Human Resource Information System for
Auto Part Industry Co., Ltd.

by

Mr. Ruangsak Natiabthong

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

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
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Project Title	Human Resource Information System for Auto Parts Industry Co., Ltd.
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Academic Year	March 16, 2003

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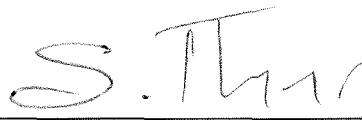
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ABSTRACT

Human Resource Department is a vital department in almost every organization. It is responsible for keeping the record of every employee. The current Human Resource System of Auto Parts Industry Co., Ltd is the stand-alone PC based and manual system has been used for a long time as the existing system in the company. Until now the company has faced some problems in the organization, which include high error rates, data redundancy, unorganized storage, and lack of data sharing.

The study is mainly focused on the entire function of the Human Resource System. The existing system studied and analyzed using the data flow diagram as a structure tool. The new system is developed to solve the current problems and to support the decision making at the management level.

The proposed system of Human Resource System is a shared database system which is connected to a limited area. Local Area Network (LAN) is the best way of connection. In this project, it includes system specification, system design, hardware and software requirement, security and control, and cost/benefit analysis of the proposed system in order to support the decision making of the stakeholders. The new system can support better decision making, information management, time management, and smooth operations. The best idea of this proposed system is its security and its flexibility for future expansion of the system.

ACKNOWLEDGEMENTS

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I. INTRODUCTION

1.1 Background of the Project

The stand-alone PC and manual system is used as the basic system in the existing human resource information system. Advanced information technology is developed faster than before. The database system is shared data for the large number of employees in the company by following the new trend of IT technology. In case of transforming the system, analysis of both advantages and disadvantages of the stand-alone PC is based on the shared RDBMS.

The project only focused on the human resource system in some office department part because of the important roles in departments to manage the company.

The advantages of stand-alone PC in the area of work are less maintenance costs and less initial investment. The work, however, will be less organized, redundant, lack of data sharing and high errors.

On the contrary, the shared database system is highly recommended because of accurate shared data, less redundancy and shared data support. However, the higher maintenance and training costs are the negative feedback.

1.2 Objectives of the Project

The objectives of the project are as follows:

(1) To study and analyze the existing human resource system of the company

(2) To analyze and design the new computerized system for more effective works

(3) To identify the user and business requirements

(4) To identify information system requirements

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(5) To design and develop a new system based on all requirements for the human resource department

(6) To improve the efficiency and effectiveness of the organization about the human resource information system

(7) To support the ever increasing data within the organization

1.3 Scope of the Project

The major parts of the human resource has recruitment, training and development, administration and payroll which can be classified as follows:

(1) Support information for manpower planning which personal department will select a qualified staff or will recruit new applicant for other requirements.

(2) Applicant information collected each new application information and manipulated their information.

(3) Manage and maintain the employee information which will record and update information.

(4) Support employee salary calculation process and will calculate each employee salary each month-end and year-end process and send record to bank.

(5) Training employee recorded the training for each employee and employee information shown by entering employee code or employee name.

1.4 Deliverables

(1) Project Introduction

    (a) Background of the project

    (b) Objectives

    (c) Scope

(2) Description of Existing System

    (a) Background of the organization

    (b) Existing business function

    (c) Current problems and areas for improvement

    (d) Existing computer system

(3) Description of the Proposed New System

    (a) System specification (user requirement)

        (1) Context diagrams

        (2) Data flow diagrams

    (b) System design

    (c) Hardware and software requirement

    (d) Security and controls

    (e) Cost and benefit analysis

(4) Project Implementation

    (a) Installation

    (b) Test plan and results

    (c) Conversion

    (d) Training

(5) Conclusions and Recommendations

    (a) Conclusions

    (b) Recommendations

1.5 Project Plan

(1) Analysis of the Existing System

This is to study the current computer system capacity and the overall system. We start to define the objective and scope, study and identify the

existing problems, the organizational structure involved with the scope of system and problems related to each area.

