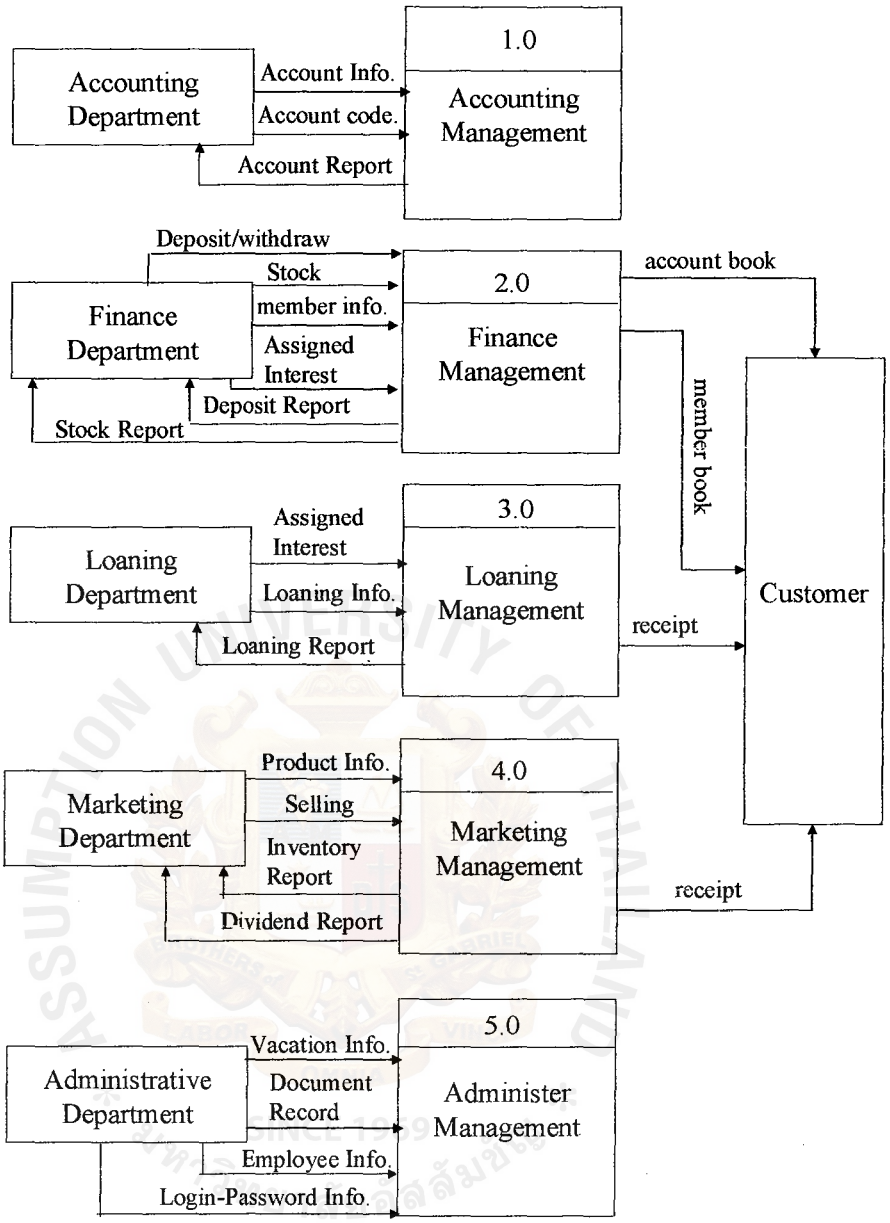

Figure 3.5 Data Flow Diagram of the proposed system at Level - 0

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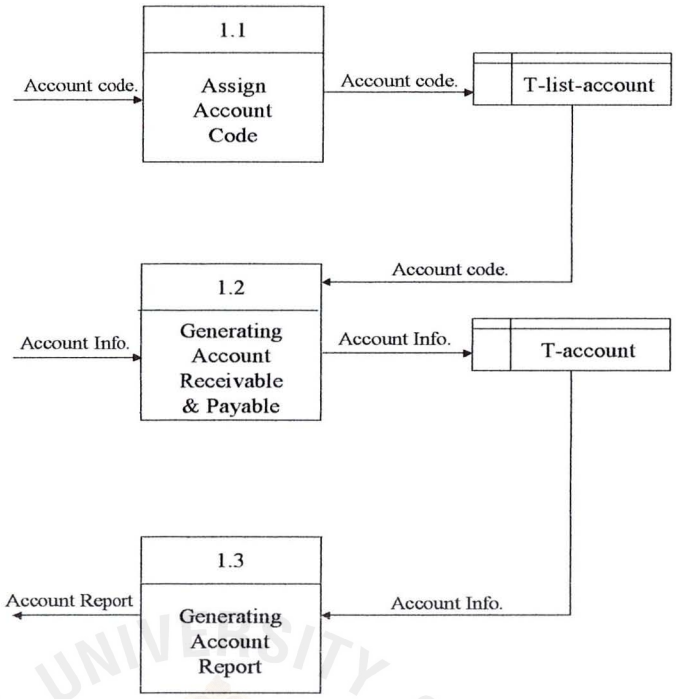

Figure 3.6 Data Flow Diagram of the proposed system at Level – 1 Process 1

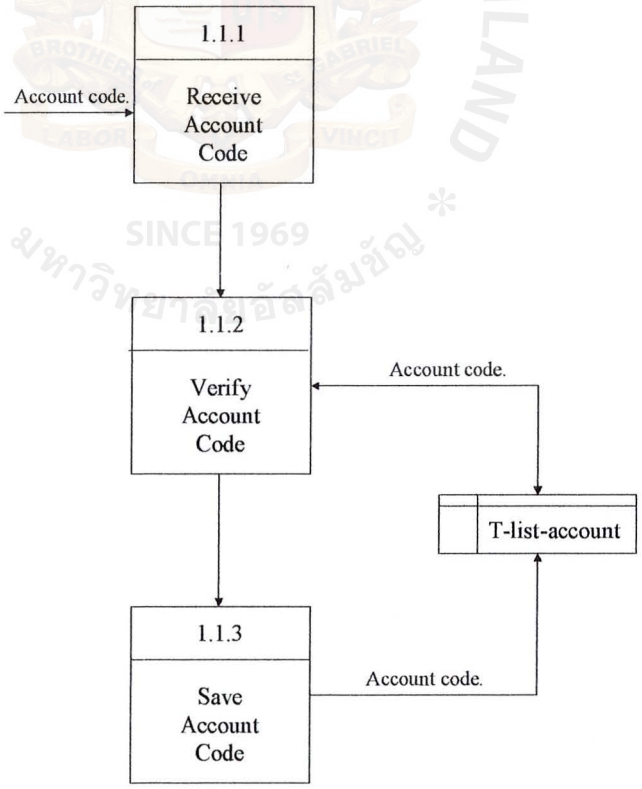

Figure 3.7 Data Flow Diagram of the proposed system at Level – 2 Process 1

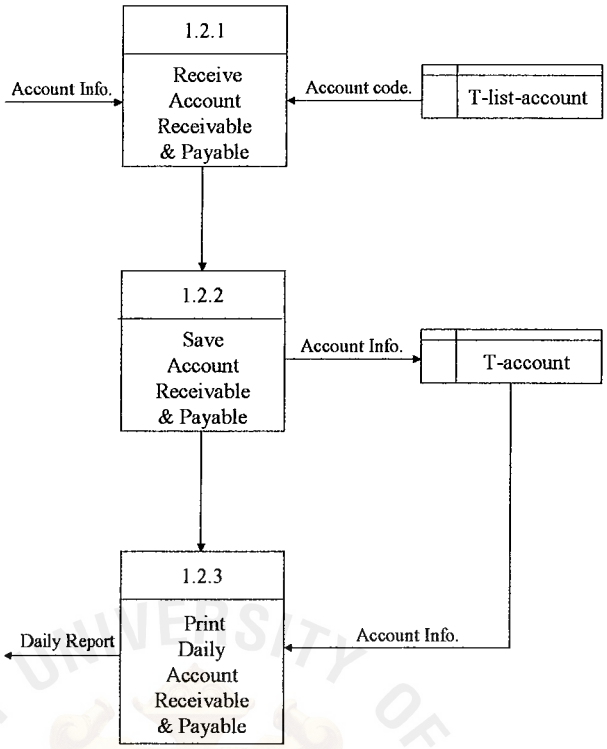

Figure 3.8 Data Flow Diagram of the proposed system at Level – 2 Process 1

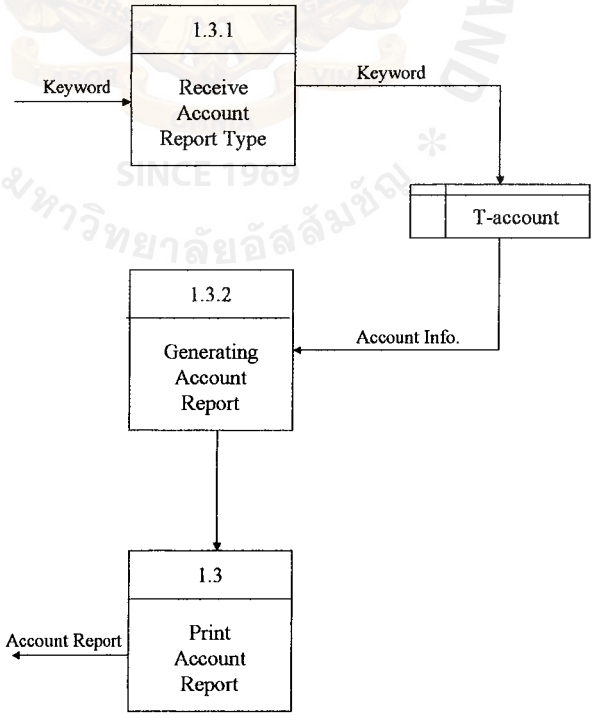

Figure 3.9 Data Flow Diagram of the proposed system at Level – 2 Process 1

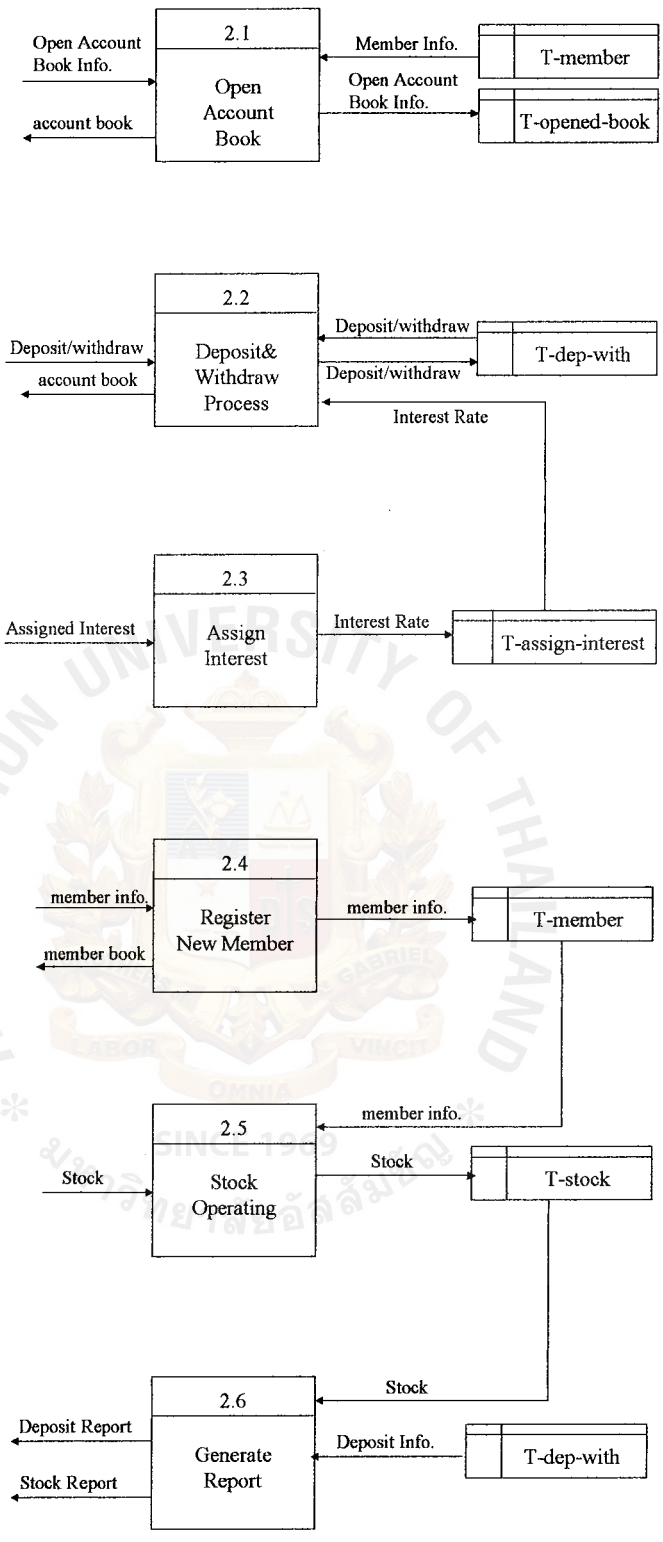

Figure 3.10 Data Flow Diagram of the proposed system at Level – 1 Process 2

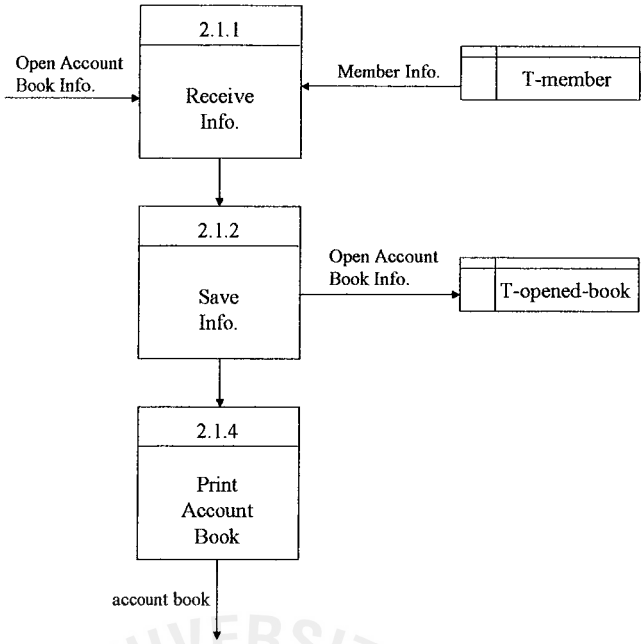

Figure 3.11 Data Flow Diagram of the proposed system at Level – 2 Process 2

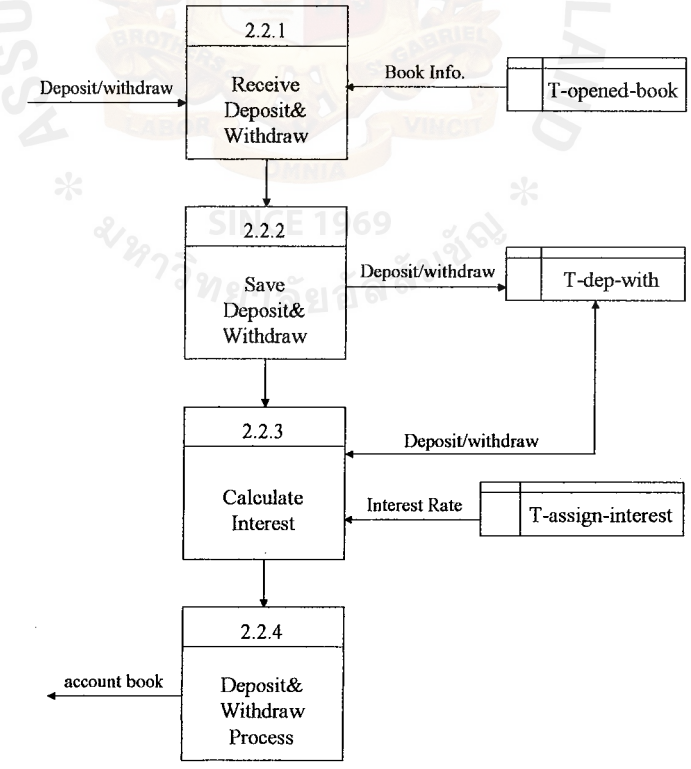

Figure 3.12 Data Flow Diagram of the proposed system at Level – 2 Process 2

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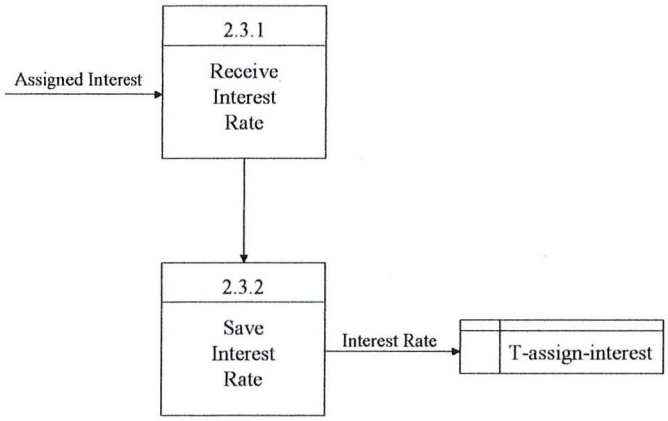

Figure 3.13 Data Flow Diagram of the proposed system at Level – 2 Process 2

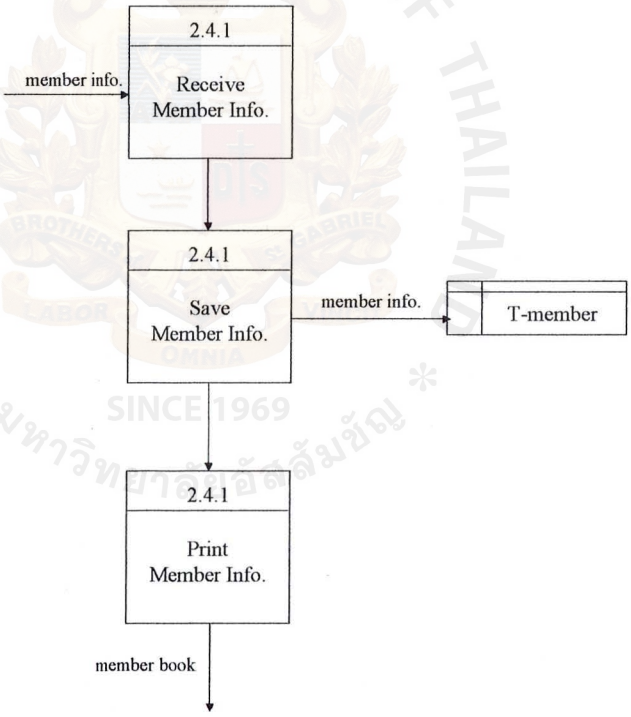

Figure 3.14 Data Flow Diagram of the proposed system at Level – 2 Process 2

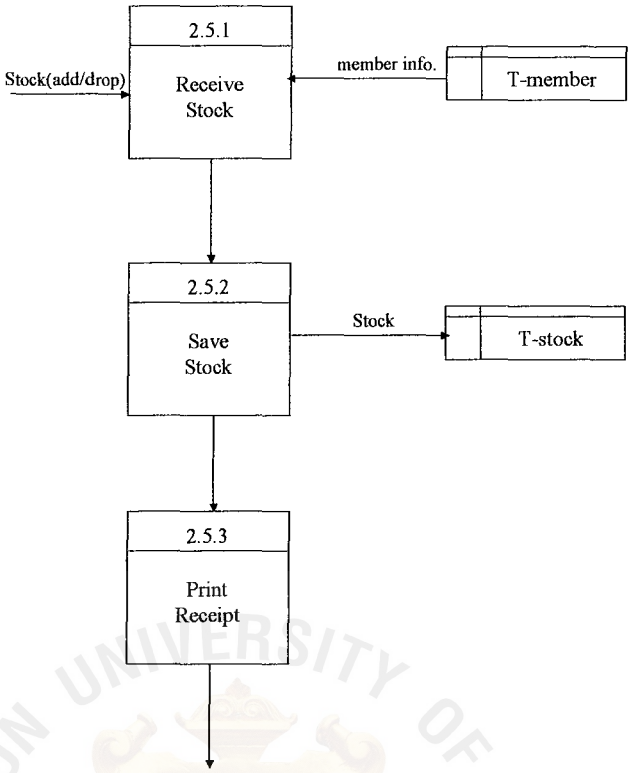

Figure 3.15 Data Flow Diagram of the proposed system at Level – 2 Process 2

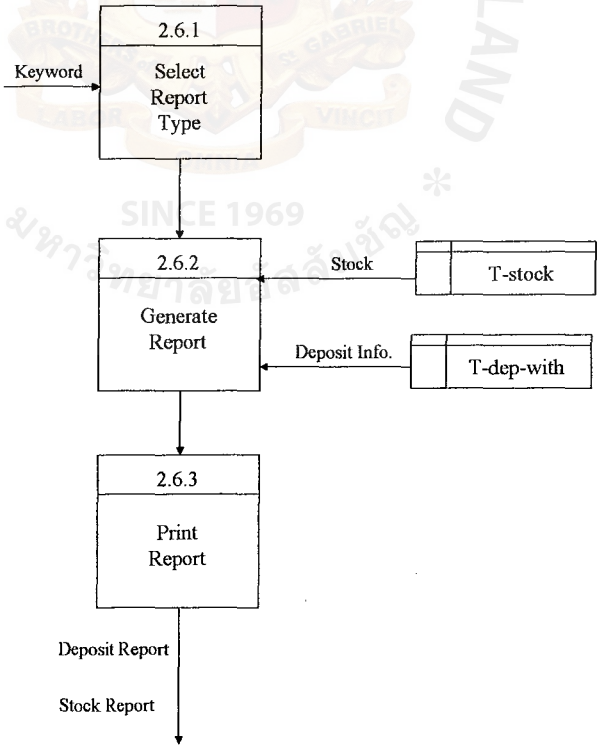

Figure 3.16 Data Flow Diagram of the proposed system at Level – 2 Process 2

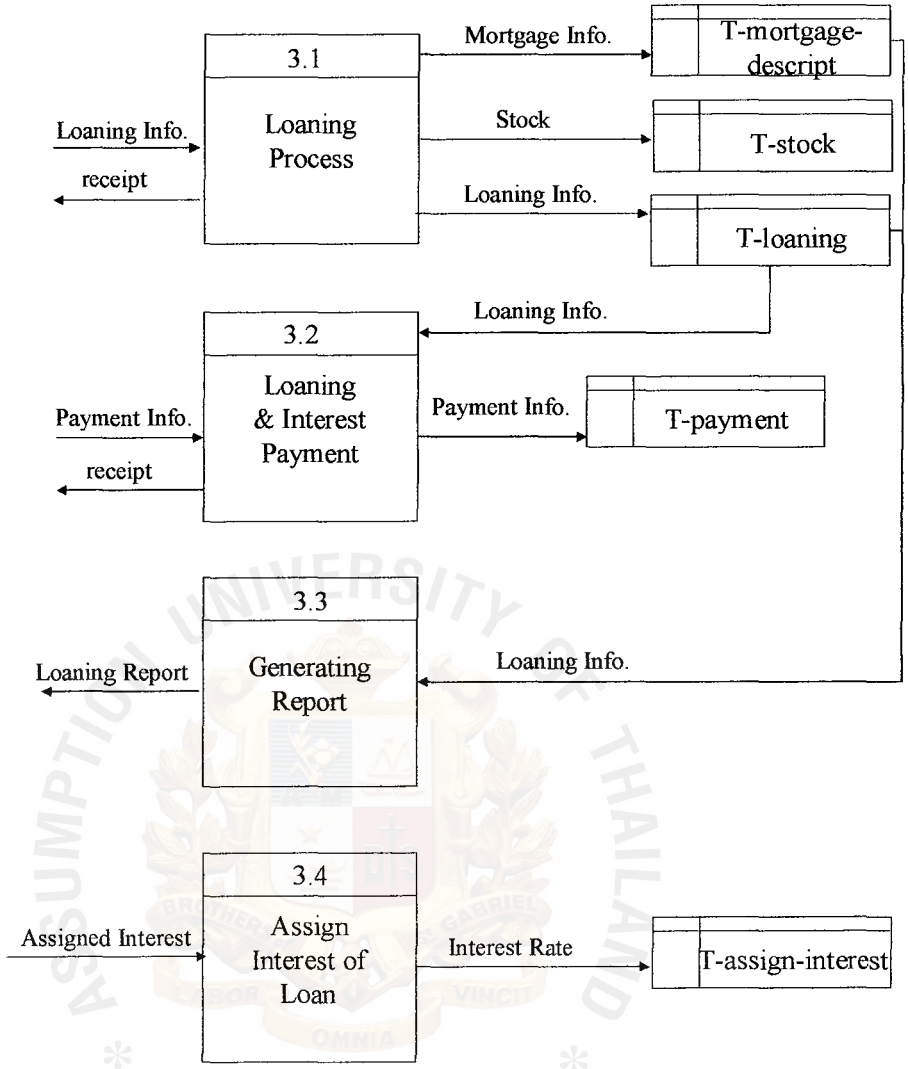

Figure 3.17 Data Flow Diagram of the proposed system at Level – 1 Process 3

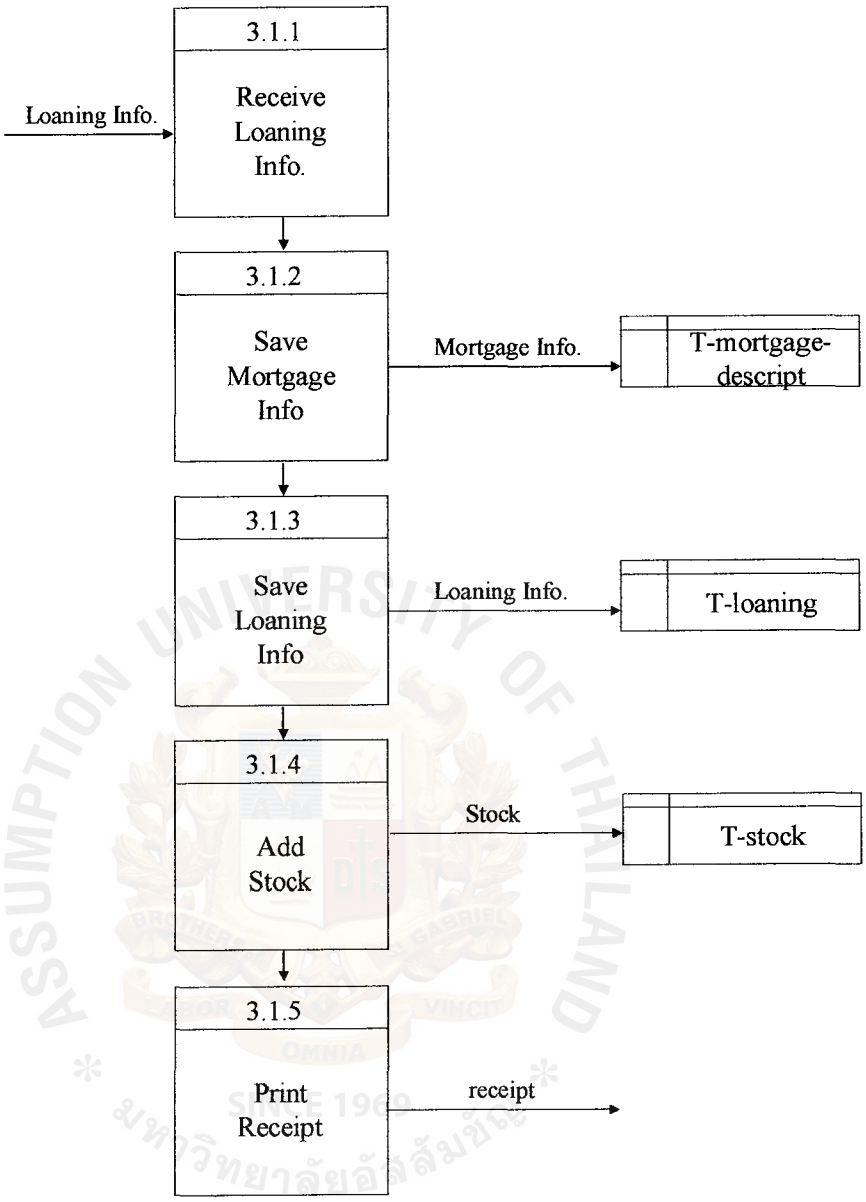

Figure 3.18 Data Flow Diagram of the proposed system at Level – 2 Process 3

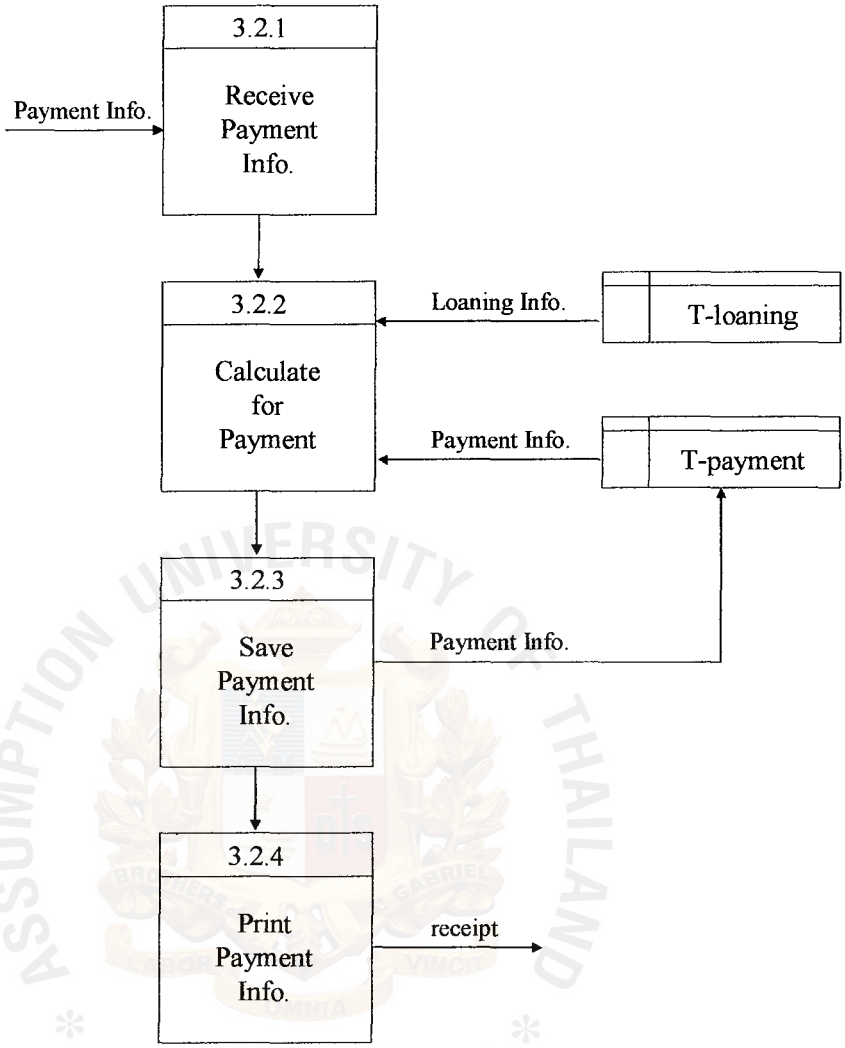

Figure 3.19 Data Flow Diagram of the proposed system at Level – 2 Process 3

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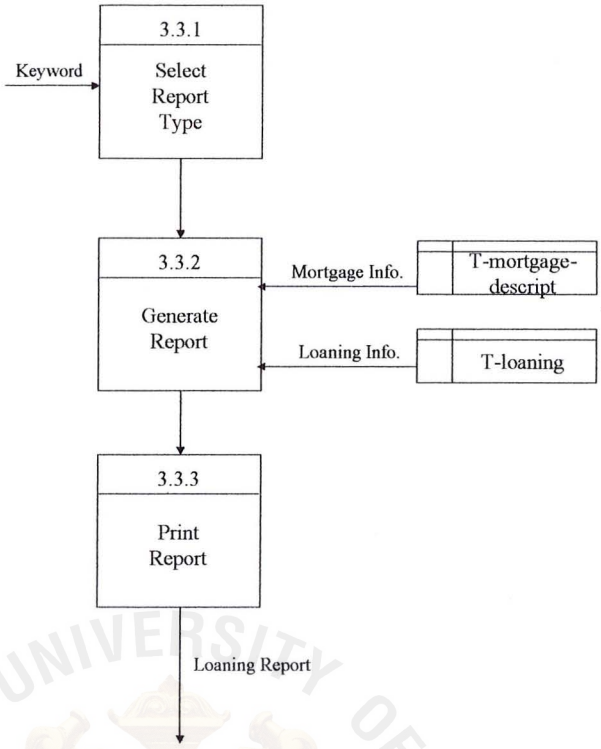

Figure 3.20 Data Flow Diagram of the proposed system at Level – 2 Process 3

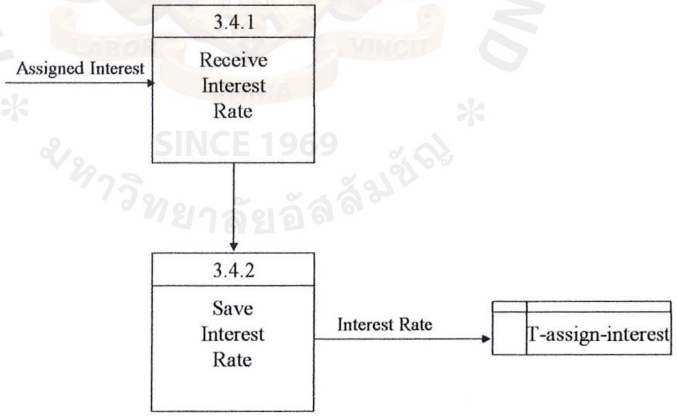

Figure 3.21 Data Flow Diagram of the proposed system at Level – 2 Process 3

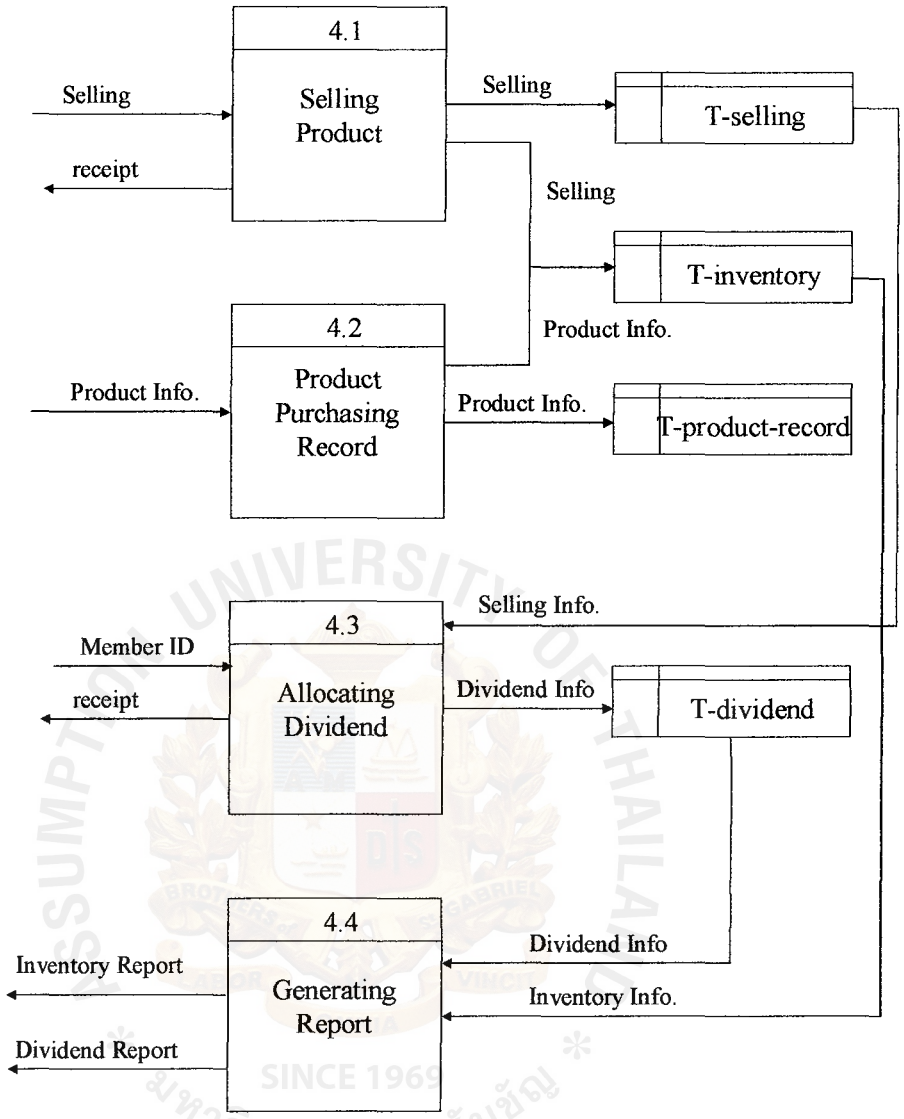

Figure 3.22 Data Flow Diagram of the proposed system at Level – 1 Process 4

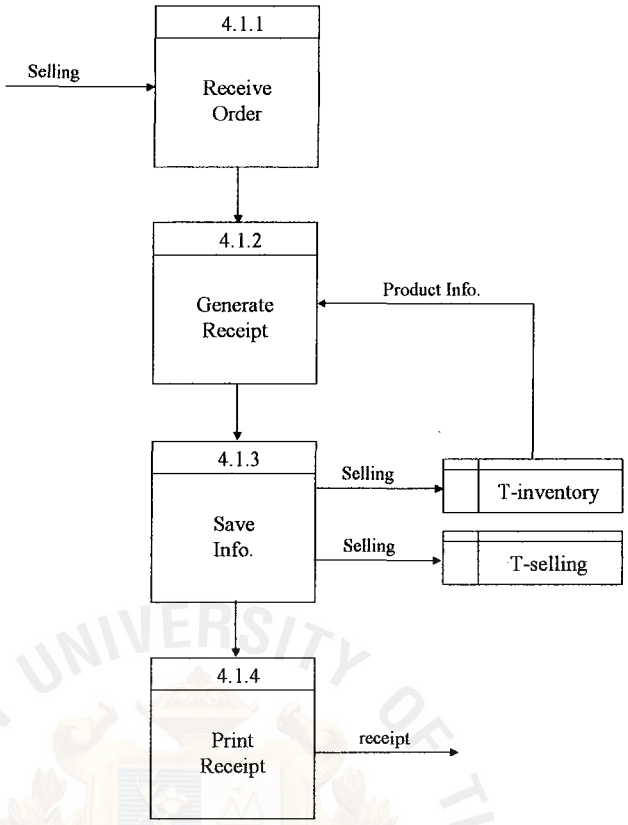

Figure 3.23 Data Flow Diagram of the proposed system at Level – 2 Process 4

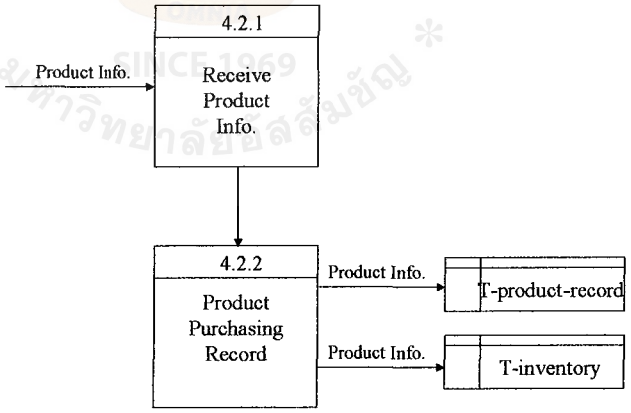

Figure 3.24 Data Flow Diagram of the proposed system at Level – 2 Process 4

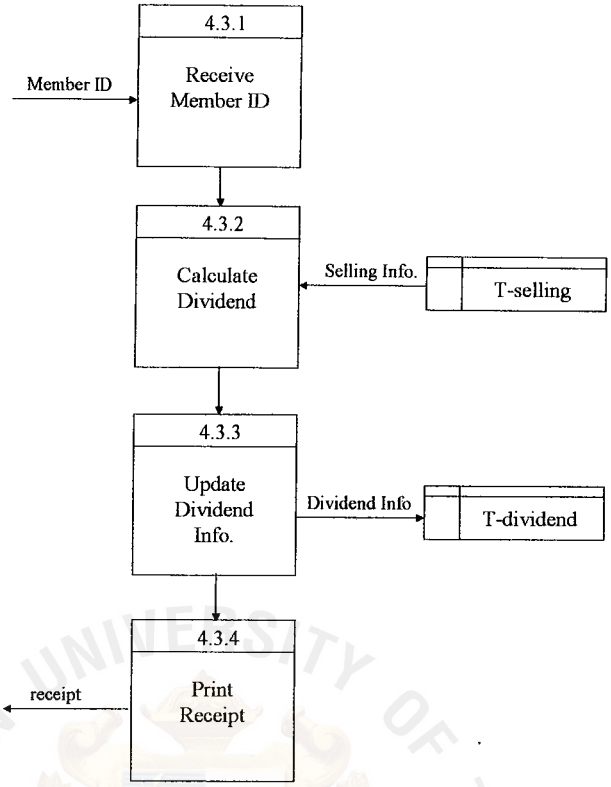

Figure 3.25 Data Flow Diagram of the proposed system at Level – 2 Process 4

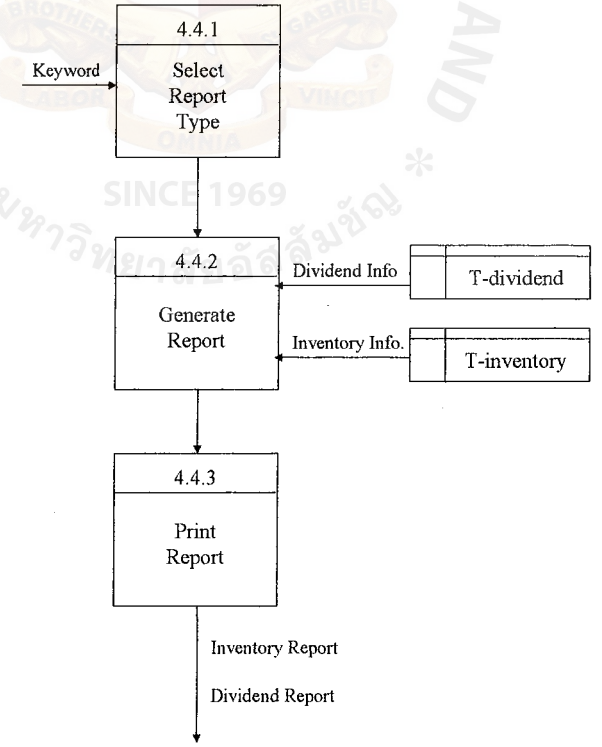

Figure 3.26 Data Flow Diagram of the proposed system at Level – 2 Process 4

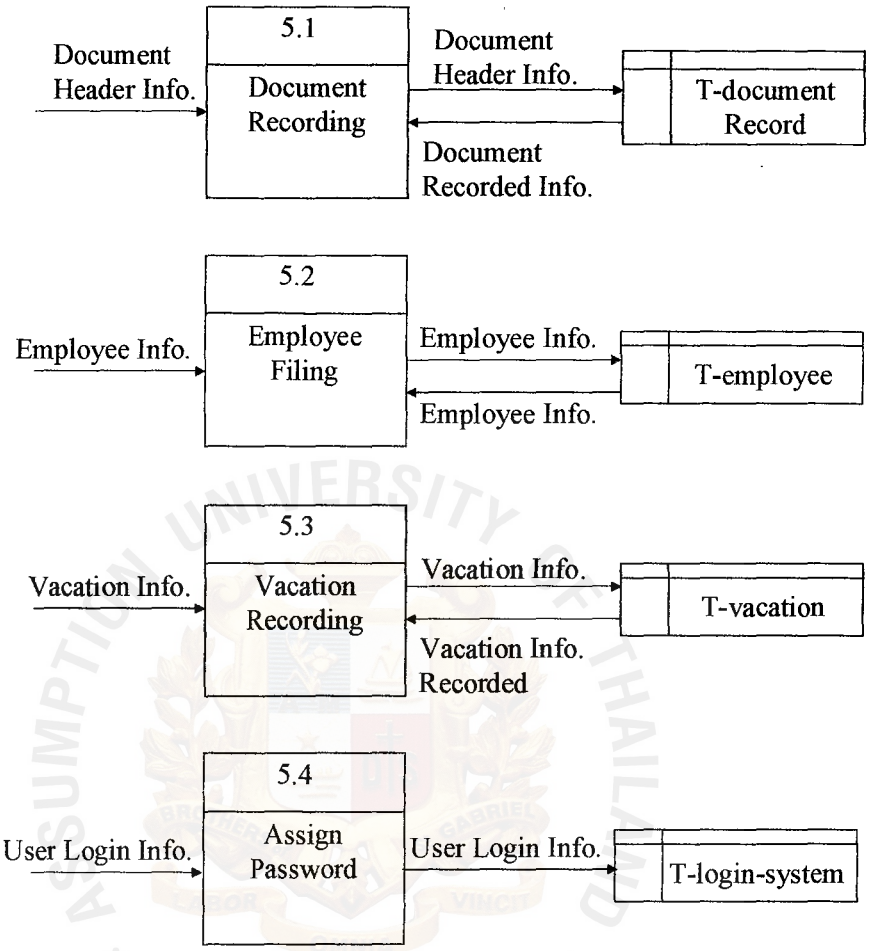

Figure 3.27 Data Flow Diagram of the proposed system at Level – 1 Process 5

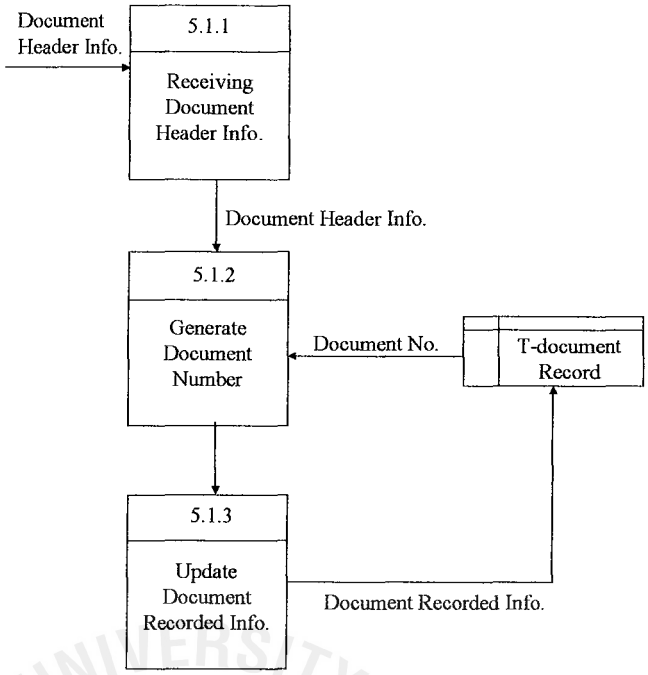

Figure 3.28 Data Flow Diagram of the proposed system at Level – 2 Process 5

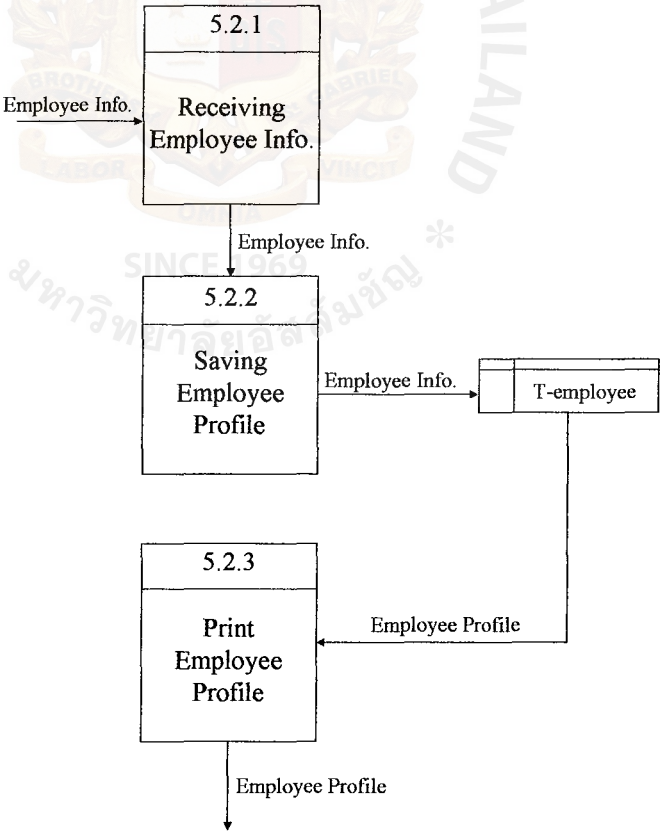

Figure 3.29 Data Flow Diagram of the proposed system at Level – 2 Process 5

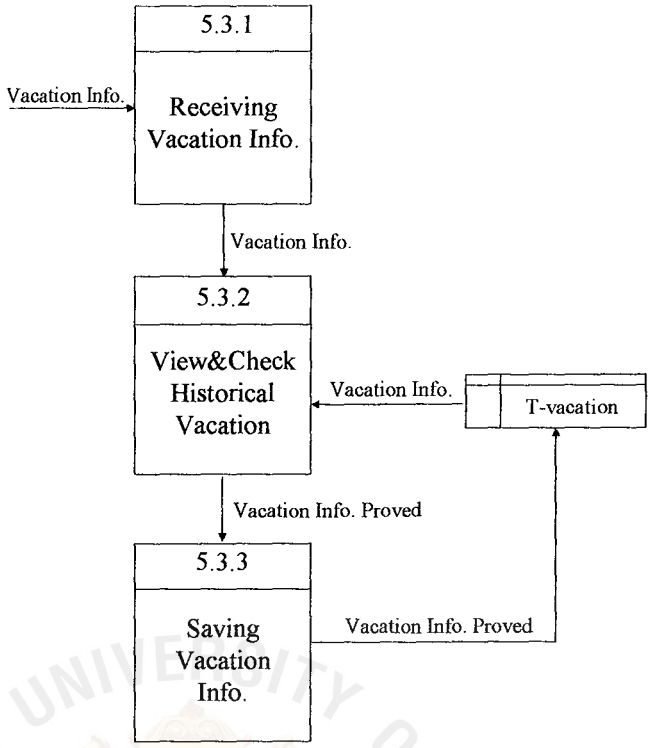

Figure 3.30 Data Flow Diagram of the proposed system at Level – 2 Process 5

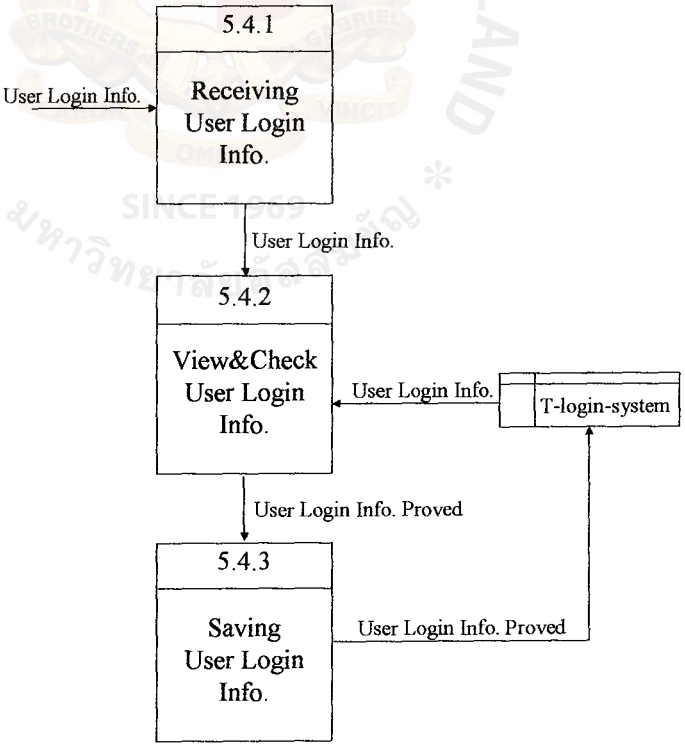

Figure 3.31 Data Flow Diagram of the proposed system at Level – 2 Process 5

Process 1

There are 3 main functions in Accounting Department. First, assigning accounting code to the accountant to enter a new account. The system has to check it from the list of account database. If it is not already assigned, it will be saved. Generating account receivable & payable is the second function. It starts at account information receiving then save it into account database. After that, we will print the daily account report. At last, we will enter key for selecting type of report that we want to print. Then, we will use that key in selecting data for generating report. After that, the report is printed.

Process 2

This process include Finance Department's functions such as account-book opening, deposit/withdrawal processing, assigning interest on deposit, new member registration, stock operating and report generating. All functions will start with entering the concerned information. Then, the information will be saved into database. When we want to print any report, we just enter keyword for selecting the type of report. Then, the report will be generated by retrieving information from database.

Process 3

When loan process begins, the officer will enter loan information such as mortgage and loan detail. Then, all information will be saved into database. And, 5% of the amount of loan is deducted to become the stock of this customer. After that the receipt is generated and printed. To repay a debt, the officer will enter loan ID. And, it is used as the key to retrieve information from database. Then, the system will calculate the amount of money that the member must pay. Next, the amount that the member has to repay is entered and saved into database. Then, the system will generate the receipt. For generating report, we will enter key for selecting type of

report that we want to print. Then, we will use that key in selecting data from database for generating report. After that, the report is printed.

Process 4

After we purchase products for sales, we will record the details into product and inventory files. In selling products, the officer will receive order from customers and they will enter it into the system. After that, the system will generate the receipt for customer and save order information into database. The order information is used to calculate dividend for members at the end of the year. For report generating, we will enter a key for selecting type of report that we want to print. Then, we will use that key in selecting data for generating report. After that, the report is printed.

Process 5

Document recording is used for keeping memorandum of the document details that are sent or received and the number of document. If the officer wants to file the employee profile, he can enter employee data into the system. Then, the system will progress to save this information into database. About vacation, the officer will enter vacation information. Before this information is recorded, the system will check the historical vacations. The administrators are assigned with the login name and password for system authorization. They enter the login information and the system will check it for protecting repeated information. When it is already proved, it is saved into database.

3.7 Proposed Schedule

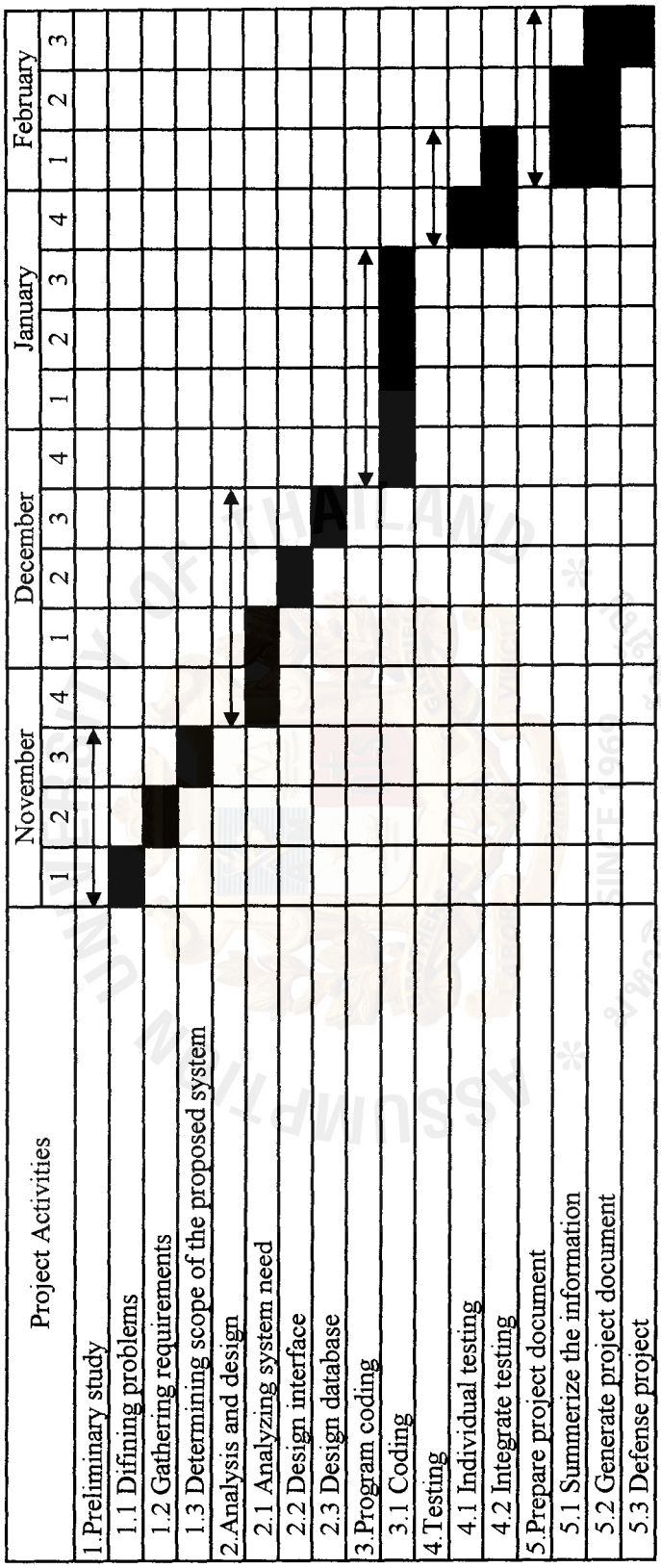

Figure 3.32 Proposed Schedule

CHAPTER 4

INPUT AND OUTPUT INTERFACE DESIGN

4.1 Input Design

User interface design is the specification of a conversation between the users and the computer system. For this system, the input screen is designed by using graphical user interface (GUI) which is mostly used in the system development today. GUI environment can provide user friendly interface and various form of designed screens. The GUI controls such as text box, combo box, command button, etc. provide more flexibility in operation designing and data attribute showing.

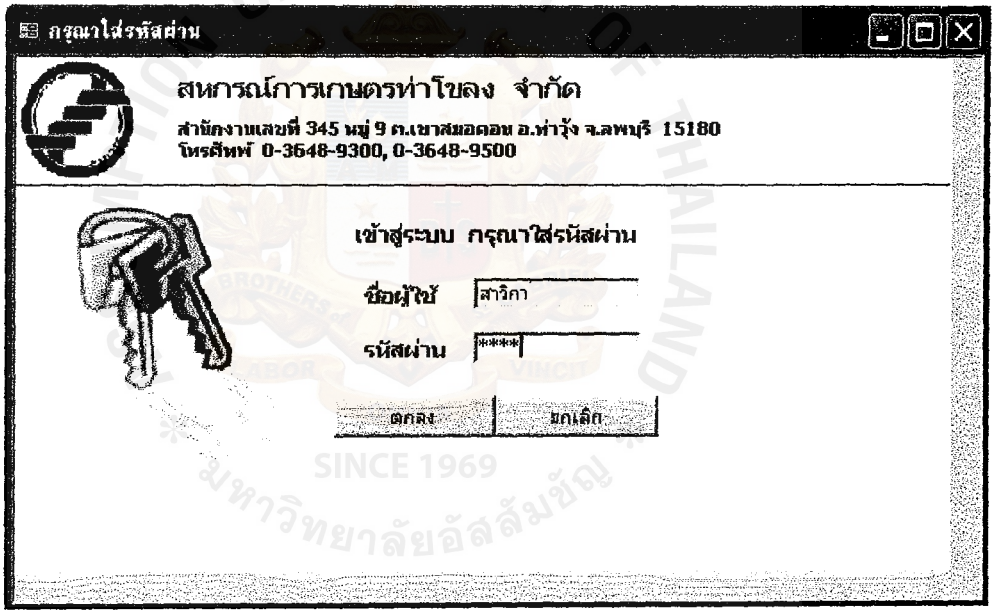

Figure 4-1 Log-in Screen

The first screen starts from the Log-in page in order to verify the authorized users. Users will be assigned with their own user name and password. If the user name and password is not correct, the system will notify the user. After verifying, the next screen will be the main menu.

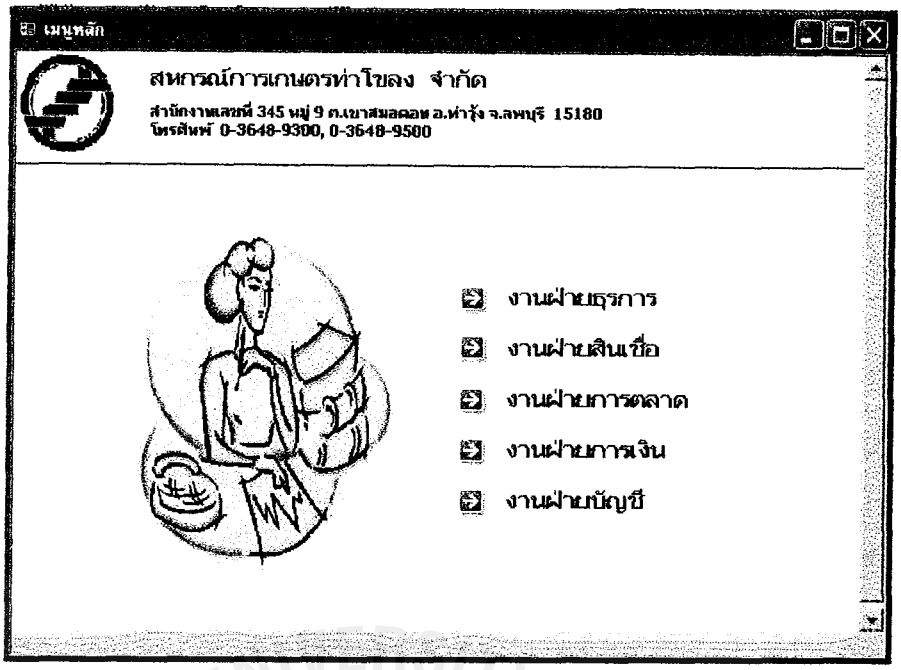

Figure 4-2 Main Menu Screen

Once the user is logged in, he/she will come to the main menu screen. Menu will contain names of 5 departments which jobs of each department will be showed after the user selects the name of the department.

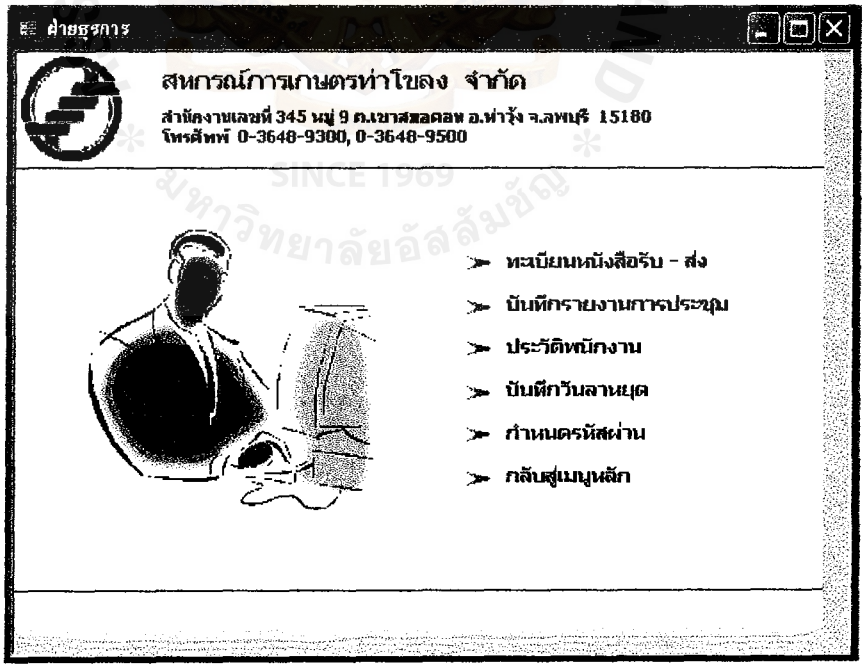

Figure 4-3 Administrative Menu Screen

When the user selects the administrative department label, the administrative menu screen is showed. It includes all responsibilities of this department, document recording, employee profile, vacation recording and login name and password assignment.

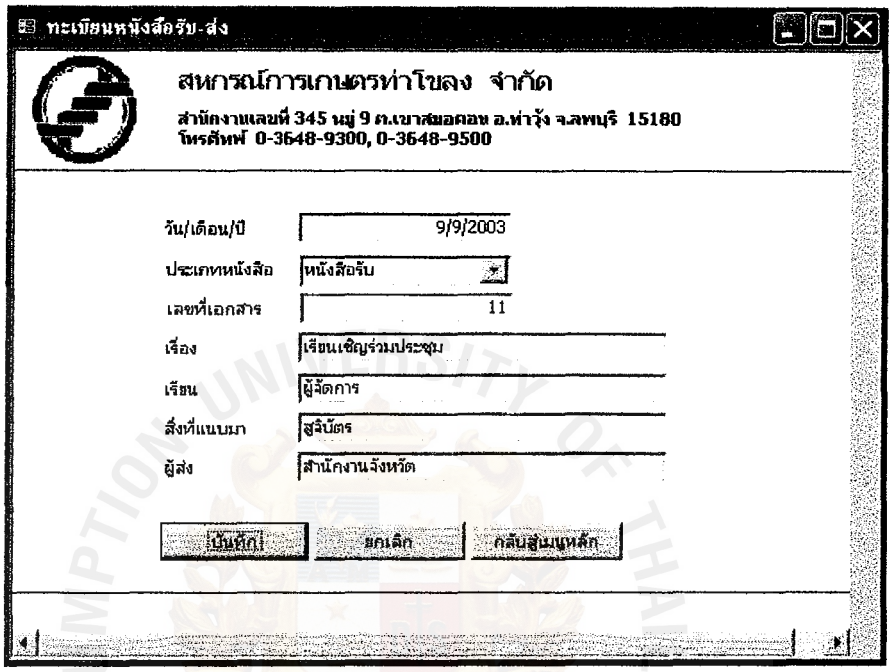

Figure 4-4 Document Record Screen

Document recording, we use it for memorandum the document detail that is sent or received and the number of document. When we open document recording, a current date will automatically occur. After we select the type of document, the system will generate a number of documents itself. Then, the officer will fill the information in related fields and save it into database.

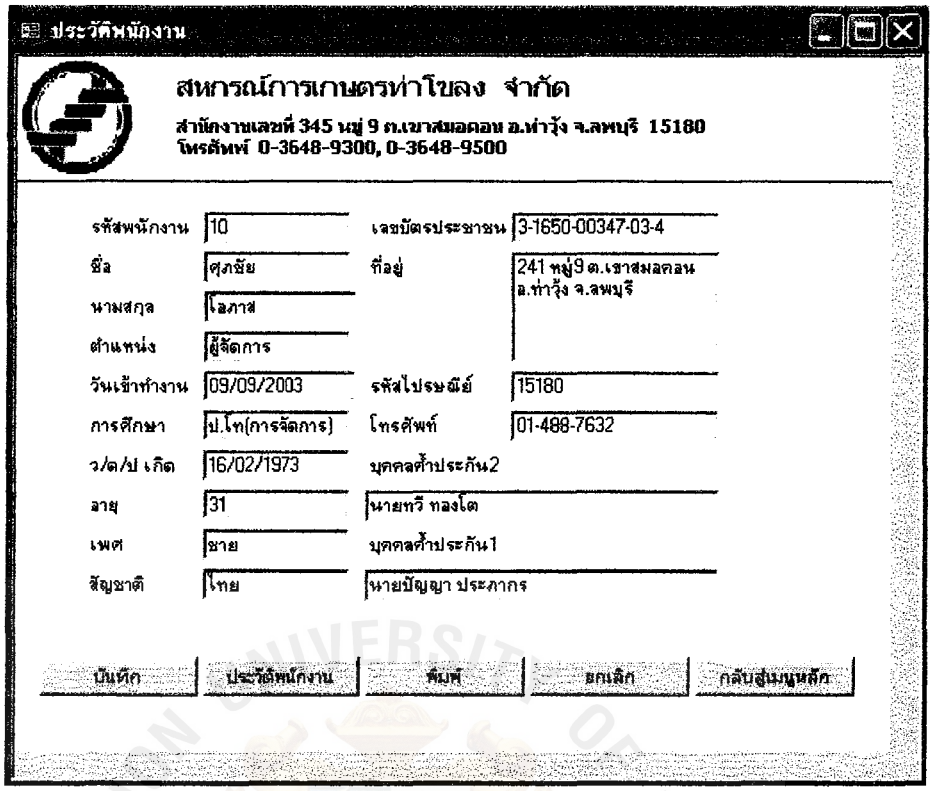

Figure 4-5 Employee Profile Screen

The officer uses this screen to file the employee profile. The system will generate employee ID after this screen is loaded. They will enter employee information into the fields. Then, the system will progress to save this information into employee file.

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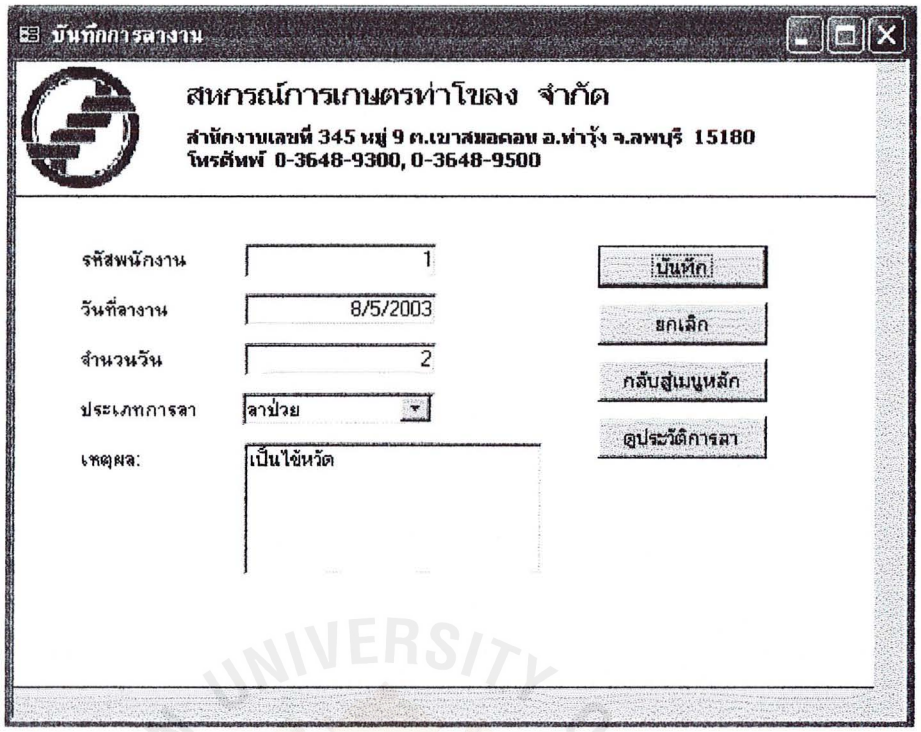

Figure 4-6 Vacation Record Screen

About vacation, the officers will enter vacation information. Before this information is recorded, the system will check the historical vacations. if the officers use vocation more than permitted, the system will show a warning message to them.

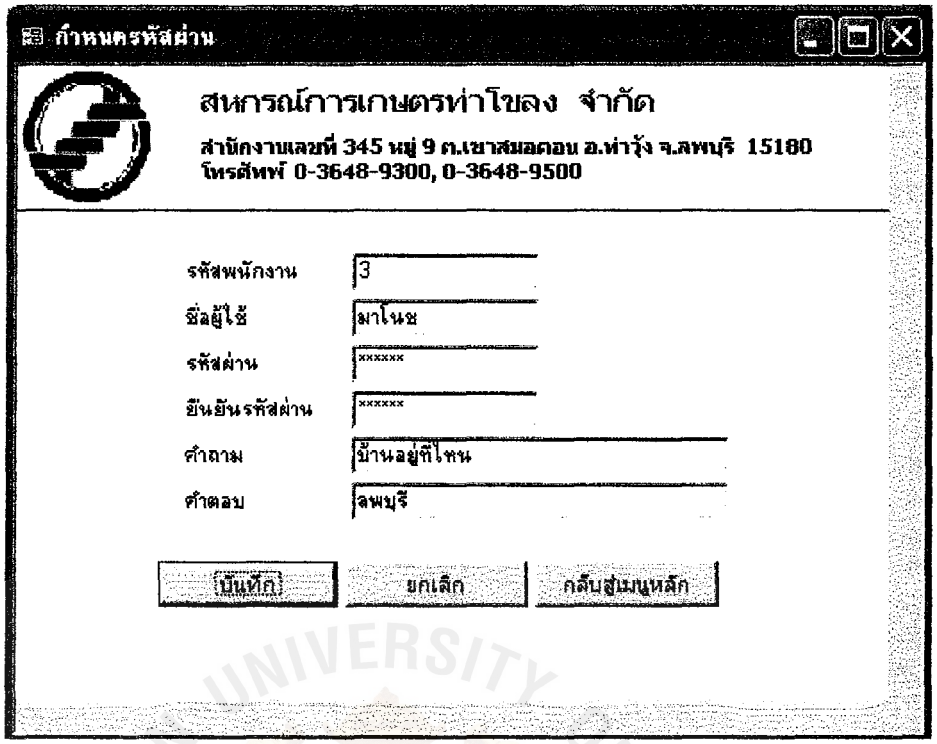

Figure 4-7 Login Registration Screen

For the login registration screen, the administrators are assigned with the login name and password for system authorization. After they enter the login information, the system will check it for protecting repeated information. When it is already proved, it is saved into database.

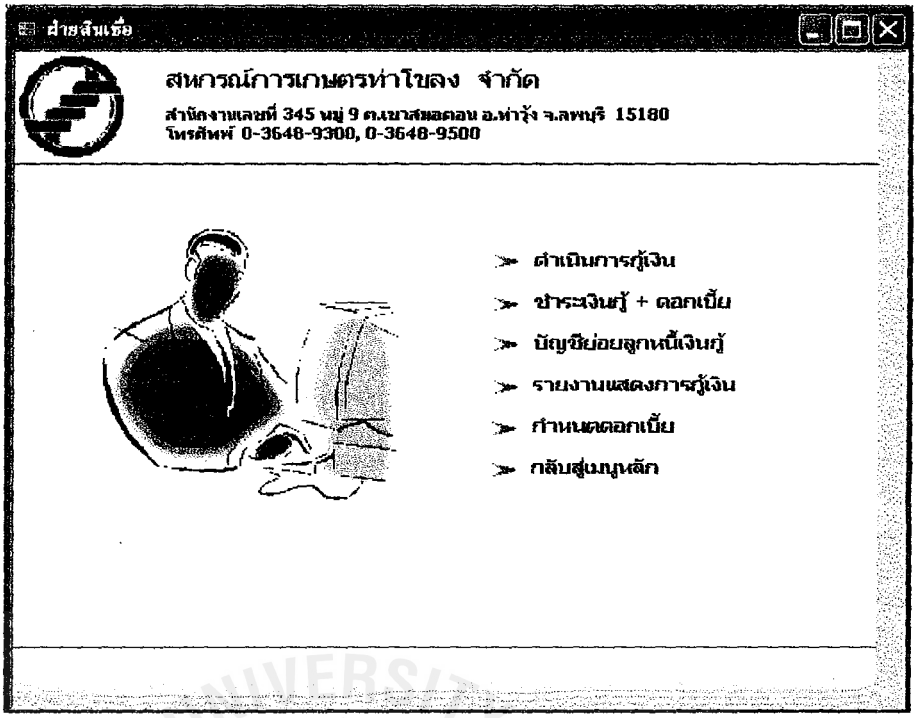

Figure 4-8 Loaning Menu Screen

In this screen, it shows all functions of loan department from which a user can choose what processes they want to use. It consists of loan service, repayment of debt and interest, loan reports and assigning loan interests.

When the officer selects loan process, he/she will enter mortgage information on the mortgage detail screen and save it. Next the loan detail screen is showed and the officer will enter the loan information. Five percent from the amount of loan is deducted and it becomes the stock of this member. Then, all information will be saved into database. After that the receipt is generated and printed. Figure 4-9 and 4-10 show this process.

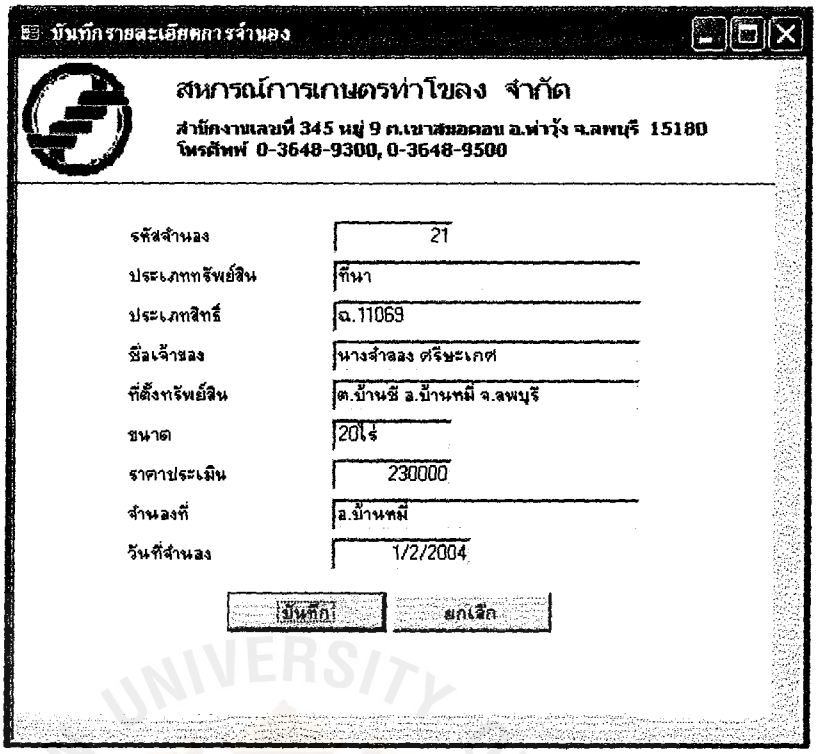

Figure 4-9 Mortgage Detail Screen

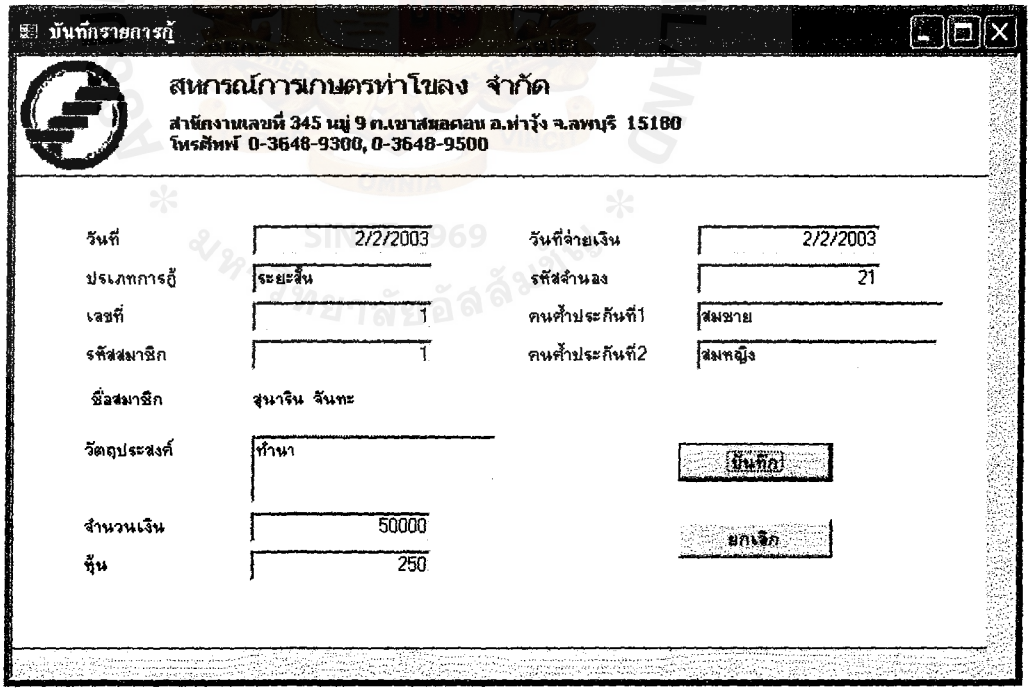

Figure 4-10 Loan Detail Screen

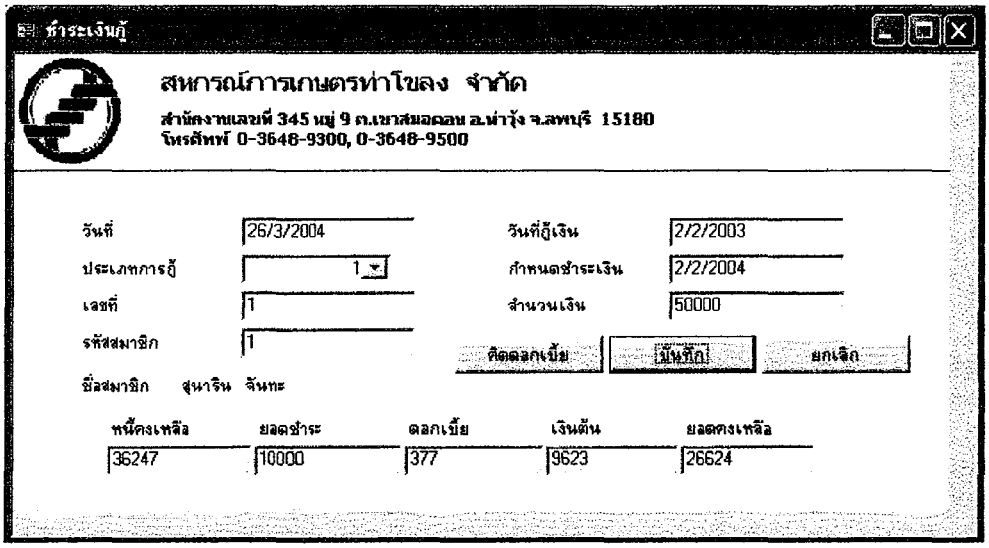

Figure 4-11 Loaning Payment Screen

To repay a debt, the officer will enter loan type and loan ID. And, it is used as the key to retrieve information from database. Then, calculate interest button is clicked and the system will calculate the interest that the member must pay. Next, the amount that the member has to pay is entered and save it into database. Then, the system will generate the receipt.

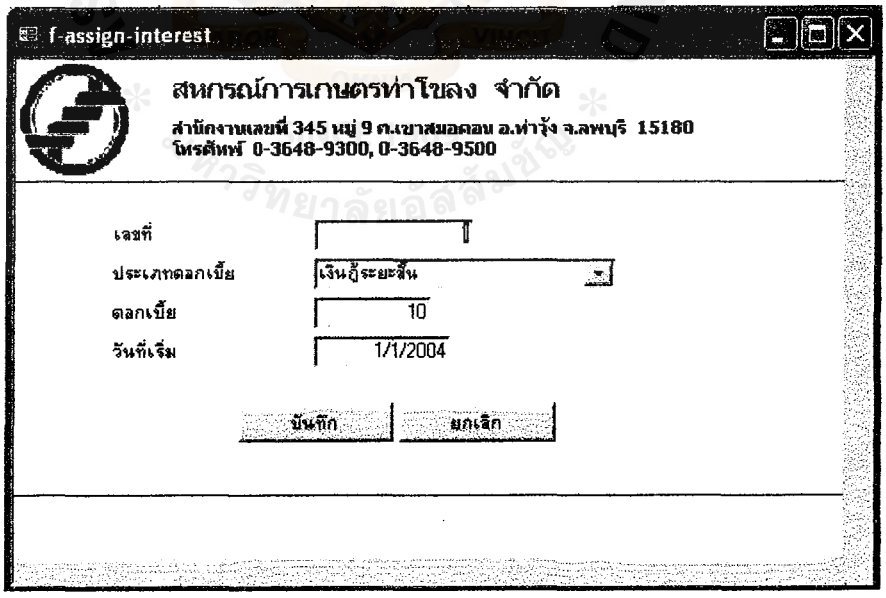

Figure 4-12 Assign Interest Screen

This screen is used for loan interest assignment. The officer will assign the loan interest when the interest is changed which depends on the market circumstances and resolution of board. Then, this interest rate is saved into the database for loan calculation.

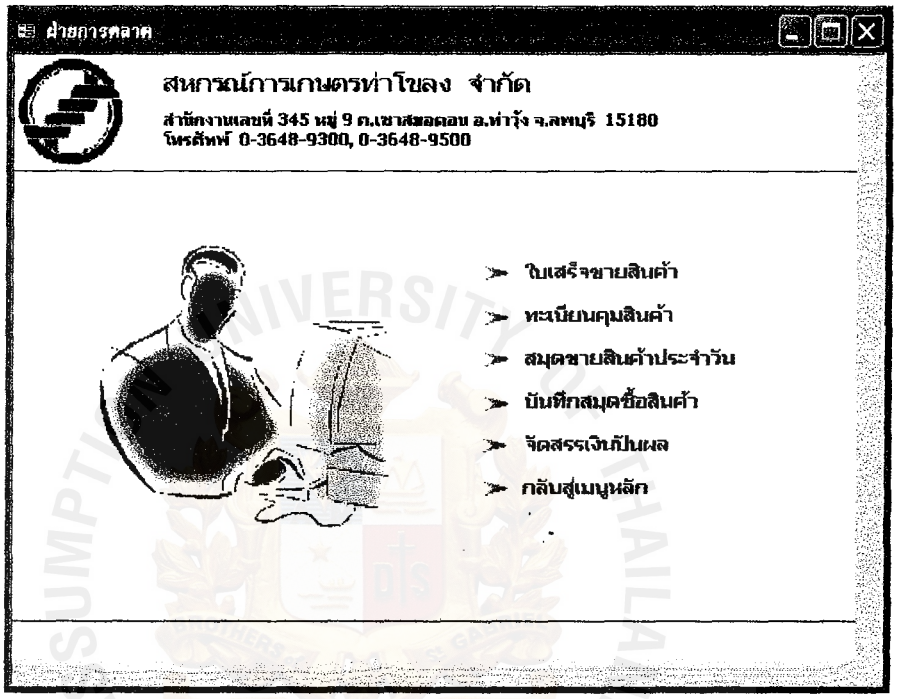

Figure 4-13 Marketing Menu Screen

When the user selects the marketing department label, the marketing menu screen is showed. It includes all responsibilities of this department, selling product, recording purchased product and controlling inventory.

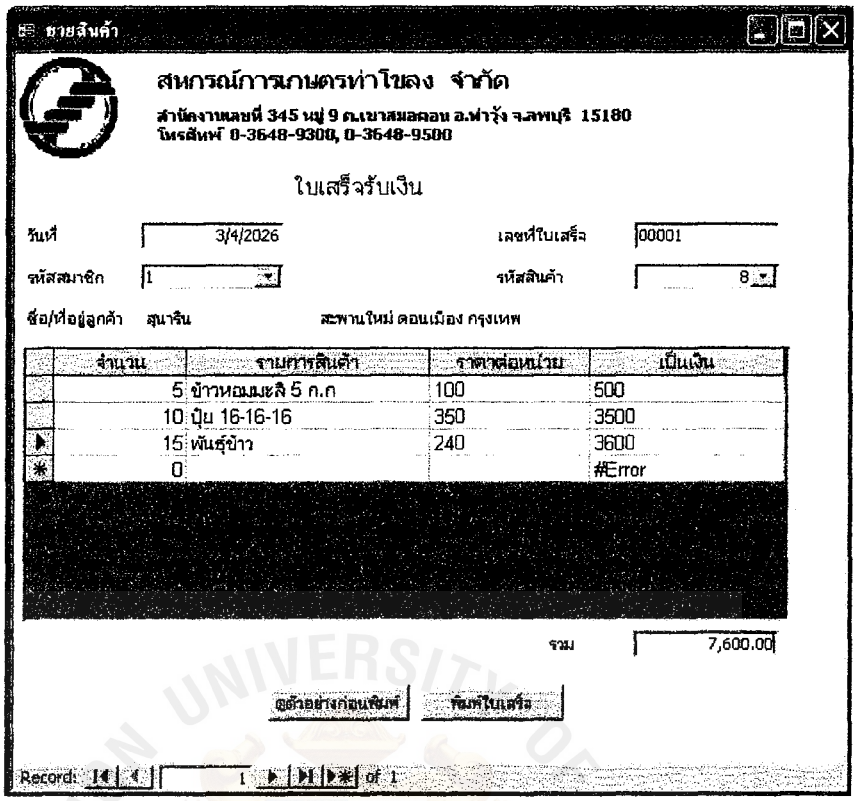

Figure 4-14 Sell Screen

This figure is used for selling products. The officer will receive order from customer and enter it into the field. After that, the system will calculate the total sales and generate the receipt for customer and save order information into selling and inventory files.

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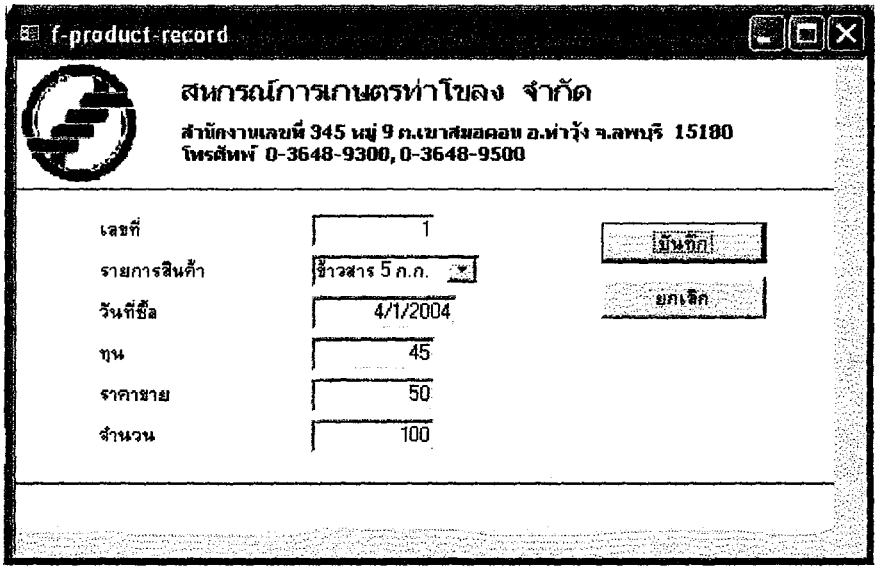

Figure 4-15 Product Record Screen

After we purchase product for sales, we will record its detail into product and inventory file.

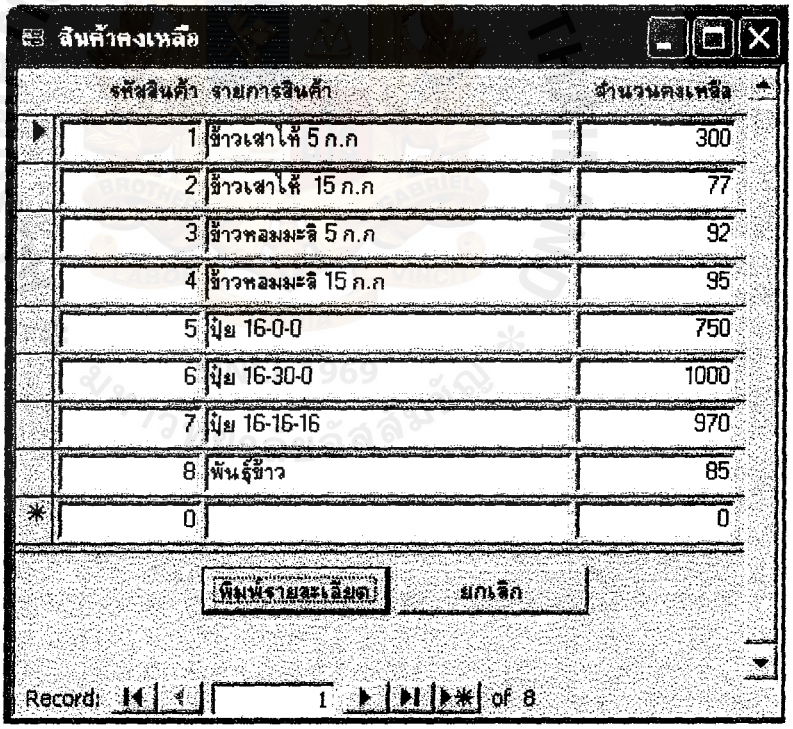

Figure 4-16 Product Inventory Screen

This screen shows the number of products remaining from the inventory file.

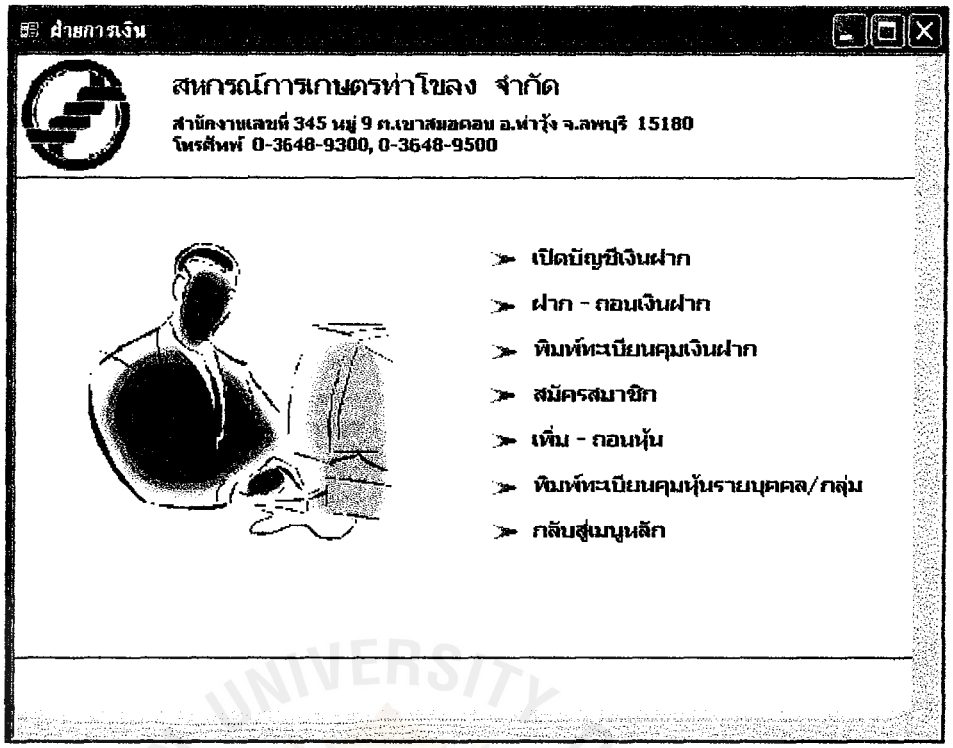

Figure 4-17 Finance Menu Screen

When the user selects the finance department label, the finance menu screen is showed. It includes all responsibilities of this department, deposit and withdrawal service, member application, stock operation and generating report.

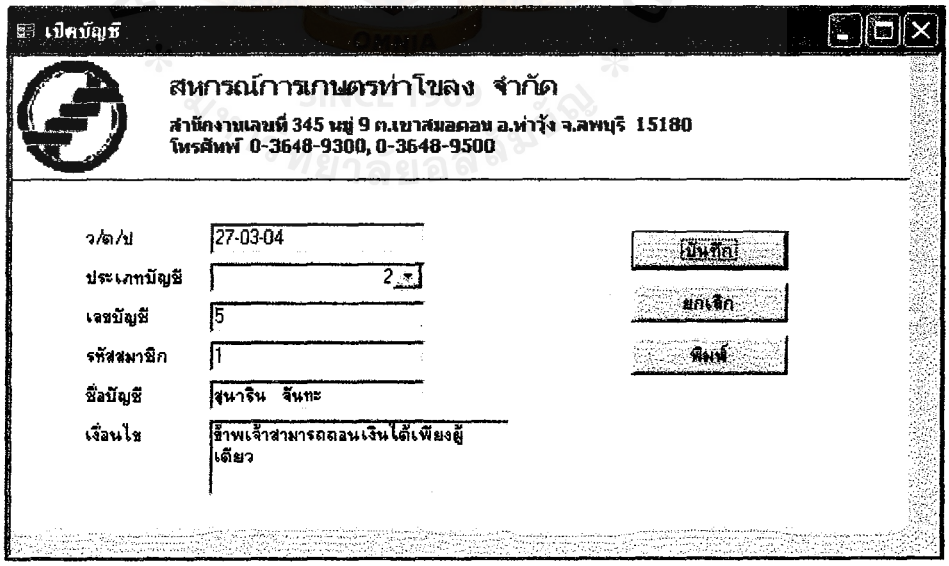

Figure 4-18 Open Account Book Screen

The co-operation services deposit for only members. When a member requests to open an account book, the officer will use the Open Account Book Screen to perform this process. The system will generate an account book ID after the officer selects the type of account book. Then, the officer will fill the information into this form and save it into the database. This information will be printed on the first page of the account book.

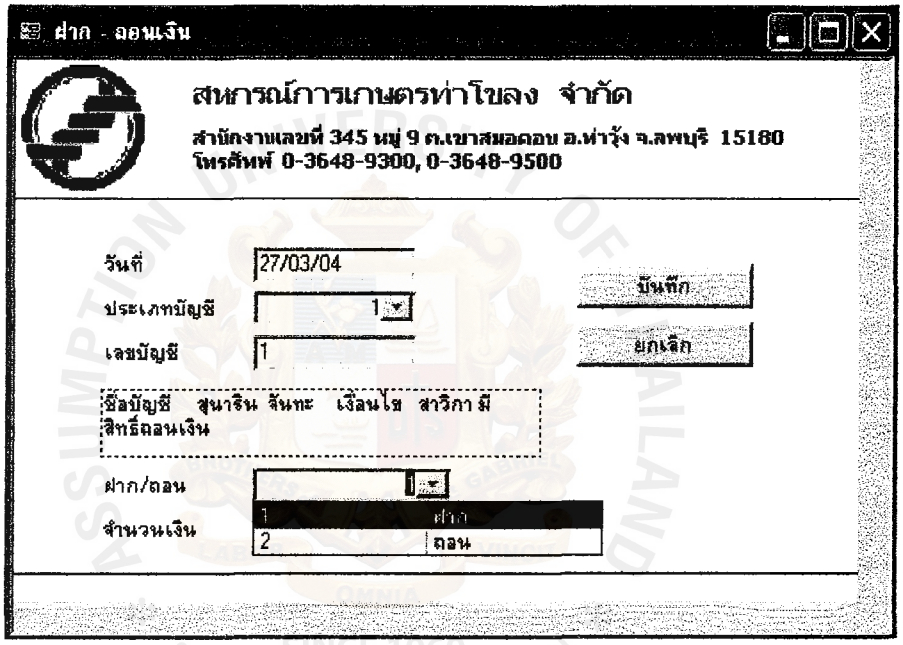

Figure 4-19 Deposit/Withdrawal Screen

When a member requests a deposit or withdrawal, the Deposit/Withdrawal Screen is used. The system will find the information of account book and show it on the screen after the officer selects the type of account book and enters the account book ID. Then, the officer will fill the information into this form and save it into the database. This information will be printed on account book.

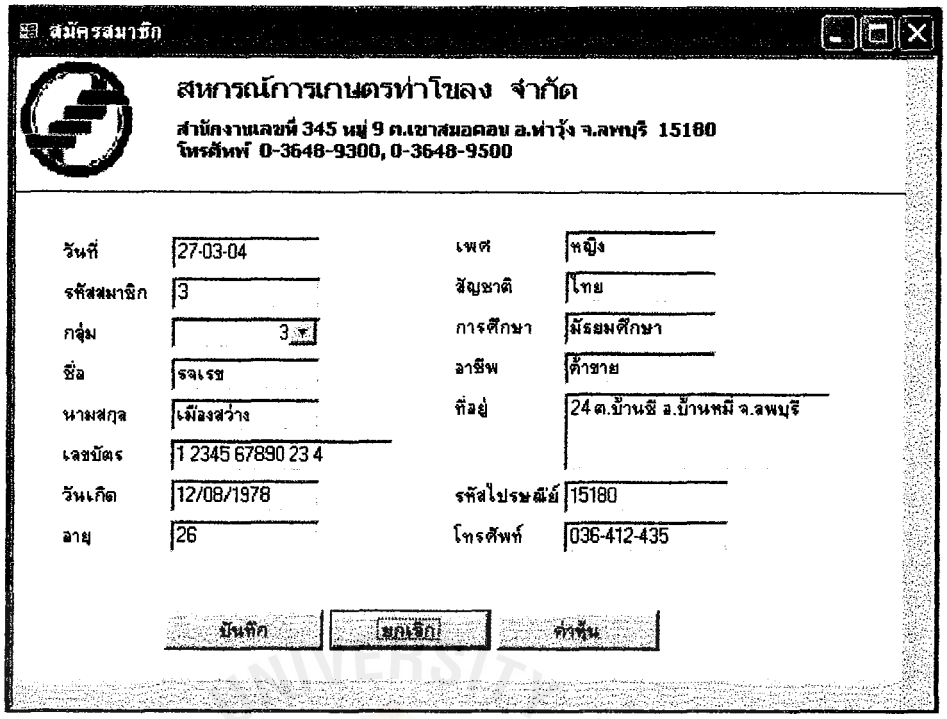

Figure 4-20 Member Profile Screen

When anyone applies to become a member, the officer uses this screen to file the member profile. The system will generate member ID and date that they register after this screen is loaded. The officer will enter personnel member information into the fields. Then, the system will progress to save this information into member file.

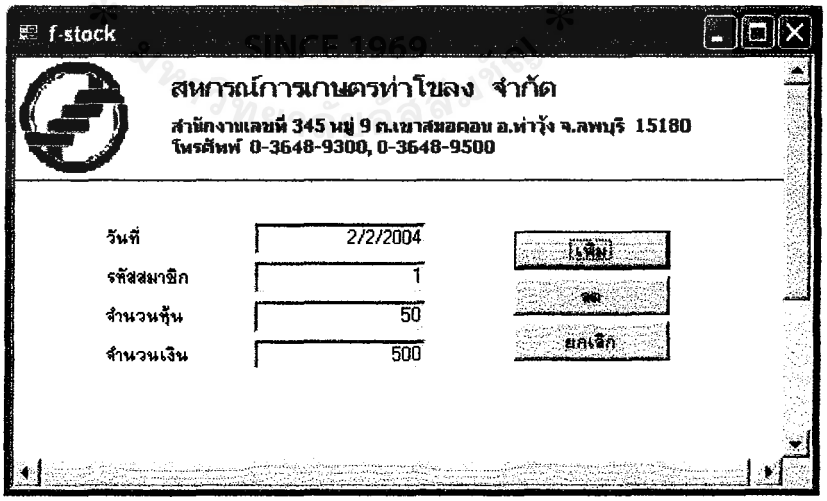

Figure 4-21 Stock Operation Screen

This screen is used for stock operating that are added to or reduced from the member's stock.

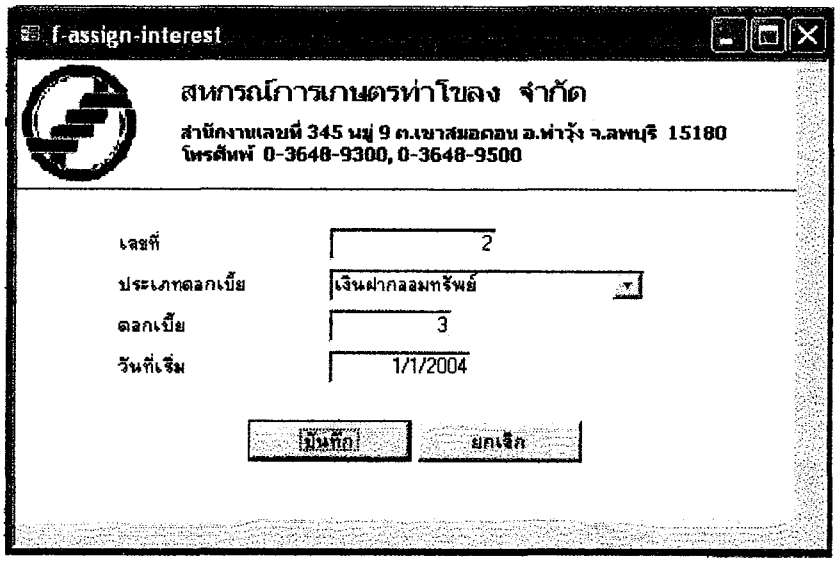

Figure 4-22 Assign Interest Screen

This screen is used for deposit interest assignment. The officer will assign the deposit interest when the interest is changed which depends on the market circumstances and resolution of board. Then, this interest rate is saved into the database for deposit interest calculation.

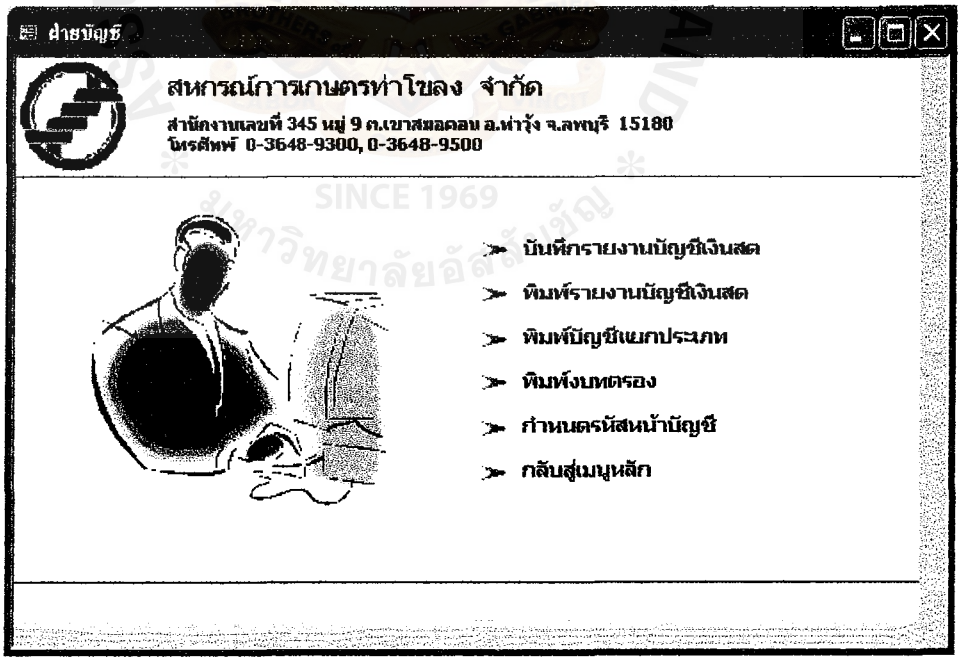

Figure 4-23 Accounting Menu Screen

When the user selects the accounting department label, the accounting menu screen is showed. It includes all responsibilities of this department, generating account receivable and payable, assigning accounting code, and generating report.

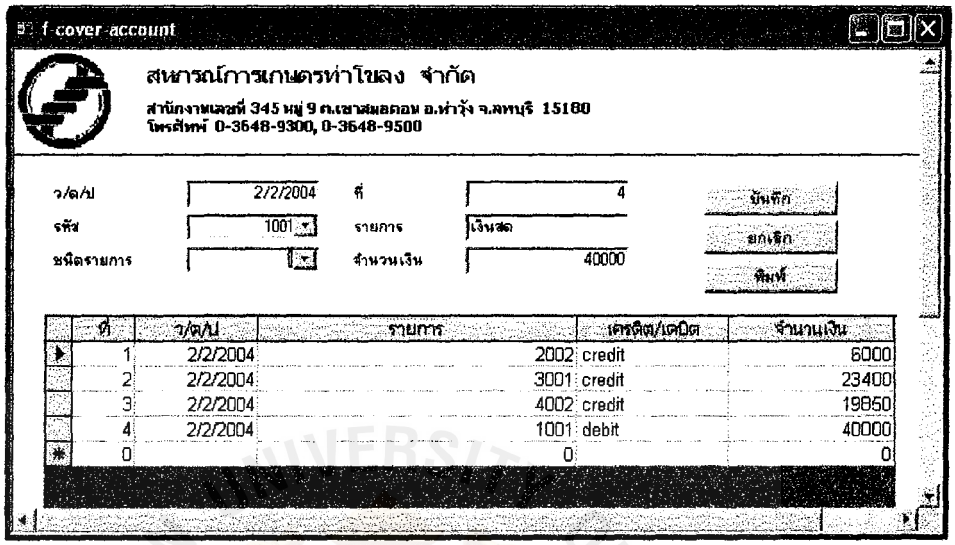

Figure 4-24 Daily Account Screen

The officers use this screen to generate daily account receivable and payable. They will enter account information and save it into accounting file. After they finish, they will print the daily account report.

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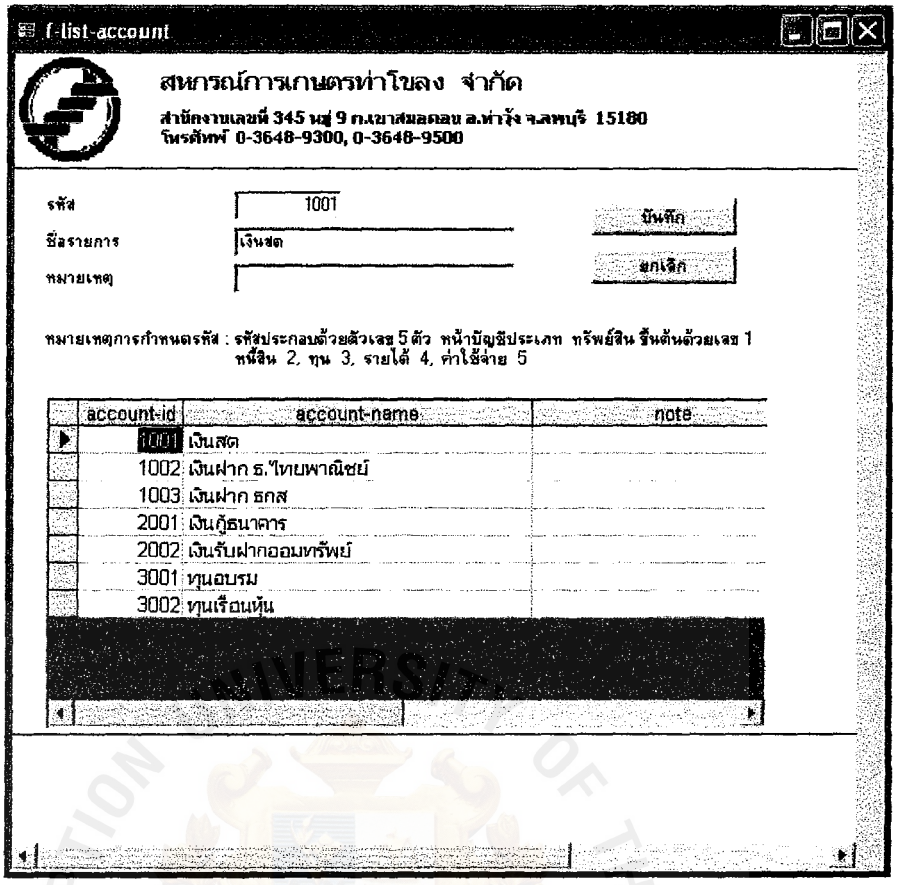

Figure 4-25 Assign Accounting Code Screen

This screen is used to assign accounting code. The accountant enters new account item code. Then, they save this information into database. The system will verify this code from the accounting list file. If it is not already assigned, it will be saved.

4.2 Output Design

The output design requires reports and output screens that generate information or reports. It will be based on the user requirements for daily operation. The output requirements are the information that must be the result from the input requirement that can generate various reports which support the management for better decision making. The proposed system will generate main reports as follows:

St. Gabriel's Library, Au

- Daily Account Repot

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายงานบัญชีประจำวัน

ชนิดรายการ เดบิต

ที่	วัน/เดือน/ปี	รหัสบัญชี	รายการบัญชี	จำนวน
1	3/3/2004	1001	เงินสด	46000
2	3/3/2004	1002	เงินฝาก ธ.ไทยพาณิชย์	275000
3	3/3/2004	1003	เงินฝาก ธกส	29000
8	3/3/2004	5001	ซื้อสินค้า	84000
			รวม	434000

ชนิดรายการ เครดิต

ที่	วัน/เดือน/ปี	รหัสบัญชี	รายการบัญชี	จำนวน
4	3/3/2004	2001	เงินกู้ธนาคาร	50000
5	3/3/2004	2002	เงินรับฝากออมทรัพย์	375000
6	3/3/2004	4001	ขายปุ๋ย	5600
7	3/3/2004	4002	ดอกเบี้ยเงินกู้	3400
			รวม	434000

- Loaning Report

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายการการกู้เงิน

รหัสเงินกู้	รหัสสมาชิก	ประเภทการกู้	วันที่กู้	วัตถุประสงค์	จำนวนเงิน	จำนวนหุ้น
1	1	เงินกู้ระยะปานกลาง	6/3/2004	ซื้อปุ๋ย	589	3
1	1	เงินกู้ระยะสั้น	2/2/2003	ทำนา	50000	250
2	1	เงินกู้ระยะปานกลาง	6/3/2004	ทำนา	20000	100
2	1	เงินกู้ระยะสั้น	6/3/2004	ซื้อปุ๋ย	589	3
3	1	เงินกู้ระยะปานกลาง	7/3/2004	สร้างบ้าน	100000	500
4	9	เงินกู้ระยะปานกลาง	7/3/2004	ทำสวน	20000	100

- Deposit Report

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รายการเงินฝาก-ถอน

ประเภทบัญชี	เลขบัญชี	วันที่	ฝาก-ถอน	จำนวน	คงเหลือ
เงินฝากออมทรัพย์					
	1				
		2/2/2003	ฝาก	1000	1000
		7/3/2004	ถอน	200	800
	2				
		4/9/2003	ฝาก	4000	4000
	3				
		3/10/2003	ฝาก	750000	750000
	4				
		5/10/2003	ฝาก	69050	69050
	5				
		7/11/2003	ฝาก	234900	234900
	6				
		8/12/2003	ฝาก	108700	108700
	7				
		12/12/2003	ฝาก	128900	128900
เงินฝากออมทรัพย์พิเศษ					
	4				
		7/3/2004	ฝาก	3000	3000

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- Stock Report

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รายงานหุ้น

รหัสสมาชิก	วันที่	จำนวนหุ้น	มูลค่า
1	7/3/2004	20	200
1	6/3/2004	100	1000
1	5/3/2004	100	1000
1	2/2/2004	50	500
3	5/3/2004	10	100
6	6/3/2004	50	500
9	7/3/2004	100	1000
9	6/3/2004	70	700
15	5/3/2004	100	1000
	รวม	600	6000

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- Receipt

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วันที่ 3/4/2004 เลขที่ใบเสร็จ 00001

ชื่อสมาชิก สุนาริน

ที่อยู่ สะพานใหม่ ดอนเมือง กรุงเทพ

จำนวน	รายการสินค้า	ราคาหน่วยละ	จำนวนเงิน
10	ข้าวเสาไห้ 15 ก.ก	170	1700
20	ปุ๋ย 16-0-0	325	6500
15	พันธุ์ข้าว	240	3600

รวม	11,800.00

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LABOR OMNIA VINCIT
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- Inventory Report

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รายงานสินค้าคงคลัง

รหัสสินค้า	ชื่อสินค้า	รายการ	จำนวน	คงเหลือ
1	ข้าวเสาไห้ 5 ก.ก	รับเข้า	100	100
1	ข้าวเสาไห้ 5 ก.ก	จ่ายออก	10	90
1	ข้าวเสาไห้ 5 ก.ก	จ่ายออก	5	85
2	ข้าวเสาไห้ 15 ก.ก	รับเข้า	100	100
2	ข้าวเสาไห้ 15 ก.ก	จ่ายออก	25	75
2	ข้าวเสาไห้ 15 ก.ก	จ่ายออก	4	71
3	ข้าวหอมมะลิ 5 ก.ก	รับเข้า	100	100
3	ข้าวหอมมะลิ 5 ก.ก	จ่ายออก	20	80
4	ข้าวหอมมะลิ 15 ก.ก	รับเข้า	100	100
5	ปุ๋ย 16-0-0	รับเข้า	1000	1000
6	ปุ๋ย 16-30-0	รับเข้า	1000	1000
6	ปุ๋ย 16-30-0	จ่ายออก	200	800
7	ปุ๋ย 16-16-16	รับเข้า	1000	1000
7	ปุ๋ย 16-16-16	จ่ายออก	100	900
7	ปุ๋ย 16-16-16	จ่ายออก	150	750
8	พันธุ์ข้าว	รับเข้า	1000	1000

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- Employee Profile

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ประวัติพนักงาน

รหัสพนักงาน	1	ที่อยู่	241 ท่าโขลง ลพบุรี
ชื่อ	สาวิกา		
นามสกุล	โอกาส		
เลขบัตรประชาชน	3-1605-00347-02-0	รหัสไปรษณีย์	15160
ว/ด/ป เกิด	1/7/1977	โทรศัพท์	036-489-051
อายุ	27	ตำแหน่ง	พนักงานบัญชี
เพศ	หญิง	วันที่เริ่มงาน	6/5/2001
สัญชาติ	ไทย	บุคคลค้ำประกัน1	ปัญญา
การศึกษา	เทคโนโลยีสารสนเทศ	บุคคลค้ำประกัน2	ทวี

รหัสพนักงาน	10	ที่อยู่	241 หมู่9 ต.เขาสมอคอน อ.ท่าวุ้ง จ.ลพบุรี
ชื่อ	ศุภชัย		
นามสกุล	โอกาส		
เลขบัตรประชาชน	3-1650-00347-03-4	รหัสไปรษณีย์	15180
ว/ด/ป เกิด	2/16/1973	โทรศัพท์	01-488-7632
อายุ	31	ตำแหน่ง	ผู้จัดการ
เพศ	ชาย	วันที่เริ่มงาน	9/9/2003
สัญชาติ	ไทย	บุคคลค้ำประกัน1	นายปัญญา ประกาศ
การศึกษา	ป.โท(การจัดการ)	บุคคลค้ำประกัน2	นายทวี ทองโต

CHAPTER 5

PROJECT IMPLEMENTATION

An implementation plan has been designed for the new system to help in developing a system within a specified time frame and to install it in the organization, replacing old systems and work method.

Coding: after the physical design is created, the programmer will code the program, and software components.

Testing can be done together with the coding step. The program will be tested to check whether it matches with user requirements.

Installation starts with hardware installation. Then, software would have to be installed on PC.

Conversion : I will select the parallel installation because it is risk-less. For the parallel installation, the existing system continues to run along with the new system until users are satisfied with the new system so the existing system can be turned off.

Documentation is very important. It contains all details concerning understanding of the new system and how to cope with the new system.

Training is one critical success factor in system development. We try to make familiar with the new system to users. It can reduce their belief that the new system will cause more jobs. And, users will be introduced in the right way to cope with the new system.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusions

Thaklong Agriculture Co-operation is a growing business with increasing number of customer services. But all the functions are done manually which causes some errors and redundancy. Therefore, the idea of productivity improvement and the system adaptation have accordingly come up. Computerized System for Agriculture Co-operation is developed for resolving this problem.

The new system is designed to handle all paper work. It is used to support business activities by taking advantage of computer technology. It will help to increase speed and accuracy of business processes and customer satisfaction. Moreover, it can be decrease the errors and redundant tasks. To achieve the objectives of the project, the new system is developed by considering user requirements, system requirement, and hardware and software requirement. And, it provides security which authorizes the user entering the system. The implementation is done by matching all requirements. The developer should consider strictly about cost and time because there is limited resources.

6.2 Recommendations

- The parallel conversion has been used for this system. It ensures that the work will not fail. But it will spend too much time to finish same works because of duplication of works. So, we need to educate the users by describing the advantages of the new system.
- System maintenance should always be provided since the system needs modifying or enhancing. And the documentation must follow.

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APPENDIX A

DATABASE DESIGN

Table 1 t-account				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	Number	Long Integer	Number
2(PK)	Date	Date/Time	-	Date
3	Account-Id	Number	Long Integer	Account ID
4	Type	Text	50	Credit/Debit
5	Value	Number	Long Integer	Amount of money

Table 2 t-committee				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	commit-no	Number	Long Integer	Number of committee
2	Commit-name1	Text	50	Committee name 1
3	Commit-name2	Text	50	Committee name 2
4	Commit-name3	Text	50	Committee name 3

Table 3 t-debit/credit				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	Number of type
2	Debit/credit	Text	50	Type name

Table 4 t-dep-with				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Book-id	Number	Long Integer	Account book number
2	Date	Date/Time	-	Date
3	Type-act	Text	50	Type of activity (deposit or withdrawal)
4	Type-book	Text	50	Type of account book
5	Amount	Number	Long Integer	Amount of money
6	Officer	Text	50	Officer name
7	Note	Text	50	Note

Table 5 t-dep/with				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-act	Number	Long Integer	Type of activity
2	Name	Text	50	Name of activity (deposit or withdrawal)

Table 6 t-document-record				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	Type of document (sending/receiving)
2(PK)	Doc-no	Number	Long Integer	Number of document
3	Date	Date/Time	-	Date
4	Title	Text	200	Title of document
5	Receiver	Text	50	Receiver name
6	Attach	Text	200	Attachment
7	Sender	Text	50	Sender name

Table 7 t-employee				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Employ-id	Auto Number	Long Integer	Employee ID
2	Name	Text	50	Name of employee
3	Surname	Text	50	Surname of employee
4	Id-no	Number	Long Integer	Number of ID card
5	Birthdate	Date/Time	-	Birth date of employee
6	Age	Number	Long Integer	Age of employee
7	Sex	Text	50	Sex of employee
8	Nationality	Text	50	Nationality
9	Education	Text	100	Education
10	Address	Text	200	Address of employee
11	Zipcode	Number	5	Zipcode
12	Telephone	Number	10	Telephone
13	Position	Text	50	Position
14	Hire-date	Date/Time	-	Start working date
15	Blood-group	Text	5	Blood-group
16	Guaruntee1	Text	50	Guarantee name 1
17	Guaruntee2	Text	50	Guarantee name 2

Table 8 t-group				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Group	Number	Long Integer	Number of group
2	Location	Text	100	Location of each group

Table 9 t-list-account				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Account-id	Number	5	Account ID
2	Account-name	Text	100	Name of account
3	Note	Text	200	Description

Table 10 t-loaning				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Loaning-id	Number	Long Integer	Loaning ID
2	Member-id	Number	Long Integer	Member ID
3(PK)	Type	Text	50	Type of loan
4	Date	Date/Time	-	Date
5	Amount	Number	Long Integer	Amount of money
6	Propose	Text	100	Propose of loan
7	Stock	Number	Long Integer	No. of stock paid
8	Date-receive	Date/Time	-	Received ask date
9	Date-payment	Date/Time	-	Payment date
10	Mortgage-id	Number	Long Integer	Mortgage ID
11	Guaruntee1	Text	50	Guarantee name 1
12	Guaruntee2	Text	50	Guarantee name 2
13	Investigator	Text	50	Officer name
14	Committee-no	Number	Long Integer	Group of committee

Table 11 t-login-system				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Employ-id	Number	Long Integer	Employee ID
2(PK)	LoginName	Text	10	Login name
3(PK)	Password	Text	8	Password
4	Confirm	Text	8	Confirm password
5	Problem	Text	100	Problem for forget password
6	Answer	Text	100	Answer

Table 12 t-member				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Member-id	Auto Number	Long Integer	Member ID
2	Group	Number	Long Integer	Group
3	Name	Text	50	Name of member
4	Surname	Text	50	Surname of member
5	Id-no	Number	Long Integer	Number of ID card
6	Birthdate	Date/Time	-	Birth date of employee
7	Age	Number	Long Integer	Age of employee
8	Sex	Text	50	Sex of employee
9	Nationality	Text	50	Nationality
10	Education	Text	100	Education
11	Address	Text	200	Address of employee
12	Zipcode	Number	5	Zipcode
13	Telephone	Number	10	Telephone
14	occupation	Text	50	Occupation
15	Start-date	Date/Time	-	Start date

Table 13 t-mortgage-descript				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Mortgage-id	Number	Long Integer	Mortgage ID
2	Type-property	Text	50	Type of property
3	Type-right	Text	50	Type of proprietary
4	Owner-name	Text	200	Name of owner
5	Add-prop	Text	200	Address of property
6	Size-area	Number	Longer Integer	Size of area
7	Price-estimate	Number	Long Integer	Price estimation
8	Mortgage-at	Text	200	Mortgage place
9	Mortgage-date	Date/Time	-	mortgaged date

Table 14 t-opened-book				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Book-id	Number	Long Integer	Book ID
2	Member-id	Number	Long Integer	Member ID
3	Account-name	Text	100	Name of account book
4(PK)	Type-book	Text	50	Type of account book
5	Condition	Text	200	Condition of book
6	Date	Date/Time	-	Date

Table 15 t-product-descript				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Product-id	AutoNumber	Long Integer	Product ID
2	Product name	Text	50	Product name
3	Distributor	Text	100	Name of distributor
4	Address	Text	200	Address of distributor
5	Telephone	Text	10	Telephone

Table 16 t-product-record				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	AutoNumber	Long Integer	No. of item
2	Product-id	Number	Long Integer	Product ID
3	Date-entry	Date/Time	-	Date
4	Unit-capital	Number	Long Integer	Unit capital
5	Total	Number	Long Integer	Total capital
6	Price	Number	Long Integer	Price for sale
7	Amount	Number	Long Integer	Amount of product

Table 17 t-selling				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Date	Date/Time	-	Date
2(PK)	Receipt-no	Number	Long Integer	Receipt number
3	Customer-name	Text	50	Customer name
4	Member-id	Number	Long Integer	Member ID
5	Product-id	Number	Long Integer	Product ID
6	Unit-price	Number	Long Integer	Price per unit
7	Amount	Number	Long Integer	Amount of product
8	Total	Number	Long Integer	Total price

Table 18 t-sex				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	sex-no	Number	Long Integer	Sex code
2	Sex	Text	50	Sex

Table 19 t-stock				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Member-id	Number	Long Integer	Member ID
2	Date	Date/Time	-	Date
3	No-stock	Number	Long Integer	No. of stock
4	Value	Number	Long Integer	Value of stock
5	Total	Number	Long Integer	Total

Table 20 t-type-book				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type of account book
2	Type-descript	Text	100	Name of account book

Table 21 t-assign-interest				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	AutoNumber	Long Integer	Number of item
2	Type	Number	Long Integer	Type of account book
3	Interest	Number	Long Integer	Interest rate
4	Start-date	Date/Time	-	Started date

Table 22 t-type-document				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	No.of type
2	Name	Text	50	Name of document

Table 23 t-type-loaning				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type number
2	Loan-name	Text	100	Type of loan
3	Description	Text	200	Description

Table 24 t-type-vac				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type number
2	Vac-name	Text	100	Name of vacation

Table 25 t-vacation				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Employ-id	Number	Long Integer	Employee ID
2	Date	Date/Time	-	Date
3	No-vac	Number	Long Integer	Number of vacation
4	Type	Text	50	Type of vacation
5	Reason	Text	200	Reason of vacation

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Computerized System for Agriculture Co-operation

By

Ms. Sawika Opat

ASSUMPTION UNIVERSITY OF THAILAND
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Submitted in Partial Fulfillment of the
Requirement for the Degree of
Master of Science
in Information Technology
Assumption University

March , 2004

The Faculty of Science and Technology

Master Project Approval

Project Title	Computerized System for Agriculture Co-operation
By	Ms. Sawika Opat
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The Department of Information Technology , Faculty of Science and Technology of Assumption University has approved this final report of the **three** credits course. **IT6900 Master Project**, submitted in partial fulfillment of the requirements for the degree of Master of Science in Information Technology .

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ABSTRACT

Thaklong Agriculture Co-operation is a medium size cooperation which has more than 1,000 members with 20 million baht of annual net-profit, but each department still performs all functions manually (paper-based). Information seeking and analyzing by human operators cause some errors and redundancy. Computerized system for the co-operation is developed for resolving this problem. This system will perform all the processes, and the functions of five departments namely administrative, loaning, finance, marketing and accounting. It is used to support business activities by taking advantage of computer technology. I believe that the new system will increase speed and accuracy of business processes and customer satisfaction. This system will replace the old manual system. To achieve these goals, it requires a sophisticated computer information system as well as database management system.

This new computer-based agriculture information system is designed to be menu-driven and highly user-friendly. The advantage of this system is it allows each department to perform jobs more efficiently and effectively by sharing information on the same database. The methodology and design of computerized system is presented in this paper. An analysis of the old system needs identifing several problems, which aids us in creating new system to meet user requirement. It is much better to create a prototype for testing system before a real implementation. Also, it is able to guarantee users satisfaction. The computer security, the indispensable part of system, is also considered in this paper.

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CHAPTER 1

INTRODUCTION

1.1 Background of the Project

Nowadays, running business requires a good way to manage the resources in organizations for efficiency and effectiveness of proceeding. Information technology (IT) has become a major facilitator of business activities in the world today. Therefore, IT is used extensively for productivity improvement of business processes.

"A computer-based information system is an information system that uses computer technology to perform some or all its intended tasks." [1] Use of the information system is usually central to operating the business processes successfully. Information technology enables people to design and implement improvement, including new processes and facilities of increasing complexity and novelty. This project is concentrated on the work or process of agriculture co-operation system. We adapt from paper-based system to computerized system.

The computerized system for agriculture co-operation will help increase productivity of operation and save the resources of organization such as time of operation, paper and etc. Moreover, this system will increase satisfaction of customers because the time in operation is faster than the old system. And, it helps to manage the organization and plan the mission.

1.2 Problem Definitions

At present, Thaklong agriculture co-operation that I use as a model is a medium sized co-operation. There are 1,000 members and the company has net-profit around 20 million baht per year. In accounting department, accountants are responsible to organize daily and annual account report. For finance department, the officers have responsibility about deposit-withdrawal money service, calculating

interest, and undertaking all works concerned. For loan department, its duty is lending out money. For marketing department, the employees are responsible for providing and selling product and organizing inventory report. For administrative department, they prepare monthly report for manager and board of co-op which is used in monthly meeting. And, they have functions about document record, employee profile and recruitment.

All the above functions are dealt manually and based on paper transaction. Although they have PCs, they just use them only for word processing and excel program which is not a worthwhile purpose. Each work takes more time in processing and often error or mistake occurs in business functions such as generating report, calculating some value in any process, recording information, etc. Accordingly, the manager and the board deem it fit to create a new computerized system for developing efficiency and effectiveness of the organization. So, the proposed system will be based on computer and Database Management System (DBMS) which enables managing and operating for maximum performance with consuming less time in many areas of work, including annual account report preparing, all jobs concerning customer services, managing budget and planning for the goal of the organization.

1.3 Objectives of the Project

The objectives of the computerized system for agriculture co-operation are as follows:

1) To analyze the process of works of each department in order to identify the cause of problems.
2) To develop and implement the new computerized system to replace the existing system to enhance efficiency of business process.

3) To use the new system for reducing time consumption in business activities.
4) To increase the quality of customer service by using the proposed system.
5) To reduce the error in business activities and reduce the operation cost such as paper cost, human error cost and overtime payments to the employees.

1.4 Scope of the Project

The project is focused on the system adaptation to the computerized system from the old system for supporting the agriculture co-operation operations, so I separate the main functions to be main menus of the new system. Therefore, the scope of this project covers main functions that include the following:

1) The system will be run on two PCs which are connected in the form of peer-to-peer structure to facilitate information sharing.
2) The system provides functions for each department, namely loaning, accounting, marketing, finance and administrative work.
3) The system provides searching function by using keyword such as customer's name, customer's ID, account book no, loaning no or other keys in each activities.
4) The system provides performance report for the head of each department and manager.
5) All information will be stored in the database for supporting all the above jobs.

CHAPTER 2

EXISTING SYSTEM

2.1 Background of the Organization

Thaklong agriculture co-operation has been established since March 1, 1985 for service members almost all of whom are farmers. Its main business concerns about loaning and deposit services and selling low-priced products for members.

Figure 2-1 Organization Chart

According to the organization chart, there are five departments which include account, finance, loaning, marketing, and administrative. The responsibilities of each department are defined as follow:

1. Accounting Department
    - Responsible for generating account receivable and account payable.
    - Responsible for organizing daily, monthly account and annual report.
2. Finance Department
    - Responsible for deposit services.
    - Responsible for recording stock of members.
    - Responsible for paying employee salary.
    - Responsible for member application.

- Responsible for generating report about deposit, stock and the number of members.

3. Loan Department
    - Responsible for servicing loans for members.
    - Responsible for generating report for controlling loan.
4. Marketing Department
    - Responsible for providing products for selling.
    - Responsible for organizing the product inventory.
    - Responsible for allocating dividend of members.
    - Responsible for generating report about purchased product, product inventory and dividend money.
5. Administrative Department
    - Responsible for generating document for board meeting.
    - Responsible for organizing document record.
    - Responsible for recording employee profile.
    - Responsible for recruitment of appropriate personnel.
    - Responsible for all administrative tasks.

2.2 Overview of Existing Co-operation's Operating Functions

The existing system is described according to the details of operating functions of each department as follows:

In Accounting Department, accountants will collect all operating documents from other departments such as invoice, receipt, deposit and withdrawal paper, loaning receipt, etc. Then, they will summarize the account receivable and payable after service time ending (3:00 p.m.). Next, they will organize daily account report.

And, they will generate monthly and annual report for submitting to the manager, committee and auditor of Office of Inspector of Cooperative Accounts. All of this is done manually.

In Finance Department, officers will respond to customers and control stock and money in process. When members want to deposit or withdraw, they will fill the deposit or withdrawal form and place to the officer together with their accounting book. Then, the officer will continue the process of deposit or withdrawal service by using typewriter. They also will respond to new member application. They will help fill the member form and attach the copy of their ID card and census record. Then, the officer will file this data and generate member identifying book. Next, they will deal with stock holding of members which is 10 baht per stock and members will have at least 50 stocks (500 baht). They will generate monthly report about the amount of deposits, stocks and members and submit to the manager and committee by using Microsoft Excel.

In Loaning Department, members, wanting to get a loan, must mortgage their property at Land Department Office of district before loaning process is started. Then, the officer will begin with consideration of the petition. When it is admitted, the member will be contracted with the co-operation. Then, they will get money and 5% of it will be deducted to become their stock. For example, if a member borrows 100,000 baht, they will get 95,000 baht and the rest will become to his/her stock. For the repayment of a debt, the officer will process manually by using calculator and writing the detail on the loan form. They will generate monthly report for controlling loan and submit to the manager and the committee by using Microsoft Excel.

In Marketing Department, officers will generate receipt when a member purchases products such as rice, paddy seeds, chemical fertilizers, and gasoline. And,

they will provide products for sales. They will contact the supplier and propose price to the manager for approval. Then, they will buy products. After that, they will record information in the product purchasing book. They will organize product inventory every day. At the year-end, they will allocate dividend by looking from total of products purchased by members. All of the process is done manually.

In Administrative Department, officers deal with all the works that are related to employees and the whole office. They will prepare and generate documents for board meeting by using Microsoft Word. They will organize the document number for both received-document and sent-document. Then, they continue to record the document number in file by hand writing. They are also responsible for employee profile recording.

2.3 Areas for Improvement

As I described in the problem statement above, there are sequential problems namely inaccurate data, redundant tasks, inefficient report and unsatisfied customer. So, I will determine the areas of improvement as follows:-

2.3.1 To provide data accuracy. The proposed system will provide calculating and managing information accuracy because the proposed system will be based on computerized program (Microsoft Access program) which has high capability in information management.

2.3.2 To reduce task redundancy. The proposed system is designed to reduce tasks in generating reports. It can generate report automatically by using information from system database instead of reentering.

2.3.3 To increase customer satisfaction. Therefore, the proposed system can reduce the time of processing customer services that can improve customer satisfaction.

The proposed system can respond to the organization's requirements and resolve the problems of the existing system. It helps reduce time consuming in operating. It is developed to adapt the existing system functions to become a computerized system for supporting the agriculture co-operation's operations.

CHAPTER 3

PROPOSED SYSTEM

3.1 Project Methodology

"The System Development Life Cycle (SDLC) is a model for developing a system by dealing with sequential steps and options for revisiting steps when problems appear." [2] So, I use SDLC as a model to develop this proposed system of co-operation. There are 6 phases in this methodology:

- Project identification and selection

  In this phase, I will identify needs of the company and the proposed system. Then, I will determine the priority of the need and plan to schedule the activities of system development.

- Project initiation and selection

  I will explain why the system should be developed and define the problem of the old system. Then, I will determine the scope of the proposed system. Next, I will start to plan the step for developing the system by using the SDLC steps. And , I will determine the cost of developing and benefit of the project.

- Analysis

  The first thing that I do on this phase is requirement determination after I interviewed with users about requirements that they need from the proposed system. Then, I will study the old system for comparing with user's want. Next, I will generate initial design to match the requirements within cost and technical levels.

- Design

  I will design the new system in all aspects from input, output, database, and computer processes which must be suitable with hardware and software specification.

- Implementation

  Coding is the first work of this step. After that, I will progress to test the system until it meets the acceptance of user in each department. Next, I will check security of personnel who can access the system. Then, I start to install the new system by using parallel installation. And, I will organize the documentation and training for users.

- Maintenance

  When the system is being operated, users may find problems with work process and want a better ways to perform their functions. So, the programmer will modify the system for responding to the changing business conditions.

3.2 User Requirements

In the process of collecting the requirements, I obtain it by interviewing group of users and using the existing system operation. This system is developed for responding their routine jobs. The requirements are concluded as follows:-

1. All information is provided with accuracy such as the details of members, deposit and loan process, product, selling and account.
2. To reduce human error in operation which can lead to waste of time and money. The users want the system that has accuracy in calculating and retrieving information.
3. To improve the speed in operation, this system will reduce the steps of business functions.

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4. Input and output screen should be designed with user friendly interface.
5. The user should be able to easily generate any report on a daily, monthly or yearly basis.

3.3 System Requirements

1. The new system should have security control in operation by having login page that can verify the user name and password.
2. The system should be menu driven and the function should be user friendly so the users, having low computer skill, can also work with it.
3. The form and report should be generated in a standard way because the Department of Inspector of Cooperative Accounts will assign the documents in easy-to-audit format.

3.4 Hardware and Software Requirements

- Workstation (2 units)
  - 128MB DDR-RAM
  - 40GB HDD
  - CD Drive: 52X
  - Monitor 15"
  - Embedded VGA AGP 32MB (1 AGP slot available)
  - Built-in 3D sound
  - 10/100 Mbps built-in LAN
  - Mouse and Ketboard
- Dot Matrix Printer
- Printer sharing box
- UPS
- Operating System: Windows 2000 or latest version

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- DBMS: Microsoft Access 2000
- Development Tool: Microsoft Access 2000

3.5 Cost and Benefit Analysis

"The purpose for accessing economic feasibility is to identify the financial benefits and costs associated with development of the project. Economic feasibility is often referred to as cost-benefit analysis. It helps in decisions on spending or investment by determining if it is the worthwhile to develop a project or not." [2]

3.5.1 Benefit Analysis

An information system can provide many benefits to an organization. The new system can automate routine jobs, reduce errors, provide innovative customer services, and improve organizational efficiency, speed, and flexibility.

The benefits of the system are classified as tangible and intangible:

1. Tangible benefits are benefits that can be measured in terms of profit to the company. The following benefits could be derived from the proposed system:-

- Reduce overtime cost

Because of using the new computerized system, it can increase the speed of business processes and it can reduce error of works such as deposit and withdraw service, loaning service, accounting and inventory. These works used to take more time in processing and sometimes errors occur in the existing system. On average, employees work overtime around 2 months per year because they have to prepare the information which begins from mid of January to end of March for generating their annual reports so they must work overtime to finish their works by the fiscal year-end (end of March).

Therefore, the organization must pay overtime cost approximately 140,000 bath which equals to 2 month salary of all employees. When the organization begins to use the new system, it can save this overtime cost.

- Reduce cost of papers

The organization pay cost of papers around 100,000 bath per year. Normally, the existing system stores all information on papers or books so when we change to use the new computerized system every report can be updated and generated on database without printing everything. Calculating data and collecting information are done on the notepad so the new system can reduce 30 percent of paper cost. Therefore, using the new system can save 30,000 bath in paper cost.

Table 3-1 Tangible benefits worksheet

TANGIBLE BENEFITS WORKSHEET **COMPUTERIZED SYSTEM FOR AGRICULTURE CO-OPERATION**		Year 1 through 5
A.	Reduce overtime cost	140,000
B.	Reduce cost of papers	30,000
	TOTAL tangible benefits	**170,000**

2. Intangible benefits are benefits which are believed to be difficult or impossible to quantify such as improving efficiency and effectiveness of business functions, increasing user satisfaction, supporting to generate report for manager for decision making, and improving user's computer skill.

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3.5.2 Cost Analysis

The major cost analysis can be classified into 2 types:

- "One-Time Costs refer to those associated with project initiation and development and the start-up of the system such as system development, new hardware and software purchase, users training, site preparation and data or system conversion." [2]

- "Recurring Costs refer to those costs resulting from the ongoing evolution and use of the system such as application software maintenance, incremental data storage expense, and incremental communications." [2]

- The estimated costs and benefits over the period are discounted to present day values using a range of discount rates (5 percent rates). Now, Thaklong Agriculture Co-operation uses a discount rate of 10 percent for interest because the co-operation has to borrow money from bank at 5% interest. So they had to add another 5% for their profits.

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Project Feasibility Study
Economic Feasibility Analysis

BENEFITS	
Reduce overtime cost	140,000.00
Reduce cost of papers	30,000.00
TOTAL BENEFITS	170,000.00
ONE TIME COSTS	
1. HARDWARE	
3 PC & Accessories	84,000.00
2 UPS	7,500.00
1 Printer sharing box	8,000.00
1 Dot-Matrix Printer	11,500.00
Total Cost of Hardware	111,000.00
2. SOFTWARE	
Microsoft Window 2000 workstation	15,000.00
Microsoft Office 2000	28,000.00
Total Cost of Software	43,000.00
3. DEVELOPMENT & CONSULTANT	
System Analysis and Requirement Determination	15,000.00
System Design	25,000.00
Implement	15,000.00
Total Cost of Development & Consultant	55,000.00
4. INSTALLATION & TRAINING	
Installation	10,000.00
Training & Document	15,000.00
Total Cost of Installation & Training	25,000.00
TOTAL ONE TIME COSTS	234,000.00
RECURRING COSTS	
Application Software Maintenance	18,500.00
Hardware Maintenance	7,500.00
Supplies	20,000.00
TOTAL RECURRING COSTS	46,000.00

Figure 3.1 Benefits and Costs of the Project

Economic Feasibility Analysis
Computerized System for Agriculture Co-operation

	Year of Project						
	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**TOTALS**
Net Economic Benefit	0	170,000	170,000	170,000	170,000	170,000	
Discount(10%)	1.0000	0.9091	0.8264	0.7513	0.6830	0.6209	
PV of Benefit	0	154,545	140,496	127,724	116,112	105,557	
NPV of all BENEFITS	0	154,545	295,041	422,765	538,877	644,434	644,434
One-Time Costs	(285,000)						
Recurring Costs	0	(46,000)	(46,000)	(46,000)	(46,000)	(46,000)	
Discount(10%)	1.0000	0.9091	0.8264	0.7513	0.6830	0.6209	
PV of Recurring Costs	0	(41,818)	(38,017)	(34,560)	(31,419)	(28,562)	
NPV OF ALL COSTS	(285,000)	(326,818)	(364,835)	(399,395)	(430,814)	(459,376)	(459,376)
Overall NPV							185,058
Overall ROI - (Overall NPV / NPV of all COSTS)							0.40
Break-even Analysis							
Yearly NPV Cash Flow	(285,000)	112,727	102,479	93,163	84,694	76,994	
Overall NPV Cash Flow	(285,000)	(172,273)	(69,793)	23,370	108,063	185,058	

Project break-even occurs between year 2 and year 3
Use first year of positive cash flow to calculate break-even function - ((93,163 - 23,370) / 93,163) = 0.75
Actual break-even occurred at 2.75 years

Figure 3.2 Summary Spreadsheet reflecting the present value calculations of all benefits and costs for the proposed system

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3.5.3 Break-even Analysis

The Break Even Analysis shows at what point benefits equal cost. According to figure 3.2, the break-even point is occurred between year 2 and 3.

$$\text{Break-Even Ratio} = \frac{\text{Yearly NPV Cash Flow} - \text{Overall NPV Cash Flow}}{\text{Yearly NPV Cash Flow}}$$

Project break-even occurs between years 2 and 3

$$\text{Break-Even Ratio} = \frac{93{,}163 - 23{,}370}{93{,}163} = 0.75$$

Actual break-even occurred at 2.75 years

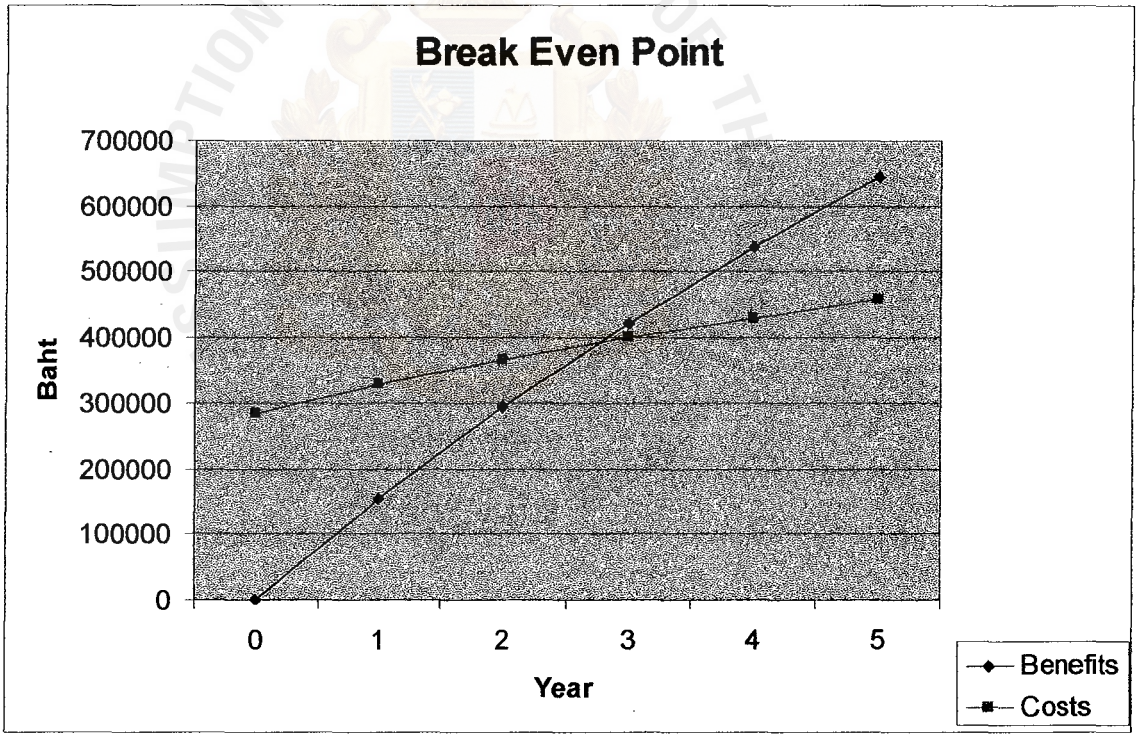

Figure 3.3 Break even point

3.6 System Design

3.6.1 Database Design

The proposed system is created as a relational database. It uses Microsoft Access 2002 as a tool for database management.

3.6.2 Data Flow Diagram of the proposed system

A Data Flow Diagram is a tool of process modeling, which helps to view overall data flow in the system. I will show the Data Flow Diagram of the proposed system as follows:

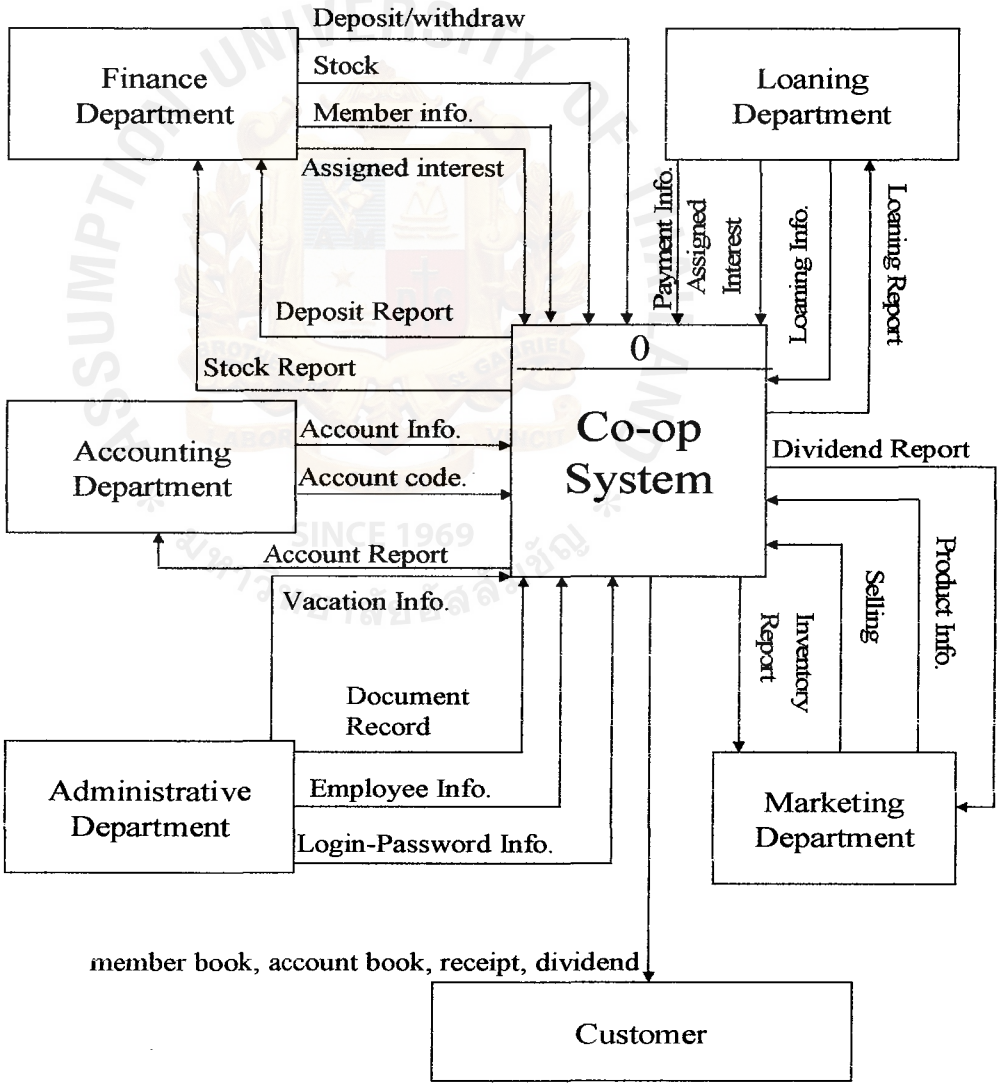

Figure 3.4 Context Diagram of the proposed system

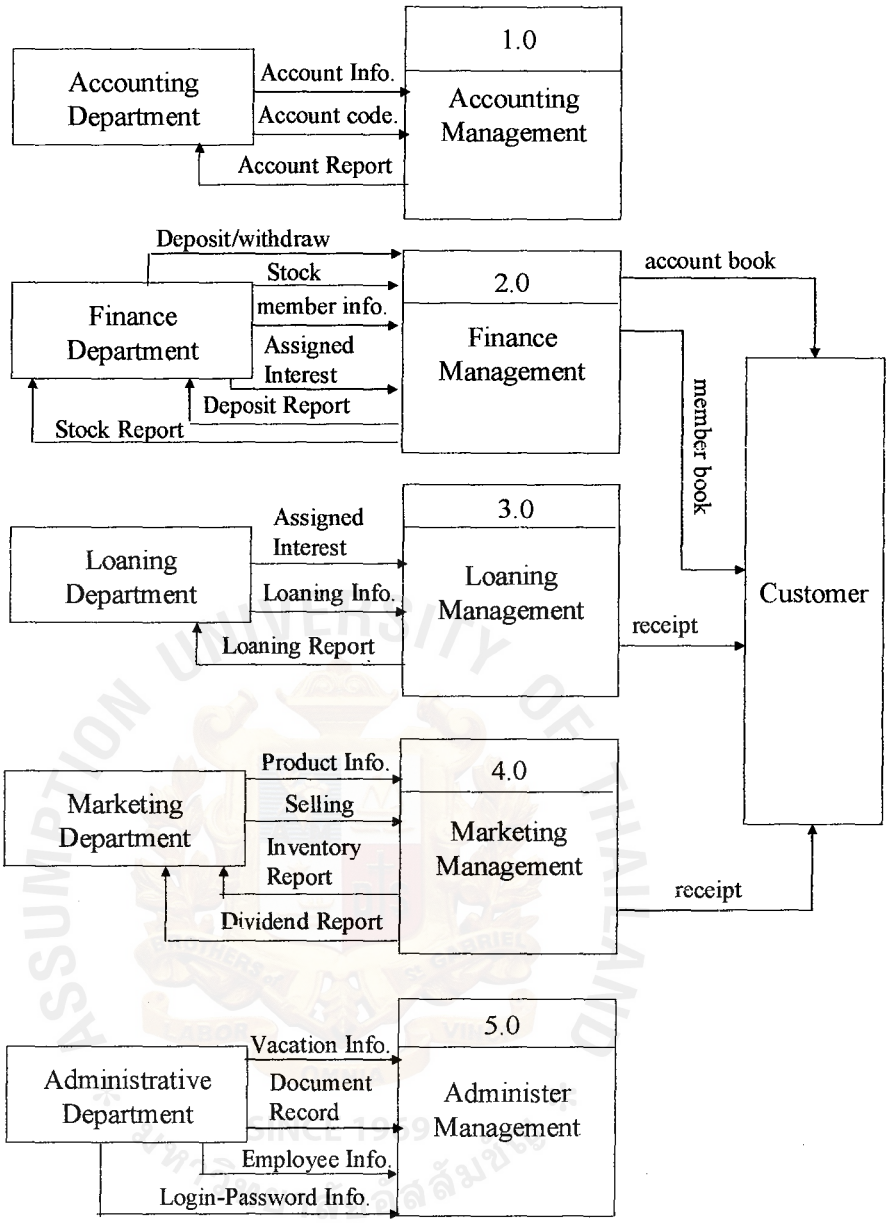

Figure 3.5 Data Flow Diagram of the proposed system at Level - 0

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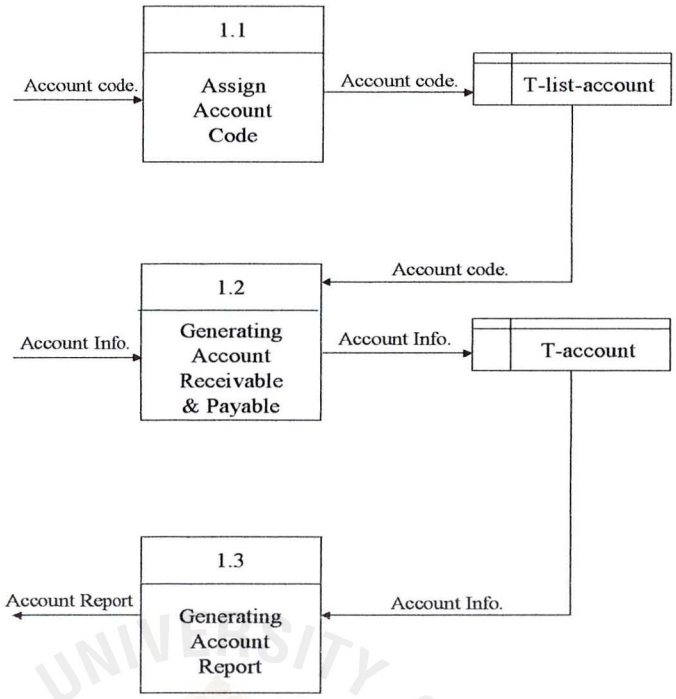

Figure 3.6 Data Flow Diagram of the proposed system at Level – 1 Process 1

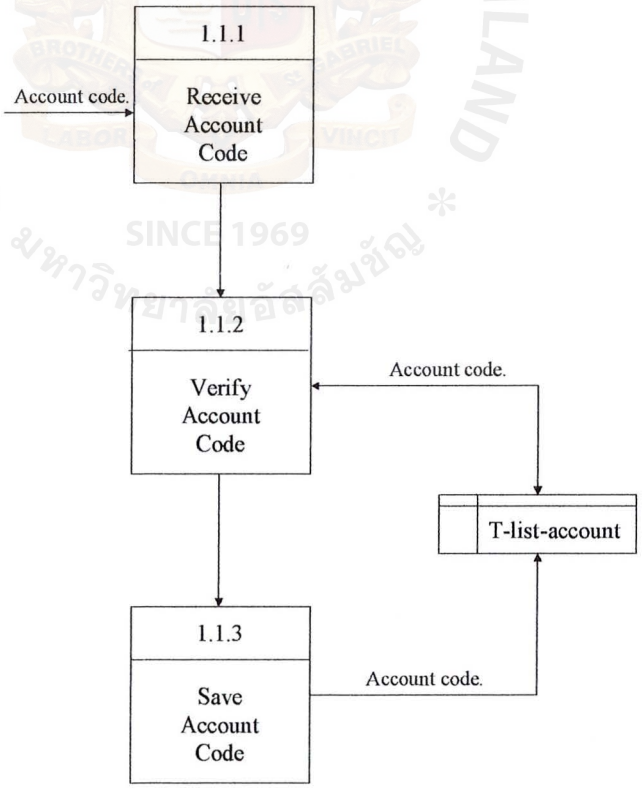

Figure 3.7 Data Flow Diagram of the proposed system at Level – 2 Process 1

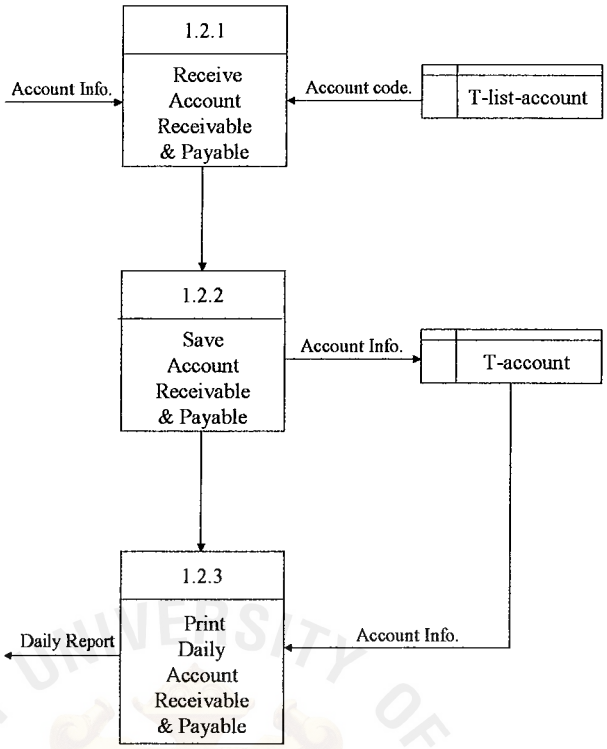

Figure 3.8 Data Flow Diagram of the proposed system at Level – 2 Process 1

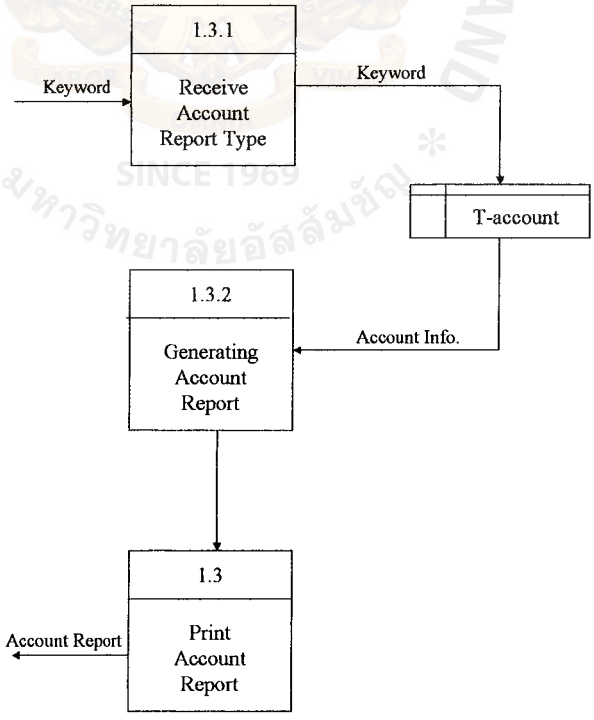

Figure 3.9 Data Flow Diagram of the proposed system at Level – 2 Process 1

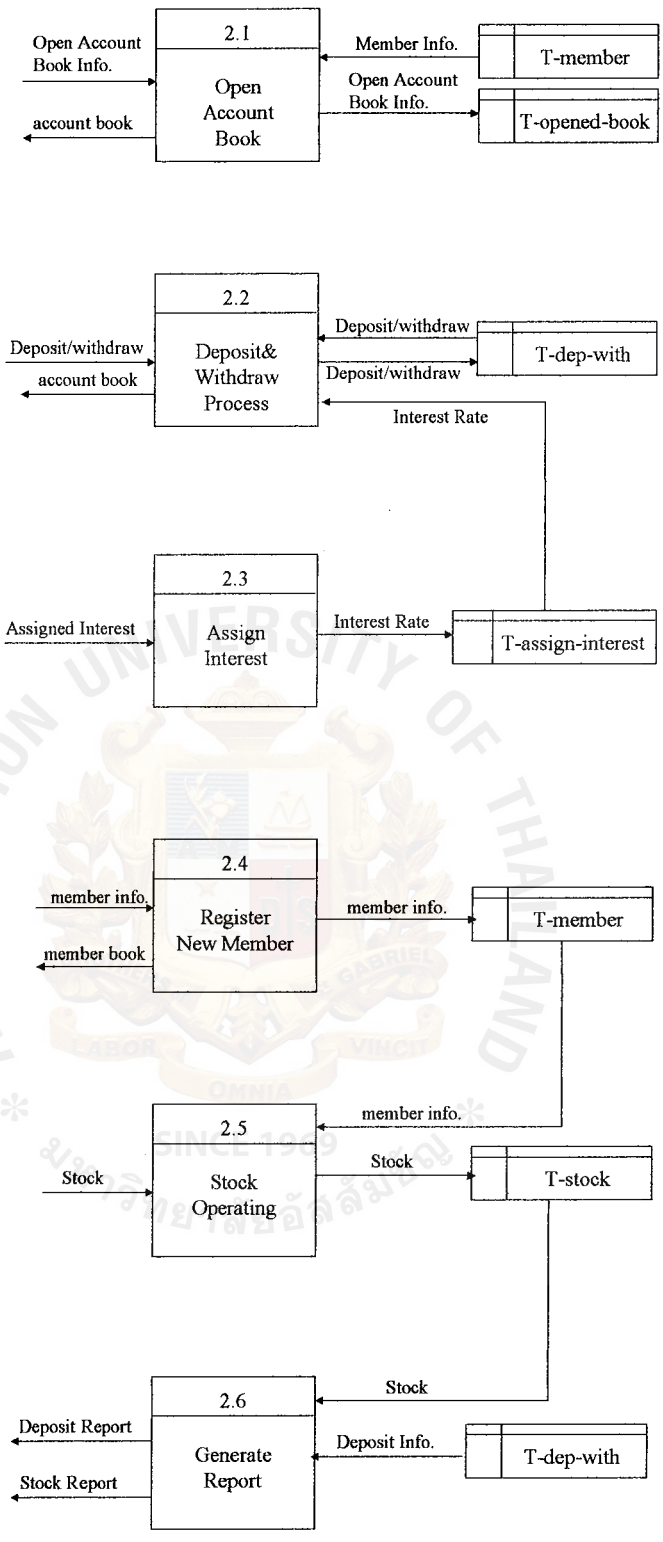

Figure 3.10 Data Flow Diagram of the proposed system at Level – 1 Process 2

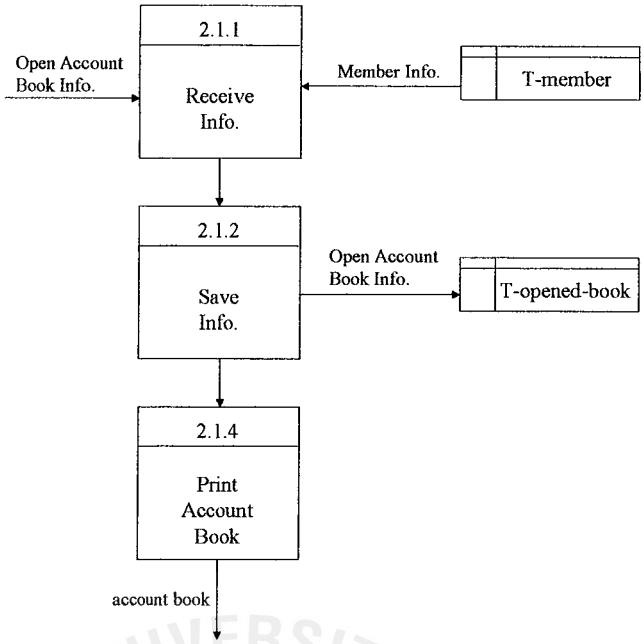

Figure 3.11 Data Flow Diagram of the proposed system at Level – 2 Process 2

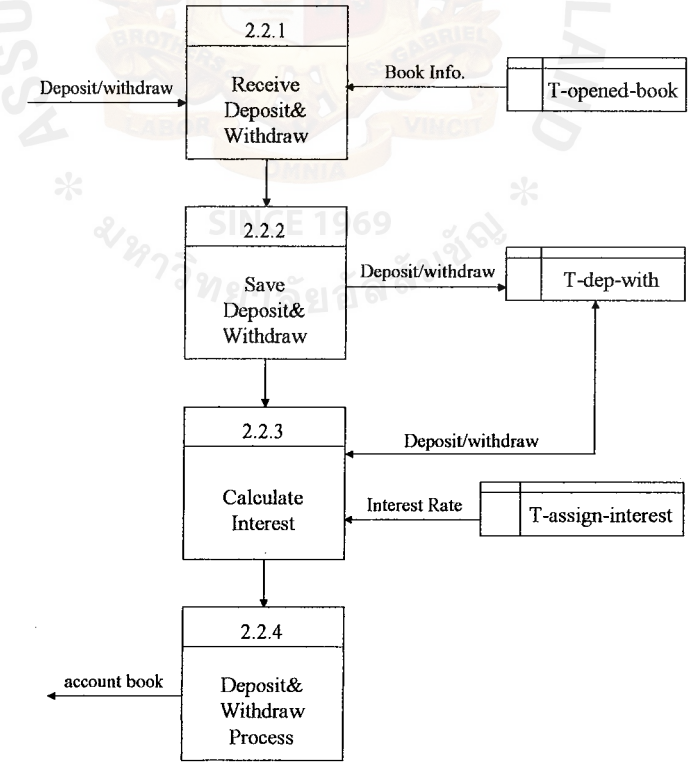

Figure 3.12 Data Flow Diagram of the proposed system at Level – 2 Process 2

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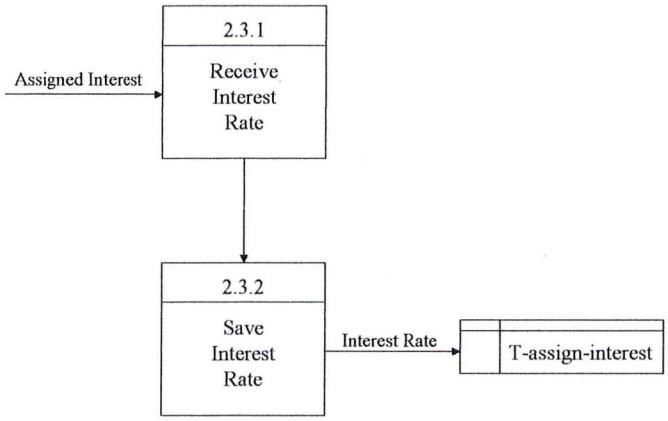

Figure 3.13 Data Flow Diagram of the proposed system at Level – 2 Process 2

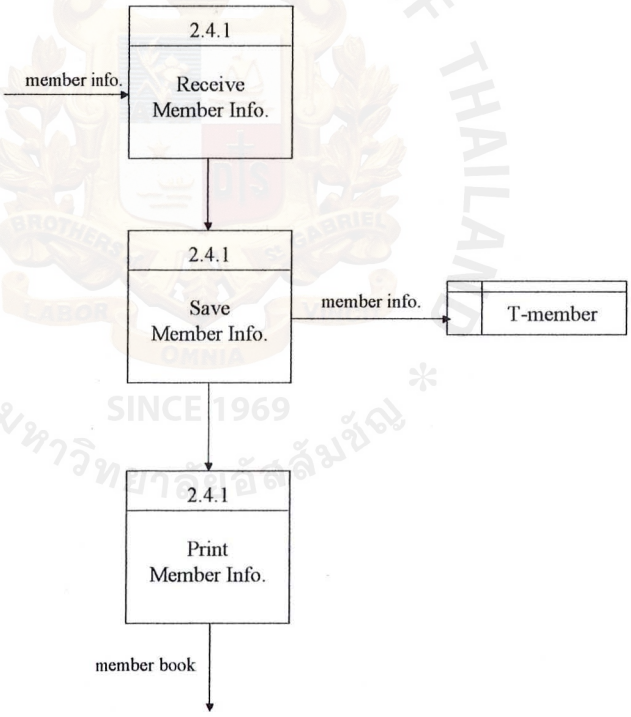

Figure 3.14 Data Flow Diagram of the proposed system at Level – 2 Process 2

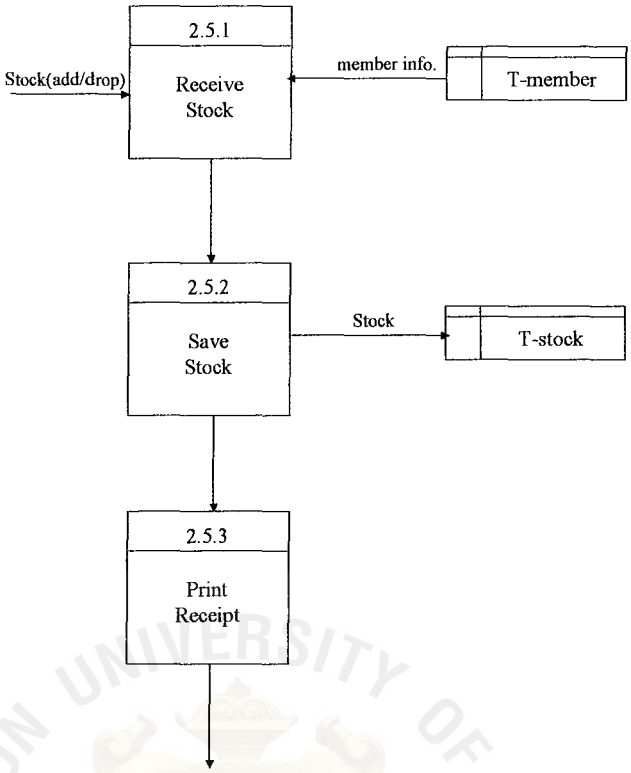

Figure 3.15 Data Flow Diagram of the proposed system at Level – 2 Process 2

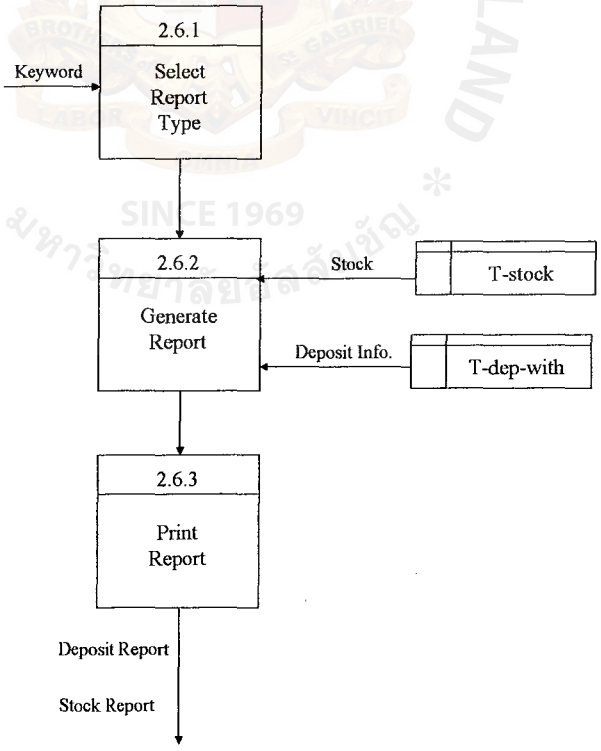

Figure 3.16 Data Flow Diagram of the proposed system at Level – 2 Process 2

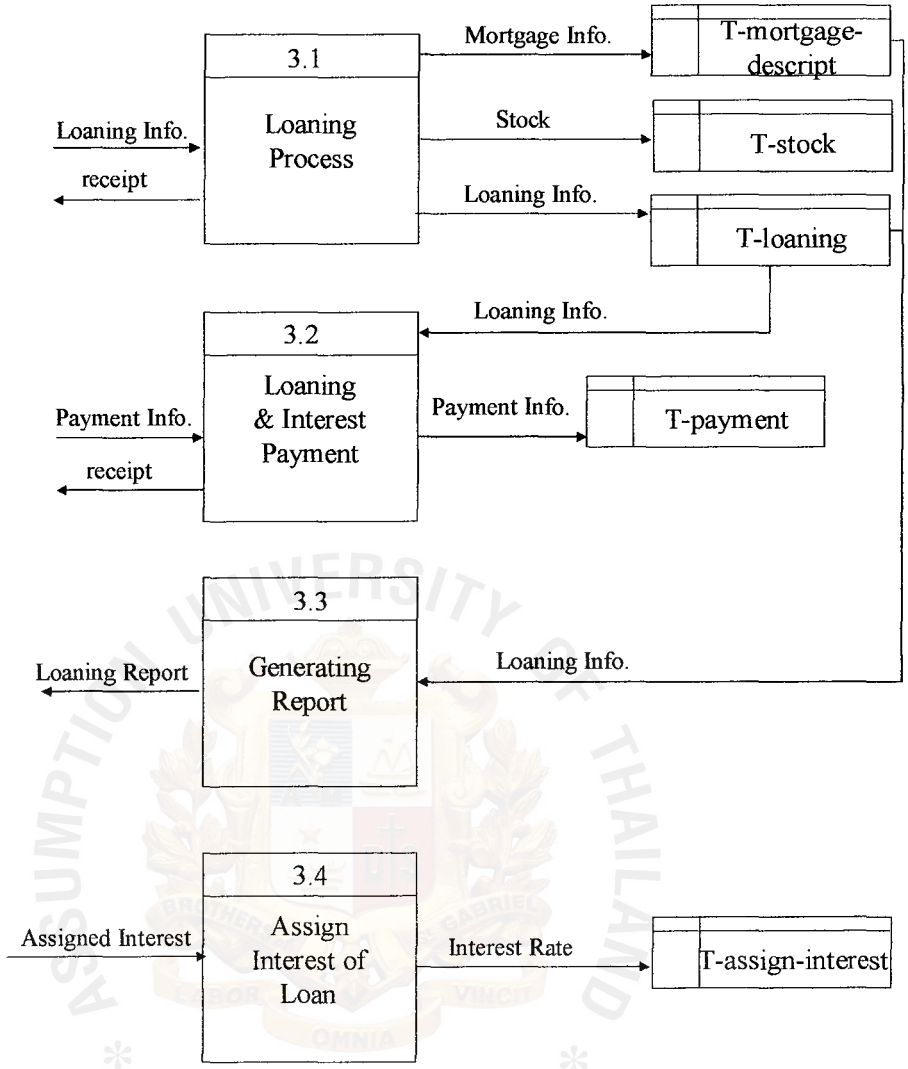

Figure 3.17 Data Flow Diagram of the proposed system at Level – 1 Process 3

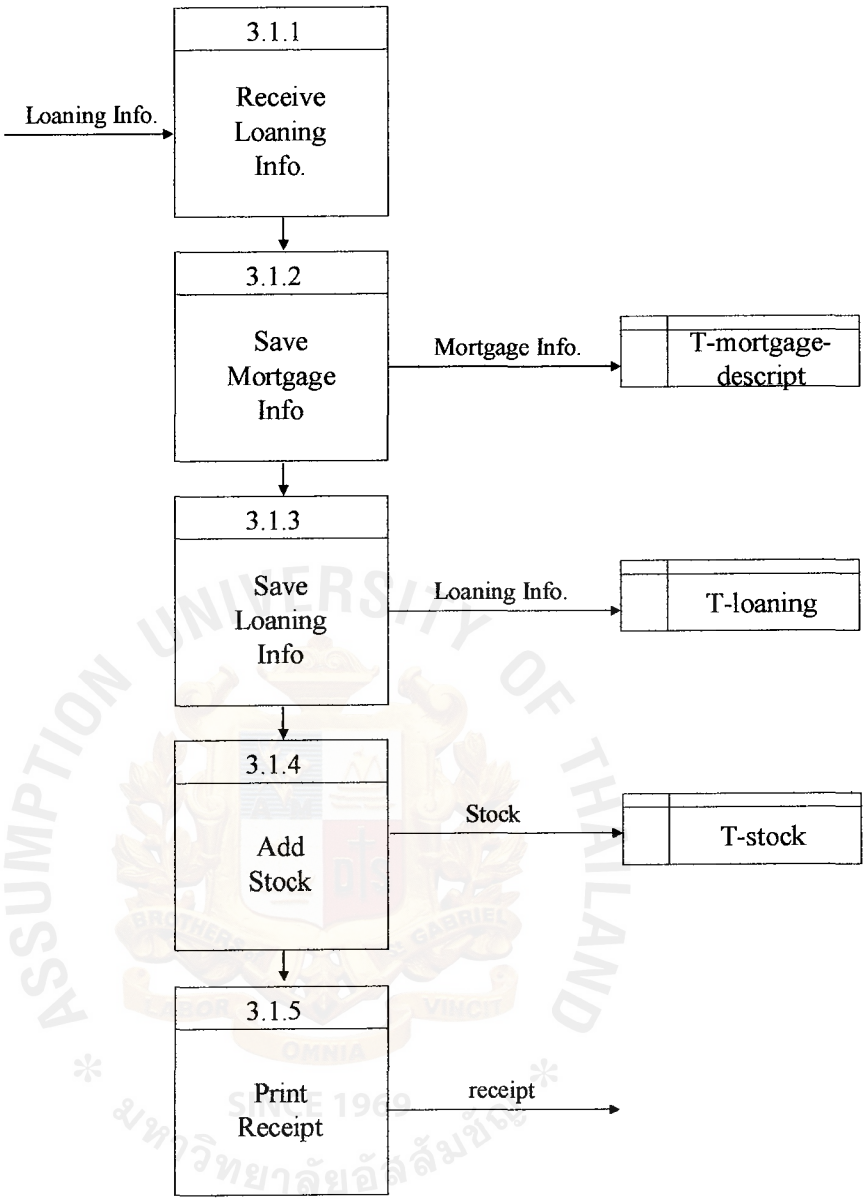

Figure 3.18 Data Flow Diagram of the proposed system at Level – 2 Process 3

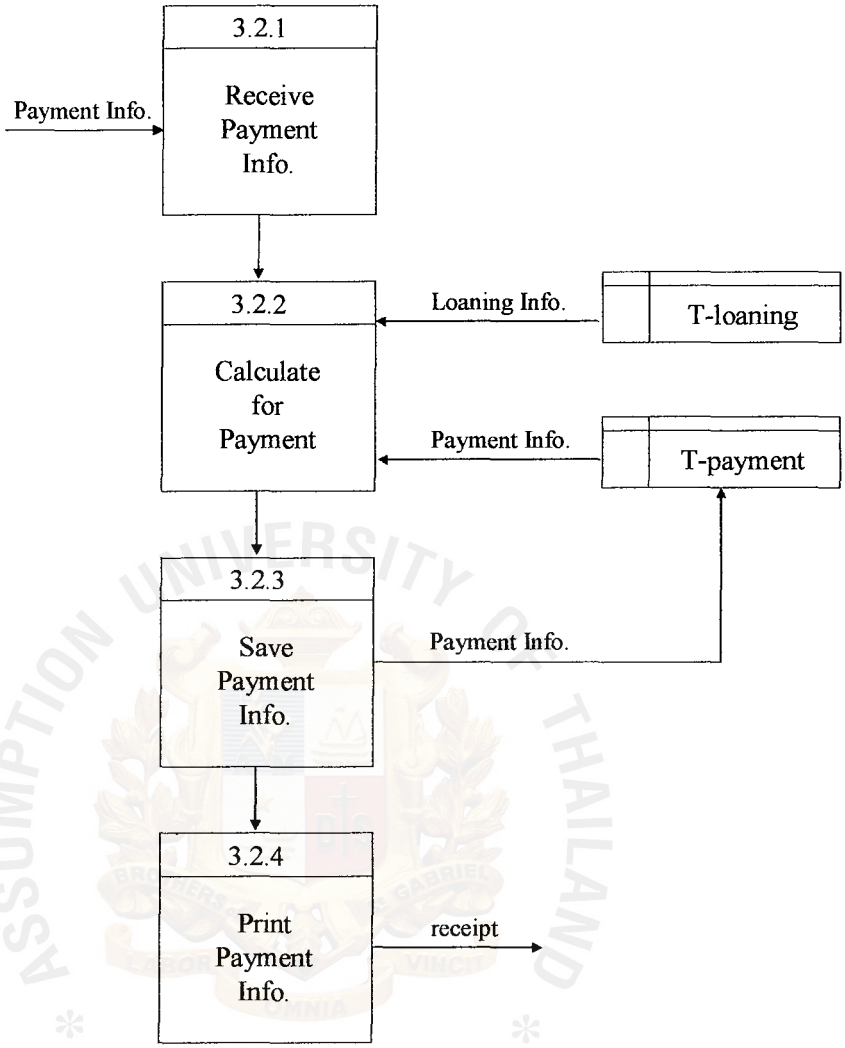

Figure 3.19 Data Flow Diagram of the proposed system at Level – 2 Process 3

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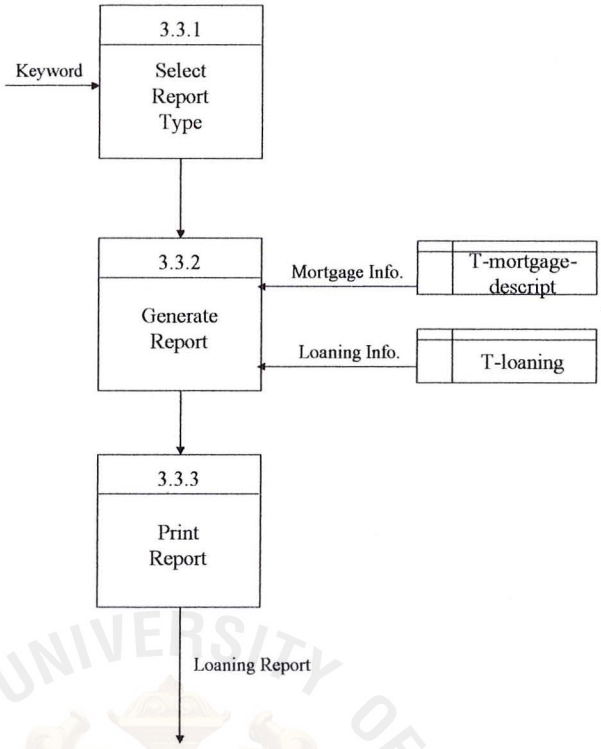

Figure 3.20 Data Flow Diagram of the proposed system at Level – 2 Process 3

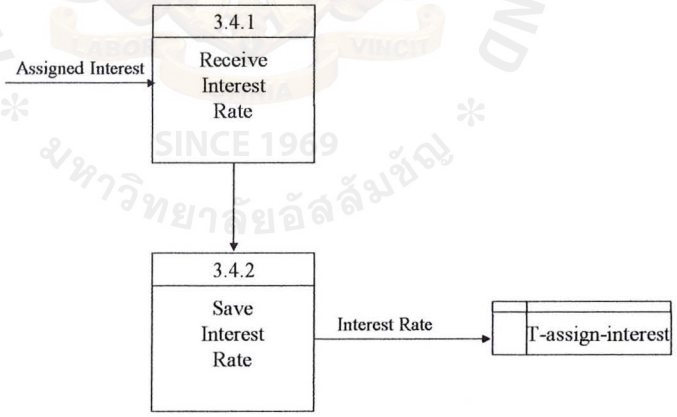

Figure 3.21 Data Flow Diagram of the proposed system at Level – 2 Process 3

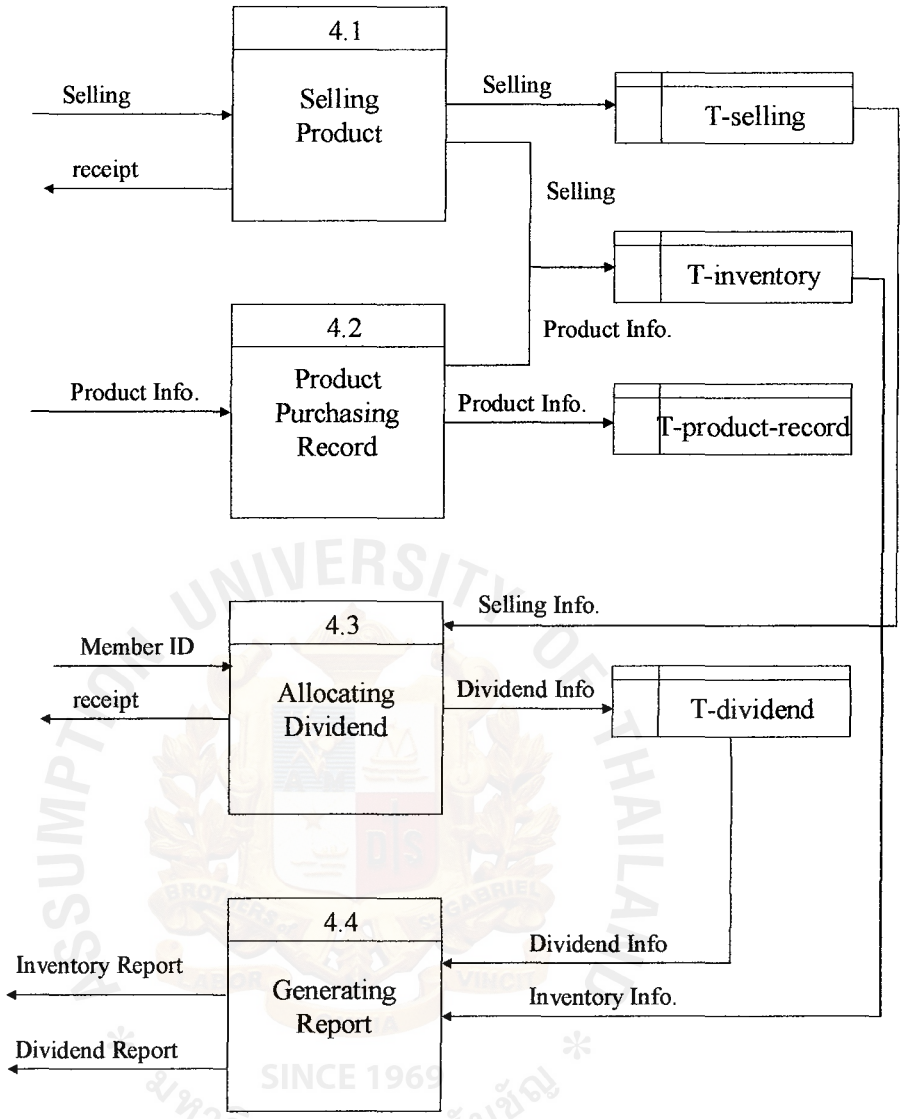

Figure 3.22 Data Flow Diagram of the proposed system at Level – 1 Process 4

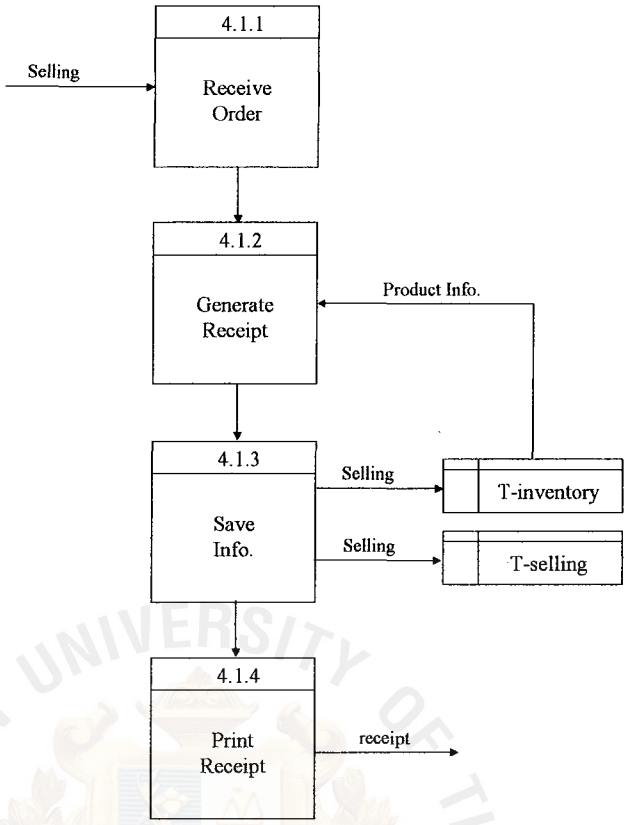

Figure 3.23 Data Flow Diagram of the proposed system at Level – 2 Process 4

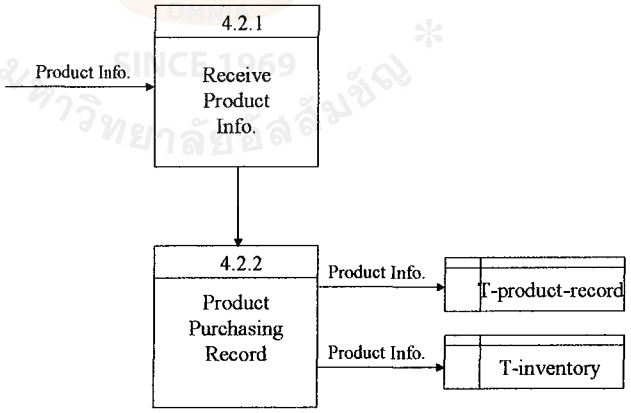

Figure 3.24 Data Flow Diagram of the proposed system at Level – 2 Process 4

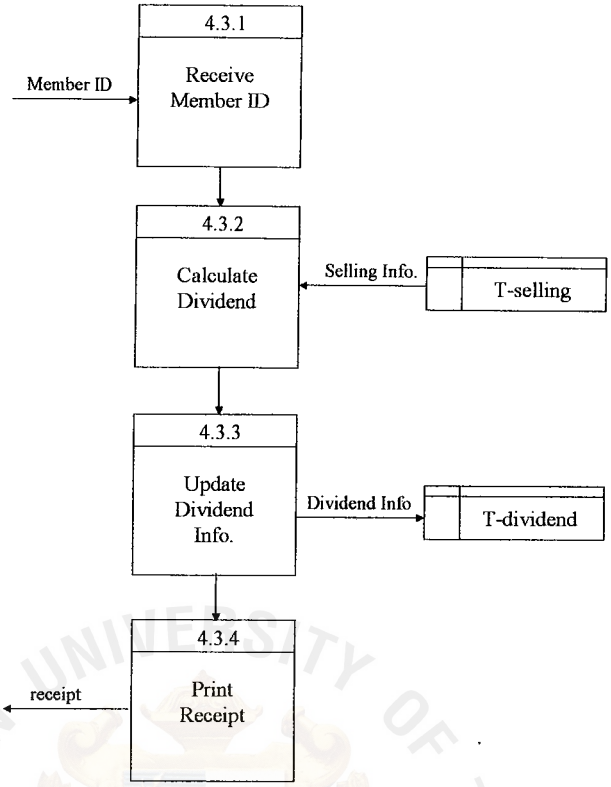

Figure 3.25 Data Flow Diagram of the proposed system at Level – 2 Process 4

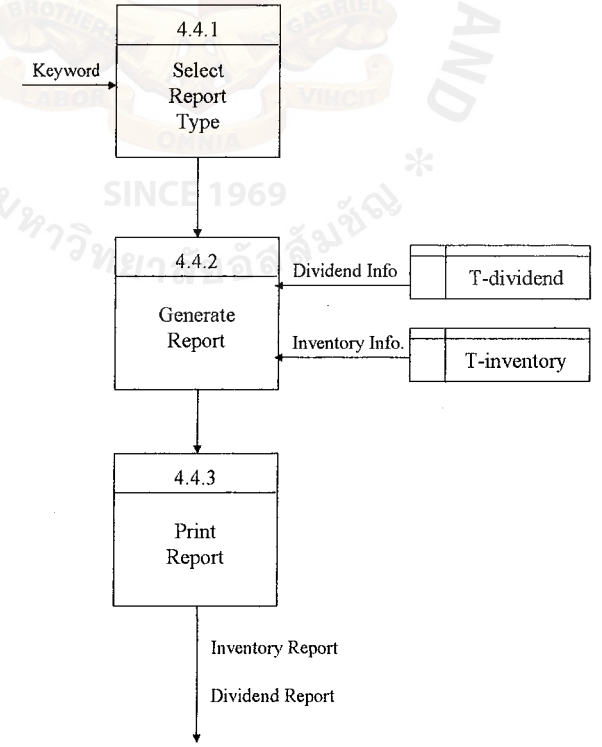

Figure 3.26 Data Flow Diagram of the proposed system at Level – 2 Process 4

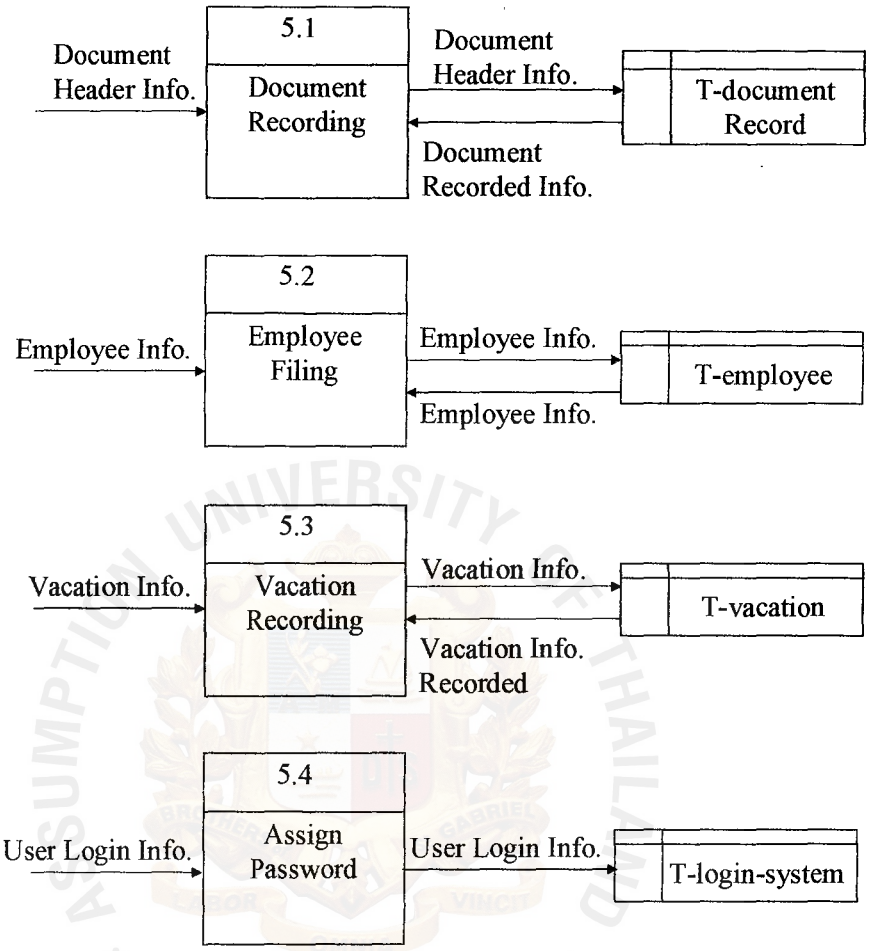

Figure 3.27 Data Flow Diagram of the proposed system at Level – 1 Process 5

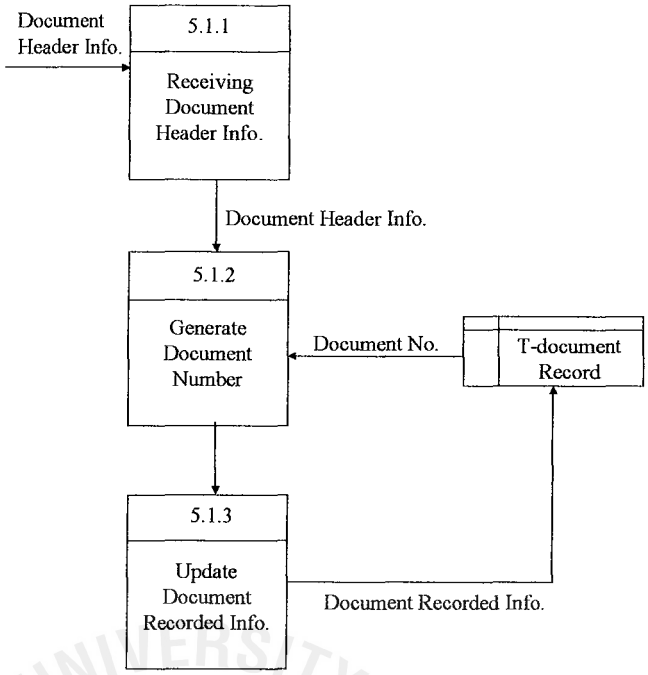

Figure 3.28 Data Flow Diagram of the proposed system at Level – 2 Process 5

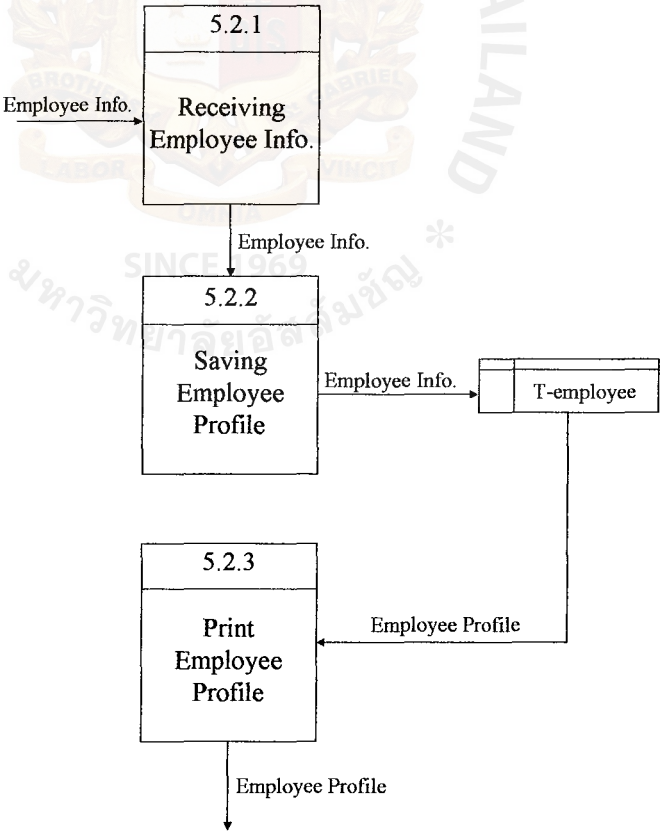

Figure 3.29 Data Flow Diagram of the proposed system at Level – 2 Process 5

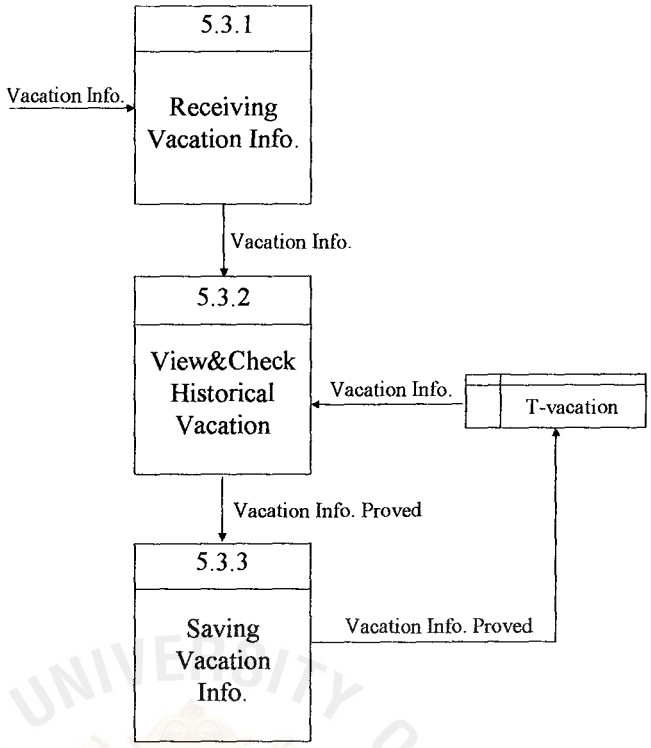

Figure 3.30 Data Flow Diagram of the proposed system at Level – 2 Process 5

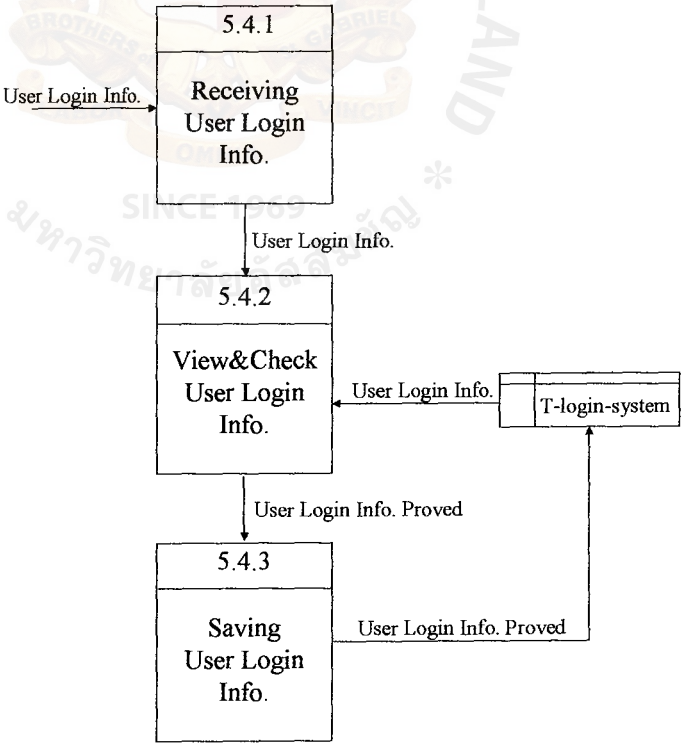

Figure 3.31 Data Flow Diagram of the proposed system at Level – 2 Process 5

Process 1

There are 3 main functions in Accounting Department. First, assigning accounting code to the accountant to enter a new account. The system has to check it from the list of account database. If it is not already assigned, it will be saved. Generating account receivable & payable is the second function. It starts at account information receiving then save it into account database. After that, we will print the daily account report. At last, we will enter key for selecting type of report that we want to print. Then, we will use that key in selecting data for generating report. After that, the report is printed.

Process 2

This process include Finance Department's functions such as account-book opening, deposit/withdrawal processing, assigning interest on deposit, new member registration, stock operating and report generating. All functions will start with entering the concerned information. Then, the information will be saved into database. When we want to print any report, we just enter keyword for selecting the type of report. Then, the report will be generated by retrieving information from database.

Process 3

When loan process begins, the officer will enter loan information such as mortgage and loan detail. Then, all information will be saved into database. And, 5% of the amount of loan is deducted to become the stock of this customer. After that the receipt is generated and printed. To repay a debt, the officer will enter loan ID. And, it is used as the key to retrieve information from database. Then, the system will calculate the amount of money that the member must pay. Next, the amount that the member has to repay is entered and saved into database. Then, the system will generate the receipt. For generating report, we will enter key for selecting type of

report that we want to print. Then, we will use that key in selecting data from database for generating report. After that, the report is printed.

Process 4

After we purchase products for sales, we will record the details into product and inventory files. In selling products, the officer will receive order from customers and they will enter it into the system. After that, the system will generate the receipt for customer and save order information into database. The order information is used to calculate dividend for members at the end of the year. For report generating, we will enter a key for selecting type of report that we want to print. Then, we will use that key in selecting data for generating report. After that, the report is printed.

Process 5

Document recording is used for keeping memorandum of the document details that are sent or received and the number of document. If the officer wants to file the employee profile, he can enter employee data into the system. Then, the system will progress to save this information into database. About vacation, the officer will enter vacation information. Before this information is recorded, the system will check the historical vacations. The administrators are assigned with the login name and password for system authorization. They enter the login information and the system will check it for protecting repeated information. When it is already proved, it is saved into database.

3.7 Proposed Schedule

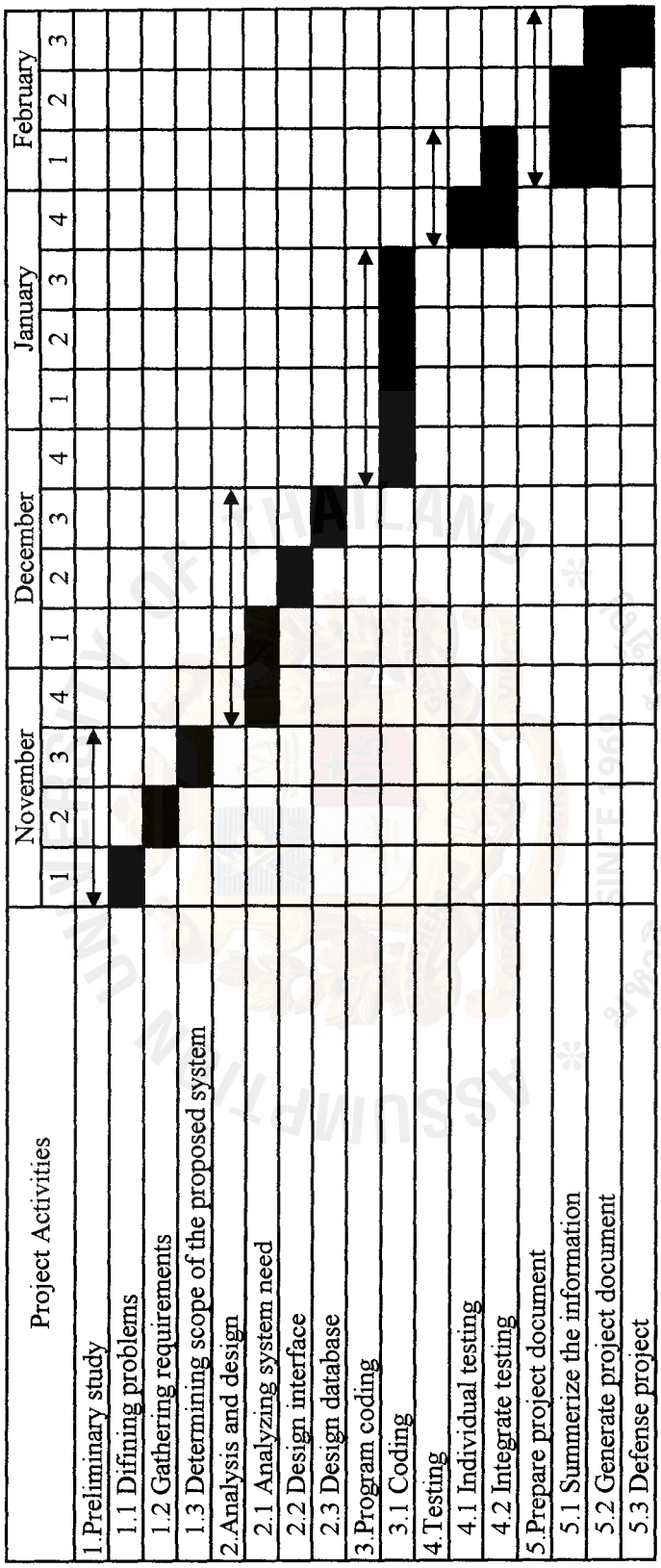

Figure 3.32 Proposed Schedule

CHAPTER 4

INPUT AND OUTPUT INTERFACE DESIGN

4.1 Input Design

User interface design is the specification of a conversation between the users and the computer system. For this system, the input screen is designed by using graphical user interface (GUI) which is mostly used in the system development today. GUI environment can provide user friendly interface and various form of designed screens. The GUI controls such as text box, combo box, command button, etc. provide more flexibility in operation designing and data attribute showing.

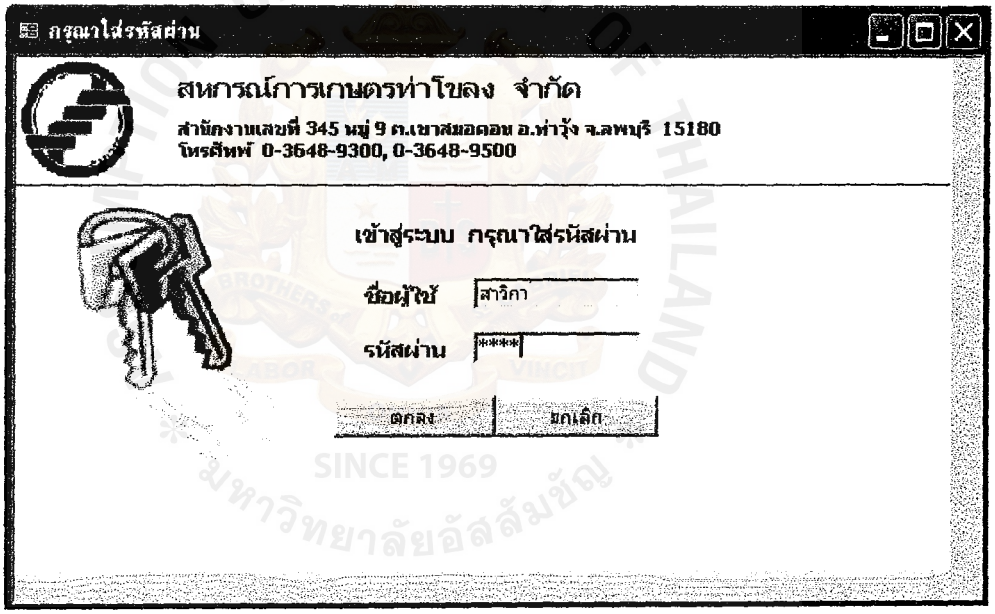

Figure 4-1 Log-in Screen

The first screen starts from the Log-in page in order to verify the authorized users. Users will be assigned with their own user name and password. If the user name and password is not correct, the system will notify the user. After verifying, the next screen will be the main menu.

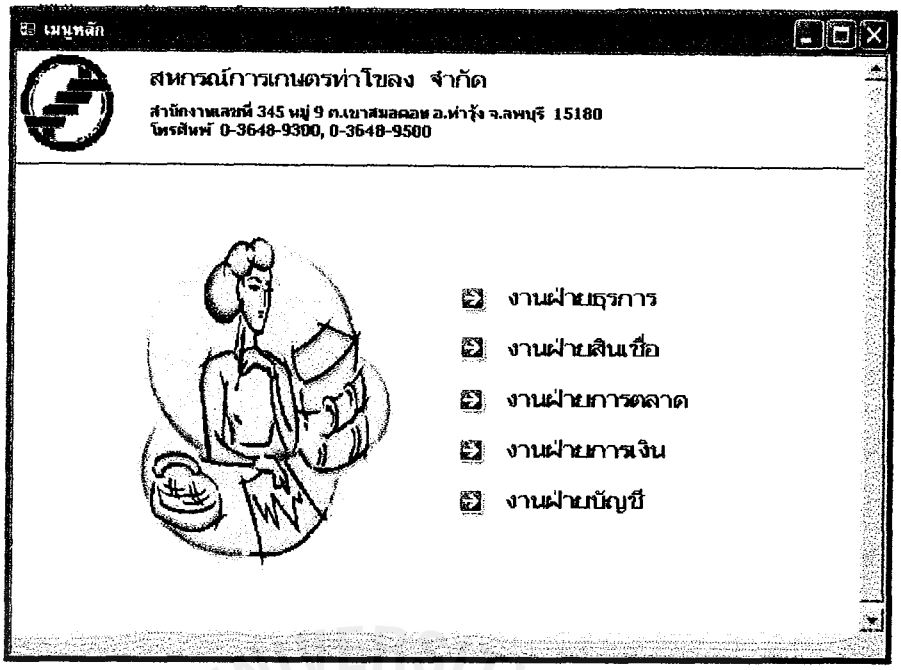

Figure 4-2 Main Menu Screen

Once the user is logged in, he/she will come to the main menu screen. Menu will contain names of 5 departments which jobs of each department will be showed after the user selects the name of the department.

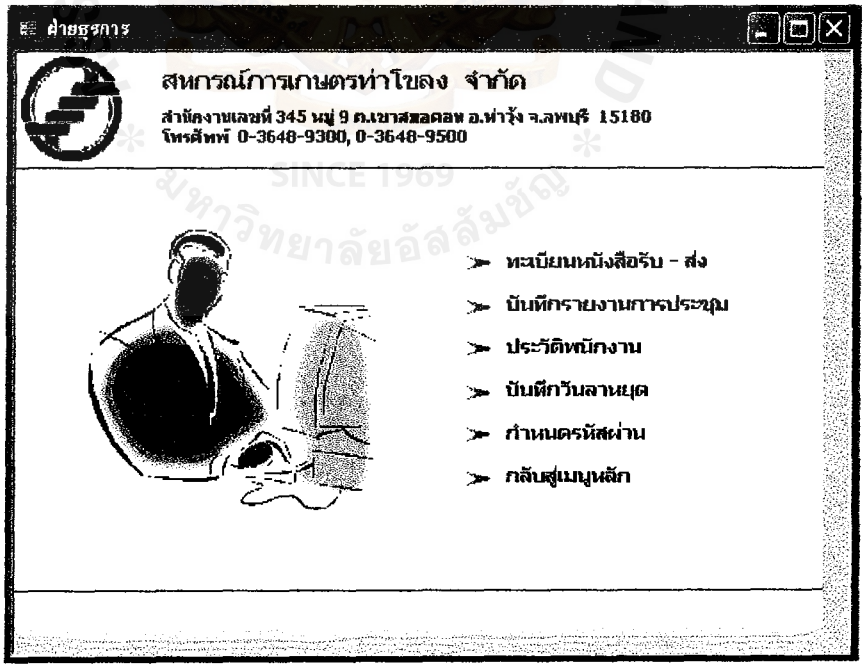

Figure 4-3 Administrative Menu Screen

When the user selects the administrative department label, the administrative menu screen is showed. It includes all responsibilities of this department, document recording, employee profile, vacation recording and login name and password assignment.

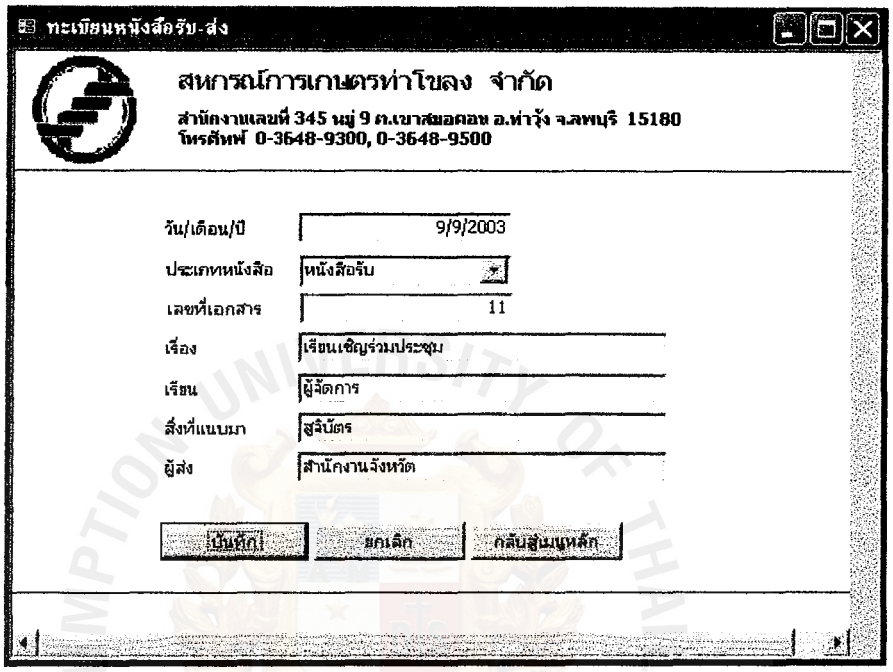

Figure 4-4 Document Record Screen

Document recording, we use it for memorandum the document detail that is sent or received and the number of document. When we open document recording, a current date will automatically occur. After we select the type of document, the system will generate a number of documents itself. Then, the officer will fill the information in related fields and save it into database.

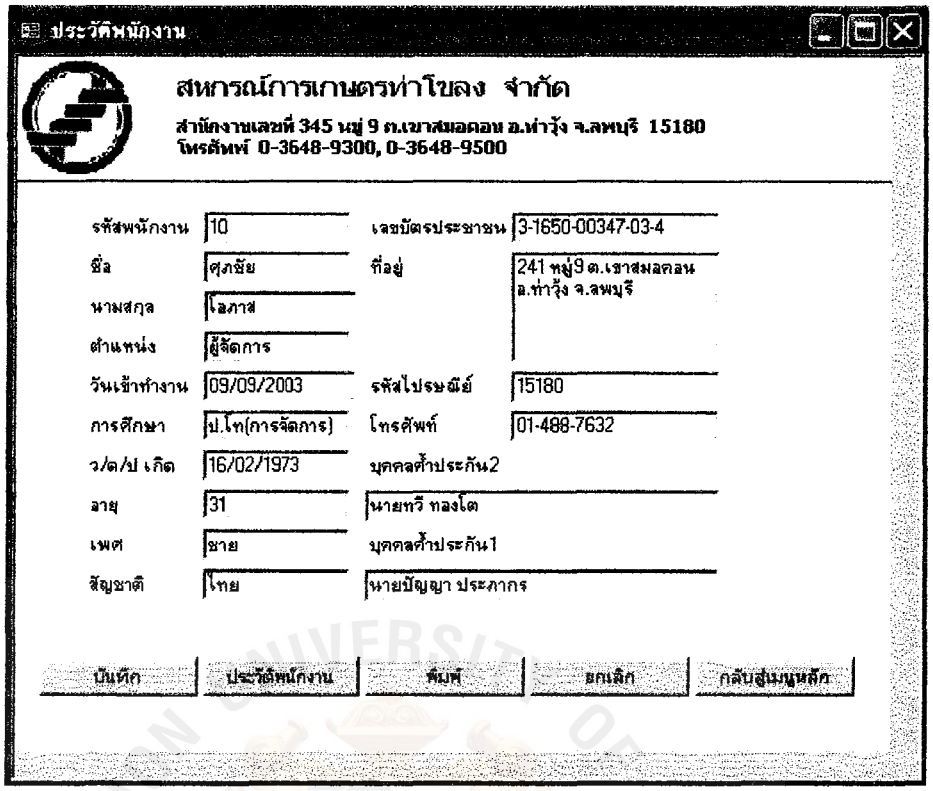

Figure 4-5 Employee Profile Screen

The officer uses this screen to file the employee profile. The system will generate employee ID after this screen is loaded. They will enter employee information into the fields. Then, the system will progress to save this information into employee file.

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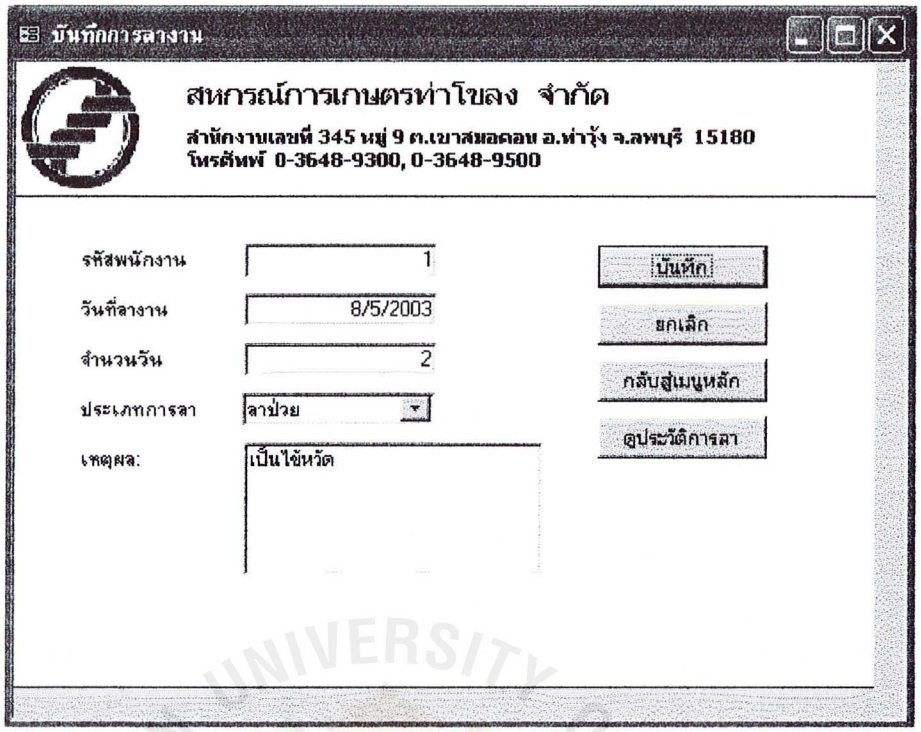

Figure 4-6 Vacation Record Screen

About vacation, the officers will enter vacation information. Before this information is recorded, the system will check the historical vacations. if the officers use vocation more than permitted, the system will show a warning message to them.

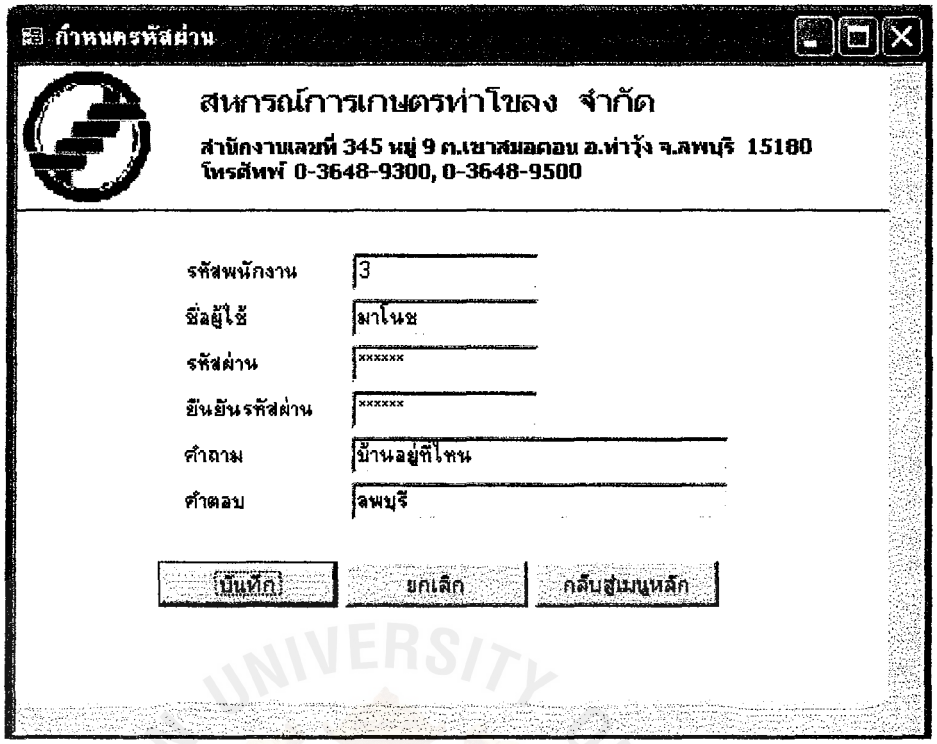

Figure 4-7 Login Registration Screen

For the login registration screen, the administrators are assigned with the login name and password for system authorization. After they enter the login information, the system will check it for protecting repeated information. When it is already proved, it is saved into database.

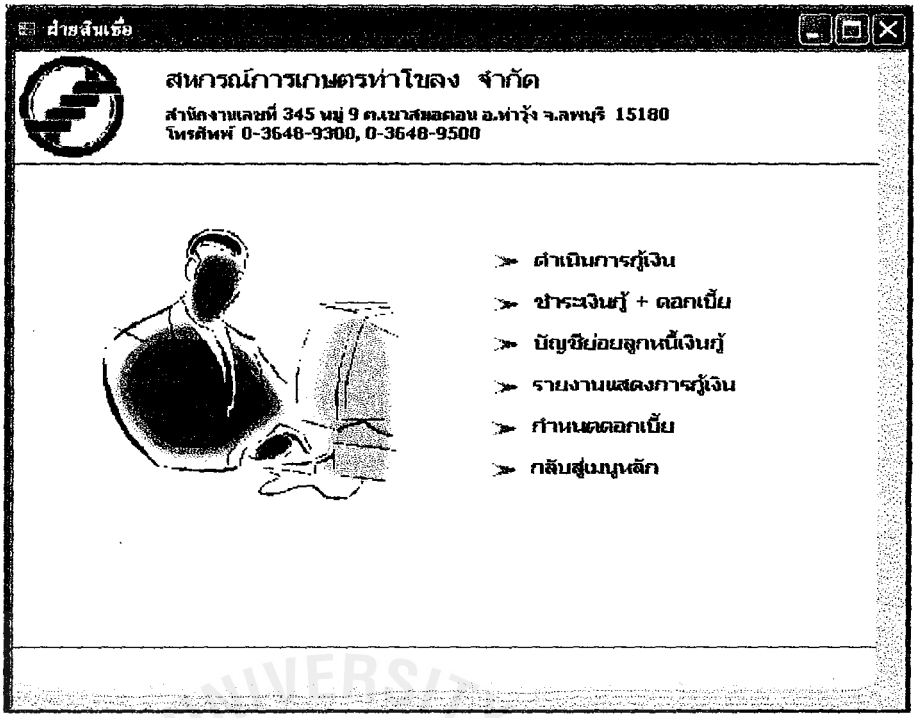

Figure 4-8 Loaning Menu Screen

In this screen, it shows all functions of loan department from which a user can choose what processes they want to use. It consists of loan service, repayment of debt and interest, loan reports and assigning loan interests.

When the officer selects loan process, he/she will enter mortgage information on the mortgage detail screen and save it. Next the loan detail screen is showed and the officer will enter the loan information. Five percent from the amount of loan is deducted and it becomes the stock of this member. Then, all information will be saved into database. After that the receipt is generated and printed. Figure 4-9 and 4-10 show this process.

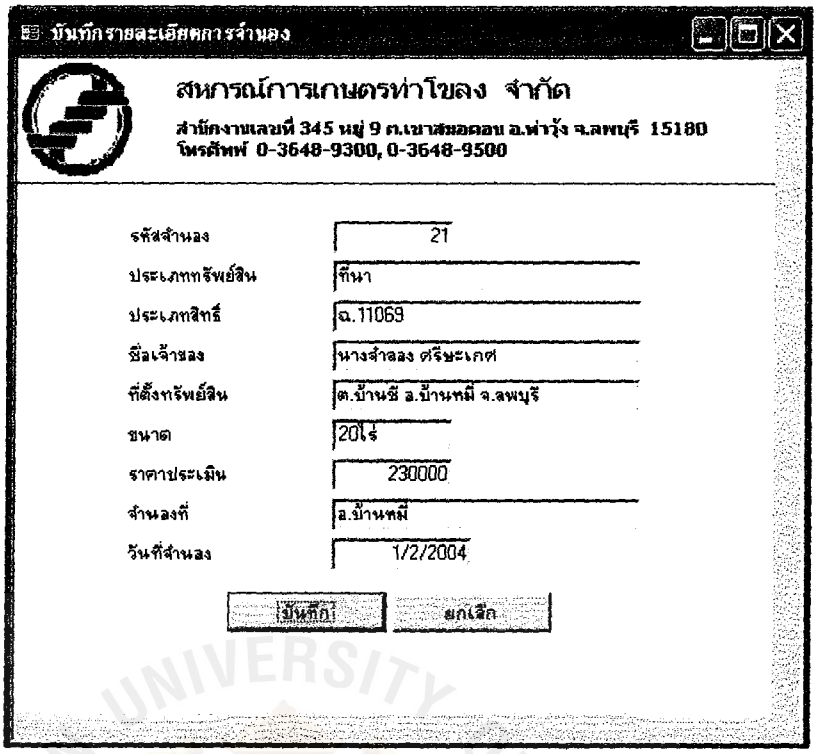

Figure 4-9 Mortgage Detail Screen

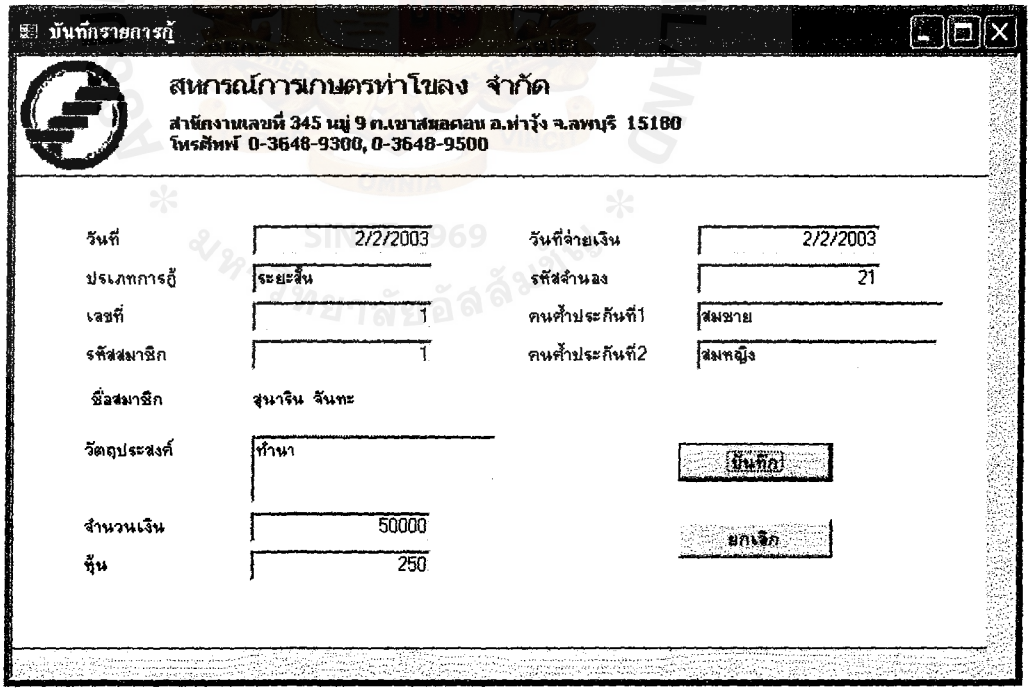

Figure 4-10 Loan Detail Screen

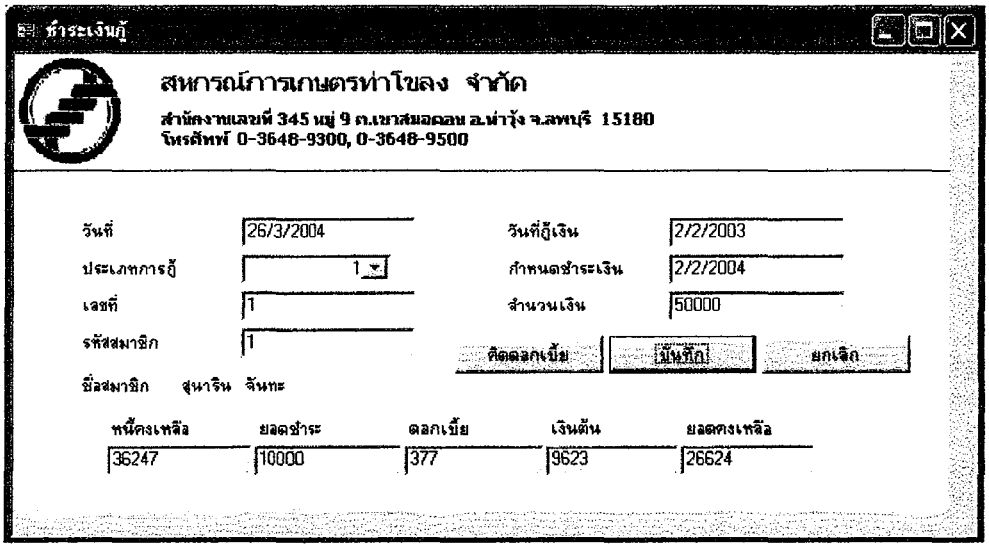

Figure 4-11 Loaning Payment Screen

To repay a debt, the officer will enter loan type and loan ID. And, it is used as the key to retrieve information from database. Then, calculate interest button is clicked and the system will calculate the interest that the member must pay. Next, the amount that the member has to pay is entered and save it into database. Then, the system will generate the receipt.

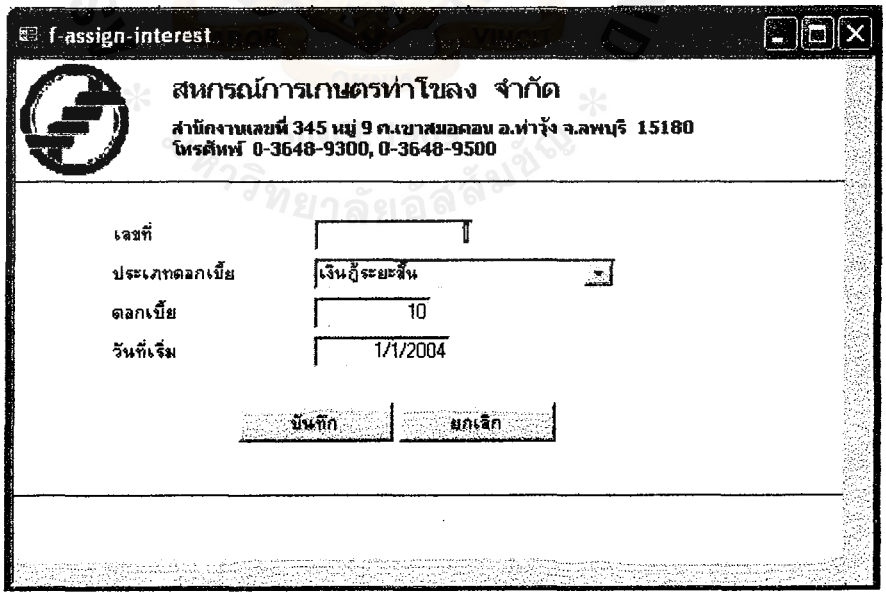

Figure 4-12 Assign Interest Screen

This screen is used for loan interest assignment. The officer will assign the loan interest when the interest is changed which depends on the market circumstances and resolution of board. Then, this interest rate is saved into the database for loan calculation.

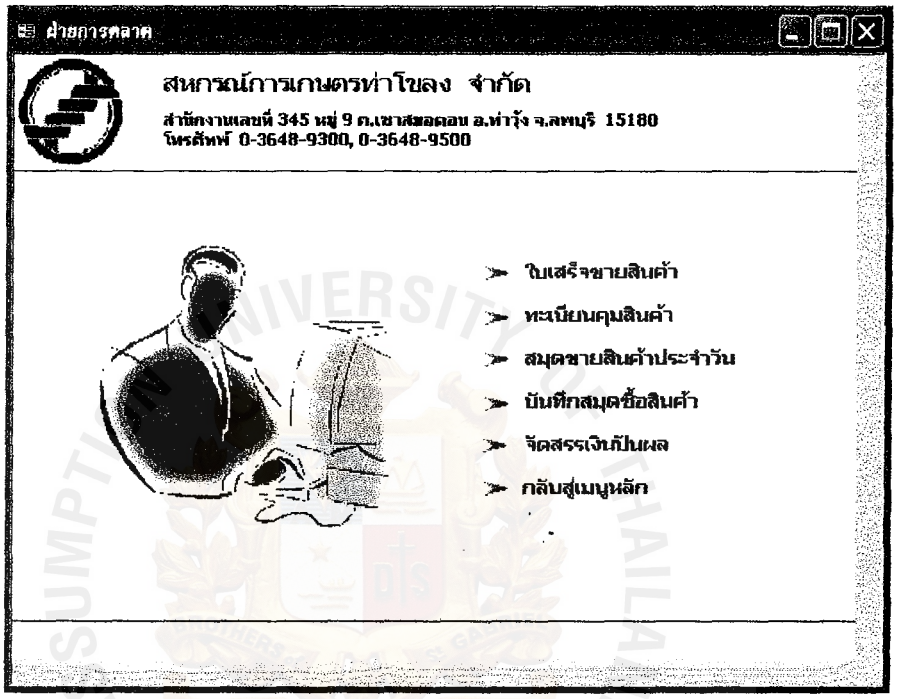

Figure 4-13 Marketing Menu Screen

When the user selects the marketing department label, the marketing menu screen is showed. It includes all responsibilities of this department, selling product, recording purchased product and controlling inventory.

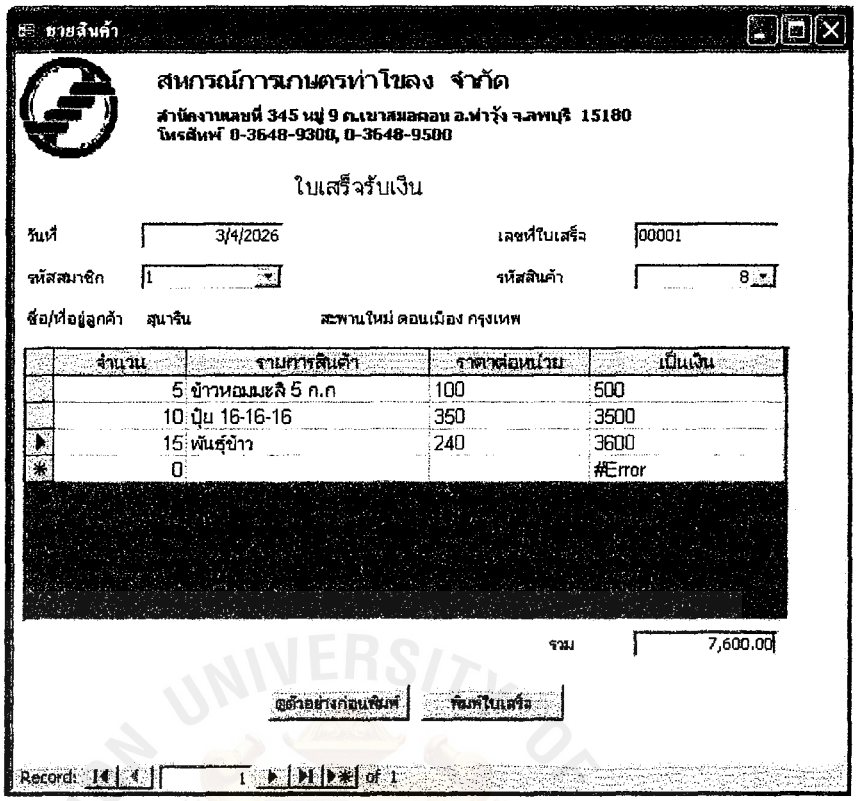

Figure 4-14 Sell Screen

This figure is used for selling products. The officer will receive order from customer and enter it into the field. After that, the system will calculate the total sales and generate the receipt for customer and save order information into selling and inventory files.

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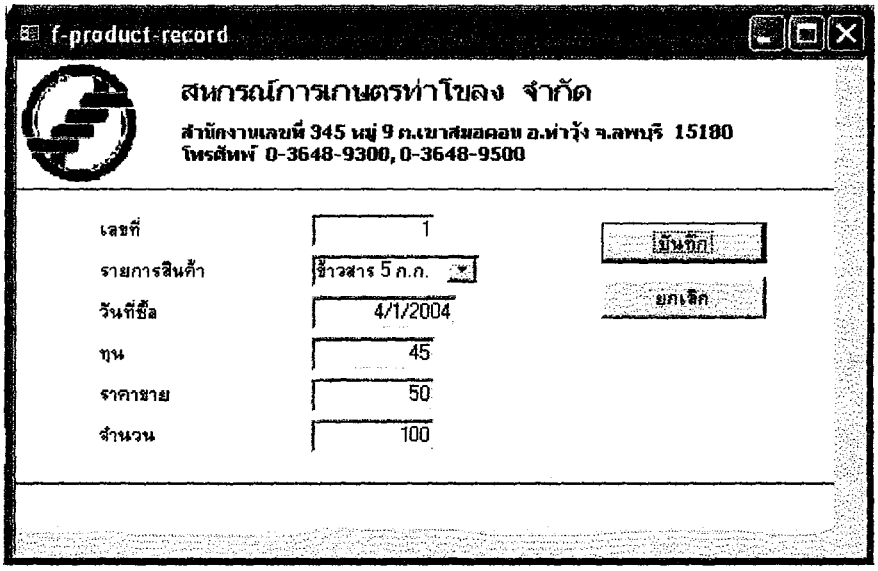

Figure 4-15 Product Record Screen

After we purchase product for sales, we will record its detail into product and inventory file.

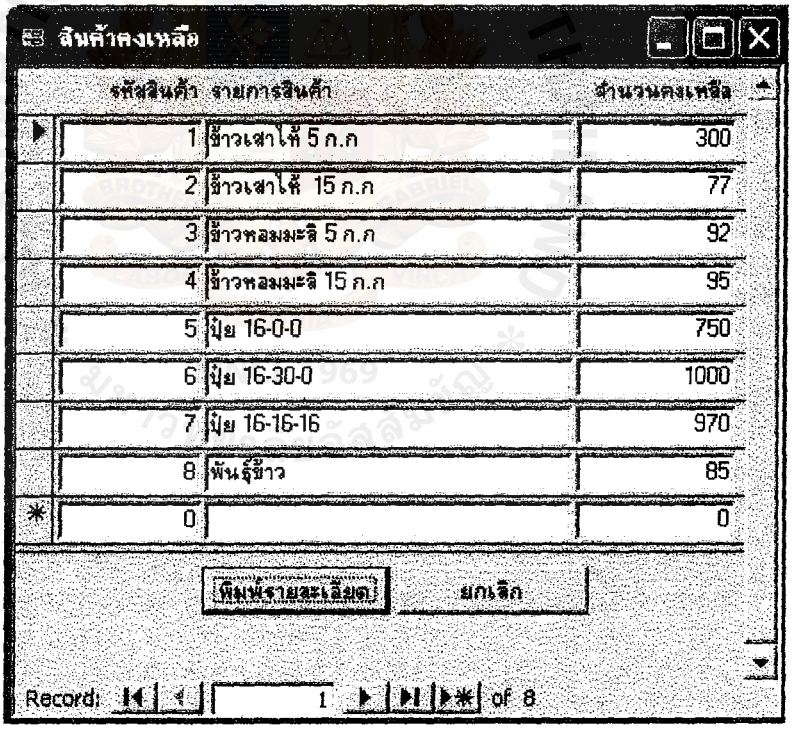

Figure 4-16 Product Inventory Screen

This screen shows the number of products remaining from the inventory file.

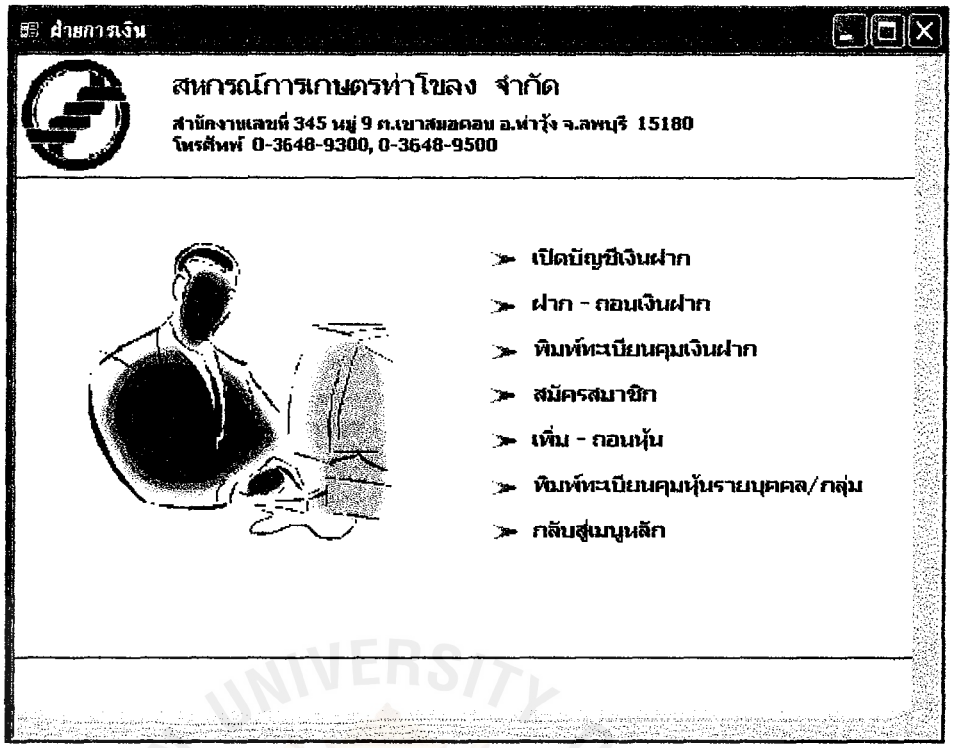

Figure 4-17 Finance Menu Screen

When the user selects the finance department label, the finance menu screen is showed. It includes all responsibilities of this department, deposit and withdrawal service, member application, stock operation and generating report.

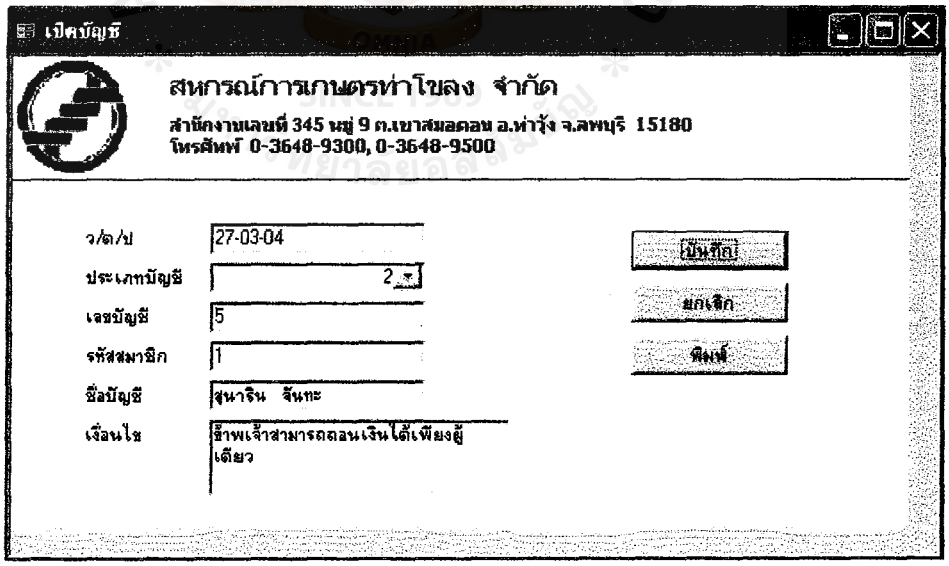

Figure 4-18 Open Account Book Screen

The co-operation services deposit for only members. When a member requests to open an account book, the officer will use the Open Account Book Screen to perform this process. The system will generate an account book ID after the officer selects the type of account book. Then, the officer will fill the information into this form and save it into the database. This information will be printed on the first page of the account book.

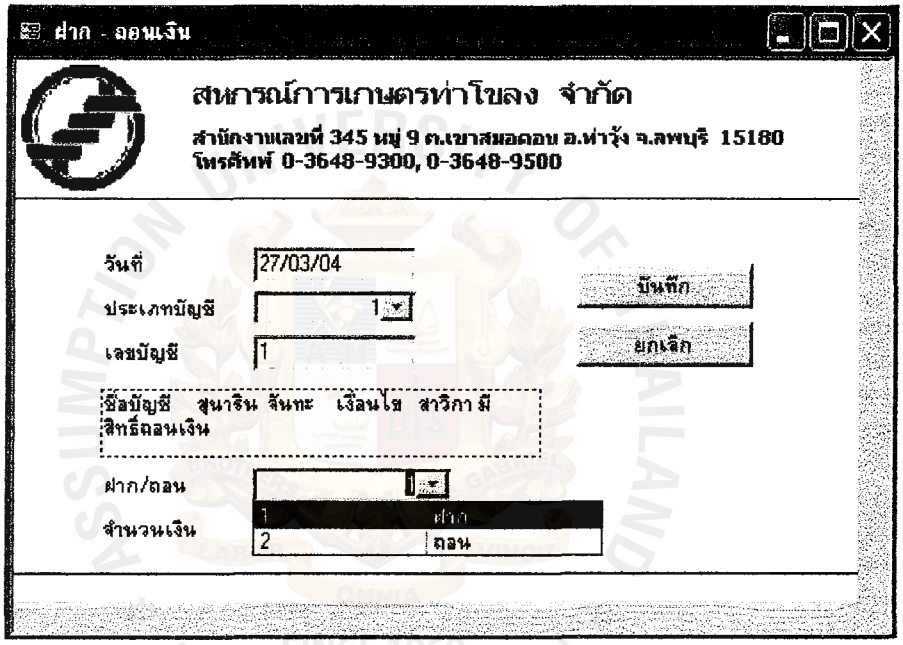

Figure 4-19 Deposit/Withdrawal Screen

When a member requests a deposit or withdrawal, the Deposit/Withdrawal Screen is used. The system will find the information of account book and show it on the screen after the officer selects the type of account book and enters the account book ID. Then, the officer will fill the information into this form and save it into the database. This information will be printed on account book.

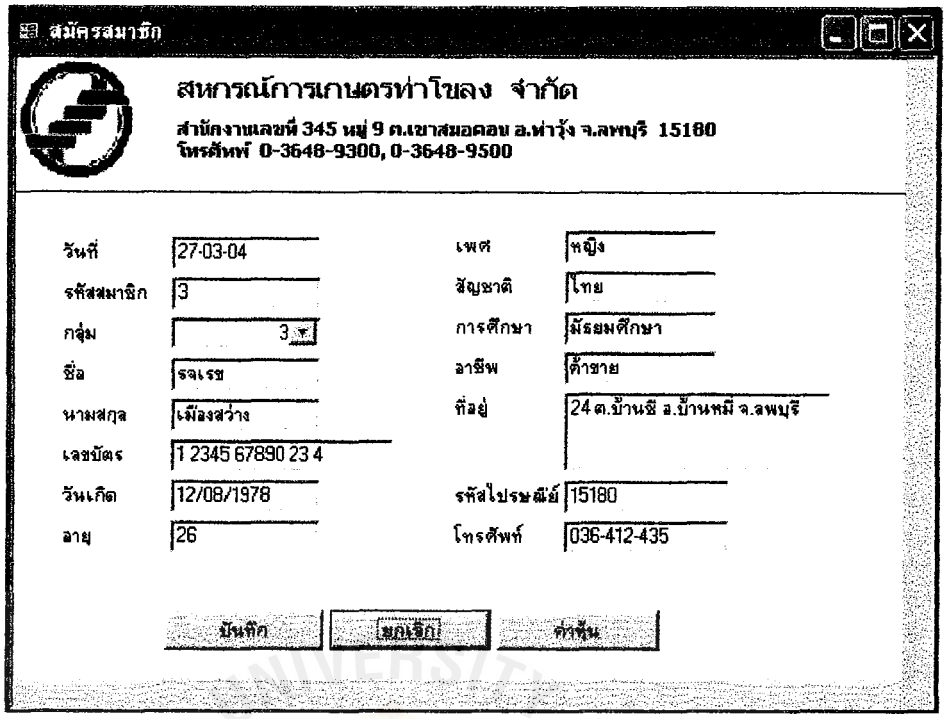

Figure 4-20 Member Profile Screen

When anyone applies to become a member, the officer uses this screen to file the member profile. The system will generate member ID and date that they register after this screen is loaded. The officer will enter personnel member information into the fields. Then, the system will progress to save this information into member file.

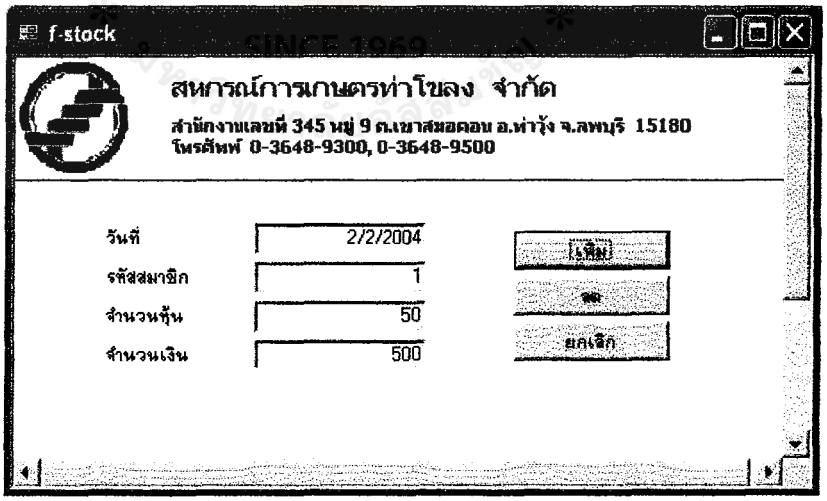

Figure 4-21 Stock Operation Screen

This screen is used for stock operating that are added to or reduced from the member's stock.

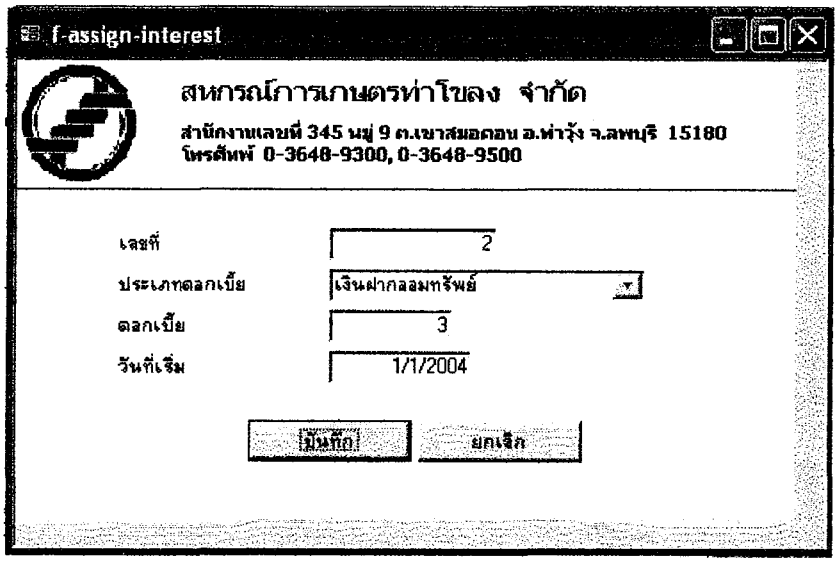

Figure 4-22 Assign Interest Screen

This screen is used for deposit interest assignment. The officer will assign the deposit interest when the interest is changed which depends on the market circumstances and resolution of board. Then, this interest rate is saved into the database for deposit interest calculation.

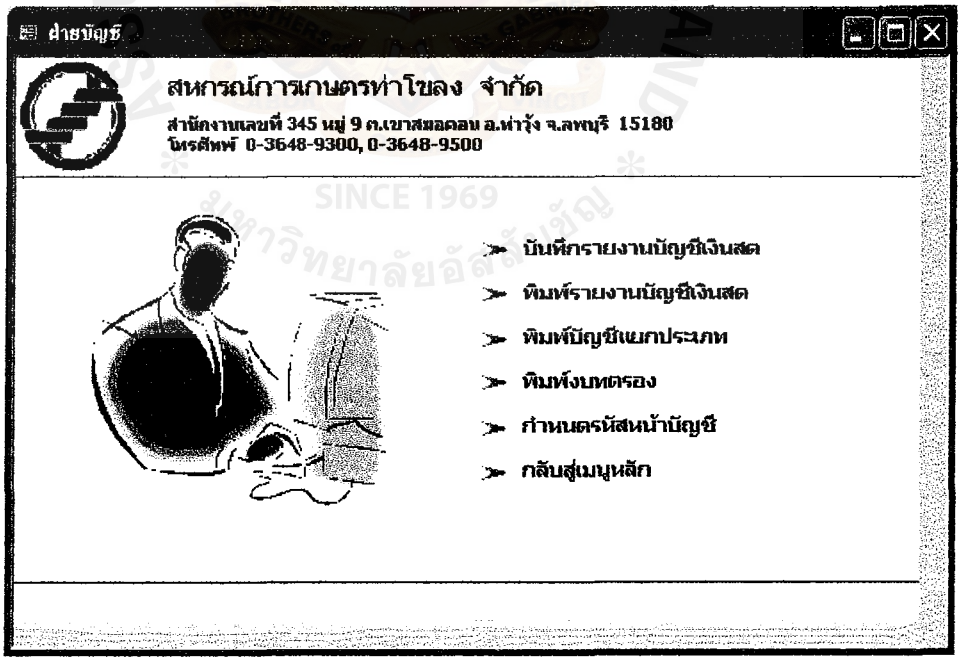

Figure 4-23 Accounting Menu Screen

When the user selects the accounting department label, the accounting menu screen is showed. It includes all responsibilities of this department, generating account receivable and payable, assigning accounting code, and generating report.

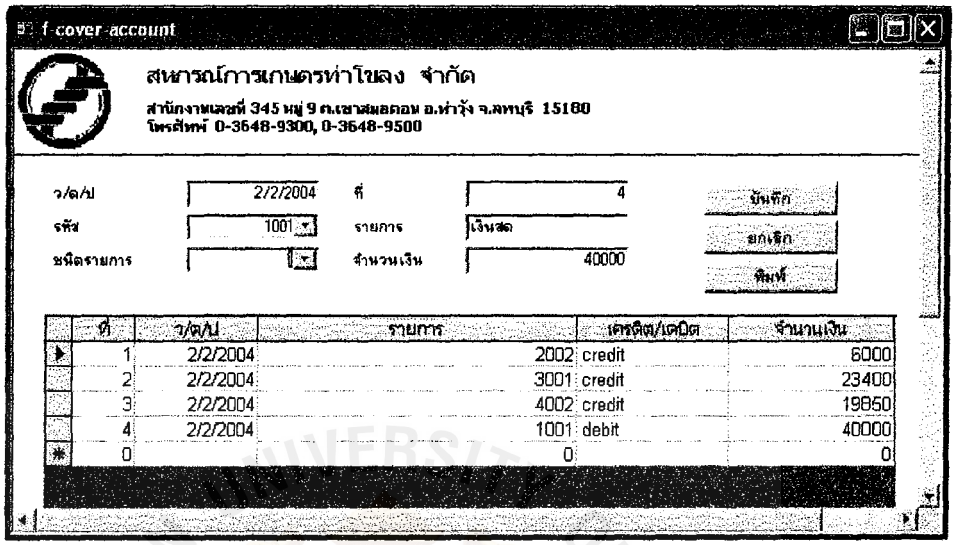

Figure 4-24 Daily Account Screen

The officers use this screen to generate daily account receivable and payable. They will enter account information and save it into accounting file. After they finish, they will print the daily account report.

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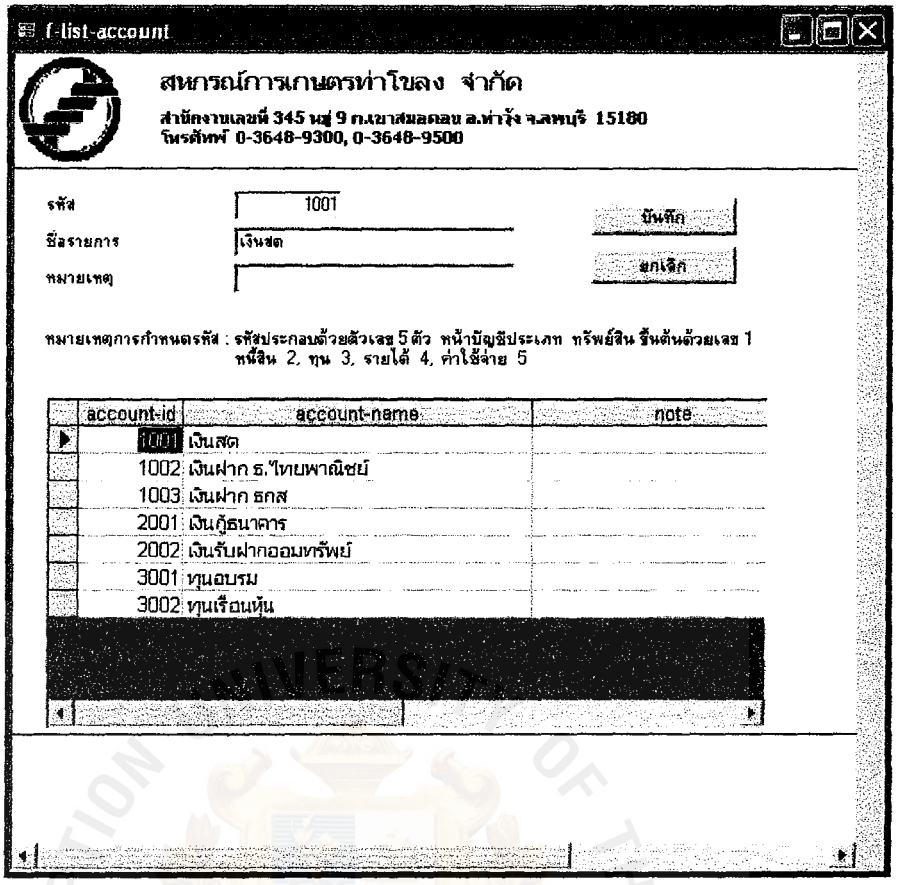

Figure 4-25 Assign Accounting Code Screen

This screen is used to assign accounting code. The accountant enters new account item code. Then, they save this information into database. The system will verify this code from the accounting list file. If it is not already assigned, it will be saved.

4.2 Output Design

The output design requires reports and output screens that generate information or reports. It will be based on the user requirements for daily operation. The output requirements are the information that must be the result from the input requirement that can generate various reports which support the management for better decision making. The proposed system will generate main reports as follows:

St. Gabriel's Library, Au

- Daily Account Repot

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายงานบัญชีประจำวัน

ชนิดรายการ เดบิต

ที่	วัน/เดือน/ปี	รหัสบัญชี	รายการบัญชี	จำนวน
1	3/3/2004	1001	เงินสด	46000
2	3/3/2004	1002	เงินฝาก ธ.ไทยพาณิชย์	275000
3	3/3/2004	1003	เงินฝาก ธกส	29000
8	3/3/2004	5001	ซื้อสินค้า	84000
			รวม	434000

ชนิดรายการ เครดิต

ที่	วัน/เดือน/ปี	รหัสบัญชี	รายการบัญชี	จำนวน
4	3/3/2004	2001	เงินกู้ธนาคาร	50000
5	3/3/2004	2002	เงินรับฝากออมทรัพย์	375000
6	3/3/2004	4001	ขายปุ๋ย	5600
7	3/3/2004	4002	ดอกเบี้ยเงินกู้	3400
			รวม	434000

- Loaning Report

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายการการกู้เงิน

รหัสเงินกู้	รหัสสมาชิก	ประเภทการกู้	วันที่กู้	วัตถุประสงค์	จำนวนเงิน	จำนวนหุ้น
1	1	เงินกู้ระยะปานกลาง	6/3/2004	ซื้อปุ๋ย	589	3
1	1	เงินกู้ระยะสั้น	2/2/2003	ทำนา	50000	250
2	1	เงินกู้ระยะปานกลาง	6/3/2004	ทำนา	20000	100
2	1	เงินกู้ระยะสั้น	6/3/2004	ซื้อปุ๋ย	589	3
3	1	เงินกู้ระยะปานกลาง	7/3/2004	สร้างบ้าน	100000	500
4	9	เงินกู้ระยะปานกลาง	7/3/2004	ทำสวน	20000	100

- Deposit Report

สหกรณ์การเกษตรท่าโขลง จำกัด

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายการเงินฝาก-ถอน

ประเภทบัญชี	เลขบัญชี	วันที่	ฝาก-ถอน	จำนวน	คงเหลือ
เงินฝากออมทรัพย์					
	1				
		2/2/2003	ฝาก	1000	1000
		7/3/2004	ถอน	200	800
	2				
		4/9/2003	ฝาก	4000	4000
	3				
		3/10/2003	ฝาก	750000	750000
	4				
		5/10/2003	ฝาก	69050	69050
	5				
		7/11/2003	ฝาก	234900	234900
	6				
		8/12/2003	ฝาก	108700	108700
	7				
		12/12/2003	ฝาก	128900	128900
เงินฝากออมทรัพย์พิเศษ					
	4				
		7/3/2004	ฝาก	3000	3000

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- Stock Report

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายงานหุ้น

รหัสสมาชิก	วันที่	จำนวนหุ้น	มูลค่า
1	7/3/2004	20	200
1	6/3/2004	100	1000
1	5/3/2004	100	1000
1	2/2/2004	50	500
3	5/3/2004	10	100
6	6/3/2004	50	500
9	7/3/2004	100	1000
9	6/3/2004	70	700
15	5/3/2004	100	1000
	รวม	600	6000

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SINCE 1969
มหาวิทยาลัยอัสสัมชัญ

- Receipt

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โทรศัพท์ 0-3648-9300, 0-3648-9500

วันที่ 3/4/2004 เลขที่ใบเสร็จ 00001

ชื่อสมาชิก สุนาริน

ที่อยู่ สะพานใหม่ ดอนเมือง กรุงเทพ

จำนวน	รายการสินค้า	ราคาหน่วยละ	จำนวนเงิน
10	ข้าวเสาไห้ 15 ก.ก	170	1700
20	ปุ๋ย 16-0-0	325	6500
15	พันธุ์ข้าว	240	3600

รวม	11,800.00

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LABOR OMNIA VINCIT
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- Inventory Report

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โทรศัพท์ 0-3648-9300, 0-3648-9500

รายงานสินค้าคงคลัง

รหัสสินค้า	ชื่อสินค้า	รายการ	จำนวน	คงเหลือ
1	ข้าวเสาไห้ 5 ก.ก	รับเข้า	100	100
1	ข้าวเสาไห้ 5 ก.ก	จ่ายออก	10	90
1	ข้าวเสาไห้ 5 ก.ก	จ่ายออก	5	85
2	ข้าวเสาไห้ 15 ก.ก	รับเข้า	100	100
2	ข้าวเสาไห้ 15 ก.ก	จ่ายออก	25	75
2	ข้าวเสาไห้ 15 ก.ก	จ่ายออก	4	71
3	ข้าวหอมมะลิ 5 ก.ก	รับเข้า	100	100
3	ข้าวหอมมะลิ 5 ก.ก	จ่ายออก	20	80
4	ข้าวหอมมะลิ 15 ก.ก	รับเข้า	100	100
5	ปุ๋ย 16-0-0	รับเข้า	1000	1000
6	ปุ๋ย 16-30-0	รับเข้า	1000	1000
6	ปุ๋ย 16-30-0	จ่ายออก	200	800
7	ปุ๋ย 16-16-16	รับเข้า	1000	1000
7	ปุ๋ย 16-16-16	จ่ายออก	100	900
7	ปุ๋ย 16-16-16	จ่ายออก	150	750
8	พันธุ์ข้าว	รับเข้า	1000	1000

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- Employee Profile

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โทรศัพท์ 0-3648-9300, 0-3648-9500

ประวัติพนักงาน

รหัสพนักงาน	1	ที่อยู่	241 ท่าโขลง ลพบุรี
ชื่อ	สาวิกา		
นามสกุล	โอกาส		
เลขบัตรประชาชน	3-1605-00347-02-0	รหัสไปรษณีย์	15160
ว/ด/ป เกิด	1/7/1977	โทรศัพท์	036-489-051
อายุ	27	ตำแหน่ง	พนักงานบัญชี
เพศ	หญิง	วันที่เริ่มงาน	6/5/2001
สัญชาติ	ไทย	บุคคลค้ำประกัน1	ปัญญา
การศึกษา	เทคโนโลยีสารสนเทศ	บุคคลค้ำประกัน2	ทวี

รหัสพนักงาน	10	ที่อยู่	241 หมู่9 ต.เขาสมอคอน อ.ท่าวุ้ง จ.ลพบุรี
ชื่อ	ศุภชัย		
นามสกุล	โอกาส		
เลขบัตรประชาชน	3-1650-00347-03-4	รหัสไปรษณีย์	15180
ว/ด/ป เกิด	2/16/1973	โทรศัพท์	01-488-7632
อายุ	31	ตำแหน่ง	ผู้จัดการ
เพศ	ชาย	วันที่เริ่มงาน	9/9/2003
สัญชาติ	ไทย	บุคคลค้ำประกัน1	นายปัญญา ประกาศ
การศึกษา	ป.โท(การจัดการ)	บุคคลค้ำประกัน2	นายทวี ทองโต

CHAPTER 5

PROJECT IMPLEMENTATION

An implementation plan has been designed for the new system to help in developing a system within a specified time frame and to install it in the organization, replacing old systems and work method.

Coding: after the physical design is created, the programmer will code the program, and software components.

Testing can be done together with the coding step. The program will be tested to check whether it matches with user requirements.

Installation starts with hardware installation. Then, software would have to be installed on PC.

Conversion : I will select the parallel installation because it is risk-less. For the parallel installation, the existing system continues to run along with the new system until users are satisfied with the new system so the existing system can be turned off.

Documentation is very important. It contains all details concerning understanding of the new system and how to cope with the new system.

Training is one critical success factor in system development. We try to make familiar with the new system to users. It can reduce their belief that the new system will cause more jobs. And, users will be introduced in the right way to cope with the new system.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusions

Thaklong Agriculture Co-operation is a growing business with increasing number of customer services. But all the functions are done manually which causes some errors and redundancy. Therefore, the idea of productivity improvement and the system adaptation have accordingly come up. Computerized System for Agriculture Co-operation is developed for resolving this problem.

The new system is designed to handle all paper work. It is used to support business activities by taking advantage of computer technology. It will help to increase speed and accuracy of business processes and customer satisfaction. Moreover, it can be decrease the errors and redundant tasks. To achieve the objectives of the project, the new system is developed by considering user requirements, system requirement, and hardware and software requirement. And, it provides security which authorizes the user entering the system. The implementation is done by matching all requirements. The developer should consider strictly about cost and time because there is limited resources.

6.2 Recommendations

- The parallel conversion has been used for this system. It ensures that the work will not fail. But it will spend too much time to finish same works because of duplication of works. So, we need to educate the users by describing the advantages of the new system.
- System maintenance should always be provided since the system needs modifying or enhancing. And the documentation must follow.

BIBLIOGRAPHY

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APPENDIX A

DATABASE DESIGN

Table 1 t-account				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	Number	Long Integer	Number
2(PK)	Date	Date/Time	-	Date
3	Account-Id	Number	Long Integer	Account ID
4	Type	Text	50	Credit/Debit
5	Value	Number	Long Integer	Amount of money

Table 2 t-committee				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	commit-no	Number	Long Integer	Number of committee
2	Commit-name1	Text	50	Committee name 1
3	Commit-name2	Text	50	Committee name 2
4	Commit-name3	Text	50	Committee name 3

Table 3 t-debit/credit				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	Number of type
2	Debit/credit	Text	50	Type name

Table 4 t-dep-with				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Book-id	Number	Long Integer	Account book number
2	Date	Date/Time	-	Date
3	Type-act	Text	50	Type of activity (deposit or withdrawal)
4	Type-book	Text	50	Type of account book
5	Amount	Number	Long Integer	Amount of money
6	Officer	Text	50	Officer name
7	Note	Text	50	Note

Table 5 t-dep/with				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-act	Number	Long Integer	Type of activity
2	Name	Text	50	Name of activity (deposit or withdrawal)

Table 6 t-document-record				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	Type of document (sending/receiving)
2(PK)	Doc-no	Number	Long Integer	Number of document
3	Date	Date/Time	-	Date
4	Title	Text	200	Title of document
5	Receiver	Text	50	Receiver name
6	Attach	Text	200	Attachment
7	Sender	Text	50	Sender name

Table 7 t-employee				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Employ-id	Auto Number	Long Integer	Employee ID
2	Name	Text	50	Name of employee
3	Surname	Text	50	Surname of employee
4	Id-no	Number	Long Integer	Number of ID card
5	Birthdate	Date/Time	-	Birth date of employee
6	Age	Number	Long Integer	Age of employee
7	Sex	Text	50	Sex of employee
8	Nationality	Text	50	Nationality
9	Education	Text	100	Education
10	Address	Text	200	Address of employee
11	Zipcode	Number	5	Zipcode
12	Telephone	Number	10	Telephone
13	Position	Text	50	Position
14	Hire-date	Date/Time	-	Start working date
15	Blood-group	Text	5	Blood-group
16	Guaruntee1	Text	50	Guarantee name 1
17	Guaruntee2	Text	50	Guarantee name 2

Table 8 t-group				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Group	Number	Long Integer	Number of group
2	Location	Text	100	Location of each group

Table 9 t-list-account				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Account-id	Number	5	Account ID
2	Account-name	Text	100	Name of account
3	Note	Text	200	Description

Table 10 t-loaning				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Loaning-id	Number	Long Integer	Loaning ID
2	Member-id	Number	Long Integer	Member ID
3(PK)	Type	Text	50	Type of loan
4	Date	Date/Time	-	Date
5	Amount	Number	Long Integer	Amount of money
6	Propose	Text	100	Propose of loan
7	Stock	Number	Long Integer	No. of stock paid
8	Date-receive	Date/Time	-	Received ask date
9	Date-payment	Date/Time	-	Payment date
10	Mortgage-id	Number	Long Integer	Mortgage ID
11	Guaruntee1	Text	50	Guarantee name 1
12	Guaruntee2	Text	50	Guarantee name 2
13	Investigator	Text	50	Officer name
14	Committee-no	Number	Long Integer	Group of committee

Table 11 t-login-system				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Employ-id	Number	Long Integer	Employee ID
2(PK)	LoginName	Text	10	Login name
3(PK)	Password	Text	8	Password
4	Confirm	Text	8	Confirm password
5	Problem	Text	100	Problem for forget password
6	Answer	Text	100	Answer

Table 12 t-member				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Member-id	Auto Number	Long Integer	Member ID
2	Group	Number	Long Integer	Group
3	Name	Text	50	Name of member
4	Surname	Text	50	Surname of member
5	Id-no	Number	Long Integer	Number of ID card
6	Birthdate	Date/Time	-	Birth date of employee
7	Age	Number	Long Integer	Age of employee
8	Sex	Text	50	Sex of employee
9	Nationality	Text	50	Nationality
10	Education	Text	100	Education
11	Address	Text	200	Address of employee
12	Zipcode	Number	5	Zipcode
13	Telephone	Number	10	Telephone
14	occupation	Text	50	Occupation
15	Start-date	Date/Time	-	Start date

Table 13 t-mortgage-descript				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Mortgage-id	Number	Long Integer	Mortgage ID
2	Type-property	Text	50	Type of property
3	Type-right	Text	50	Type of proprietary
4	Owner-name	Text	200	Name of owner
5	Add-prop	Text	200	Address of property
6	Size-area	Number	Longer Integer	Size of area
7	Price-estimate	Number	Long Integer	Price estimation
8	Mortgage-at	Text	200	Mortgage place
9	Mortgage-date	Date/Time	-	mortgaged date

Table 14 t-opened-book				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Book-id	Number	Long Integer	Book ID
2	Member-id	Number	Long Integer	Member ID
3	Account-name	Text	100	Name of account book
4(PK)	Type-book	Text	50	Type of account book
5	Condition	Text	200	Condition of book
6	Date	Date/Time	-	Date

Table 15 t-product-descript				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Product-id	AutoNumber	Long Integer	Product ID
2	Product name	Text	50	Product name
3	Distributor	Text	100	Name of distributor
4	Address	Text	200	Address of distributor
5	Telephone	Text	10	Telephone

Table 16 t-product-record				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	AutoNumber	Long Integer	No. of item
2	Product-id	Number	Long Integer	Product ID
3	Date-entry	Date/Time	-	Date
4	Unit-capital	Number	Long Integer	Unit capital
5	Total	Number	Long Integer	Total capital
6	Price	Number	Long Integer	Price for sale
7	Amount	Number	Long Integer	Amount of product

Table 17 t-selling				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1	Date	Date/Time	-	Date
2(PK)	Receipt-no	Number	Long Integer	Receipt number
3	Customer-name	Text	50	Customer name
4	Member-id	Number	Long Integer	Member ID
5	Product-id	Number	Long Integer	Product ID
6	Unit-price	Number	Long Integer	Price per unit
7	Amount	Number	Long Integer	Amount of product
8	Total	Number	Long Integer	Total price

Table 18 t-sex				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	sex-no	Number	Long Integer	Sex code
2	Sex	Text	50	Sex

Table 19 t-stock				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Member-id	Number	Long Integer	Member ID
2	Date	Date/Time	-	Date
3	No-stock	Number	Long Integer	No. of stock
4	Value	Number	Long Integer	Value of stock
5	Total	Number	Long Integer	Total

Table 20 t-type-book				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type of account book
2	Type-descript	Text	100	Name of account book

Table 21 t-assign-interest				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	No	AutoNumber	Long Integer	Number of item
2	Type	Number	Long Integer	Type of account book
3	Interest	Number	Long Integer	Interest rate
4	Start-date	Date/Time	-	Started date

Table 22 t-type-document				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type-no	Number	Long Integer	No.of type
2	Name	Text	50	Name of document

Table 23 t-type-loaning				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type number
2	Loan-name	Text	100	Type of loan
3	Description	Text	200	Description

Table 24 t-type-vac				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Type	Number	Long Integer	Type number
2	Vac-name	Text	100	Name of vacation

Table 25 t-vacation				
No.	**Field Name**	**Data Type**	**Size**	**Description**
1(PK)	Employ-id	Number	Long Integer	Employee ID
2	Date	Date/Time	-	Date
3	No-vac	Number	Long Integer	Number of vacation
4	Type	Text	50	Type of vacation
5	Reason	Text	200	Reason of vacation

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