(2)   Analysis and Design of the Proposed System

The system analysis and design involves the detailed study of the proposed system and giving problems. When the analysis of the existing system is completed, the proposed system is to analyse and design the new system. Designing included database, network, report and program. Cost and benefit analysis is to calculate for payback and breakeven points.

(3)   Implementation of the Proposed System

Preparation-providing space for new computer and output devices are major considerations in space planning and implementing the part of network designs, database designs and develop application programs

By testing and accepting the items as being operational, they should conduct their own test called test and acceptance, which should be developed in conjunction with the design of the system. For customer training, system operator and management, the training program will be conducted for each group according to their related work and authorization of each group, and will provide users an operation manual.

The Project plan of Human Resource System is given in Figure 1.1.

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No.	Task Name	October				November				December				January			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
I.	Analysis of the Existing System																
1	Define the Objective and Scope																
2	Study the Existing Problems																
3	Identify the Existing Problems																
4	Studying the Existing Computer System																
II.	Analysis and Design of the Proposed System																
5	Report Design																
6	Cost & Benefit Analysis																
7	Database Design																
8	Network Design																
9	Program Design																
III.	Implementation of the Proposed System																
10	Hardware Installation																
11	Software Installation																
12	Conversion																
13	Testing																

Figure 1.1.   Project Plan of the Human Resource System of Auto Part Industry Co., Ltd.

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II.   THE EXISTING SYSTEM

2.1   Background of the Organization

Auto Parts Industry Co., Ltd.

Auto parts Industry Co., Ltd. was established in 1973 under the promotion of Thai government to create job opportunities and support the balance of trade in automobile industry. With the help of experts from Japan, the company has developed the quality of steel wheel and press parts products for local car makers as well as global markets.

The company has strong commitment to produce superior quality of "Products", "Customer Service" and "Efficiency" to satisfy customers in various needs. Also, we have a new subsidiary company, Auto Wheel Co., Ltd. Located at Well Grow Industrial Estate Chacheongsao Province. The equipments are highly advanced machinery from Japan, Taiwan as well as USA.

Auto parts Industry Co., Ltd.; The land stands on an area of 39,484 Square Meters and Building is located on 22,500 Square Meter of land in 234 Soi Watmahawongse Poochaosamingprai, Samrong Klang, Paradaeng District, Samutprakarn Province.

The Auto parts Industry Co., Ltd. is subdivided into the following departments:

(1)   Total Planning Division: The main responsibility is to determine the planning to make our products widely known and being accepted qualified products and good service as to satisfy customers needs.

(2)   Personal Department: The department is responsible for human resources of company.

(3)   Safety & Environment Department: The department responsibility is to avoid, protect and resolve the problems of company environment, such as

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noise that can damage employees' hearing and other pollution which occurred from company produce by following to ISO Standard.

(4) Accounting Department: The department deals with all job such as making general accounting standard, producing payroll for all employees, providing payment for debt, and for tax, receiving money and checking the company's income products. The department also cooperates with the purchasing department in getting and approving purchase orders that are to be sent to suppliers.

(5) Purchasing Department: Support the Marketing Department, the purchasing department handles all orders sent to suppliers.

(6) Sales Department: The department handles all orders from all customers that customers ordered through telephone, fax.

(7) Engineering Department: The department developed manufacturing procedure by adopting advance technology, starting from the initial stage of formula preparation by utilizing computer.

(8) Product Control Department: The department utilizes the advanced technology and high quality equipments in order to improve products, and delivery to customers.

(9) Quality Assurance Department: This department operated the checking process using standardized equipments, which the checking process involves the inspection of raw materials before starting production up to the time of final process, and when finished, products shall be inspected before packing.

(10) Production Department: The department's responsibility is to manufacture the products of the organization and service the problem when occurred.

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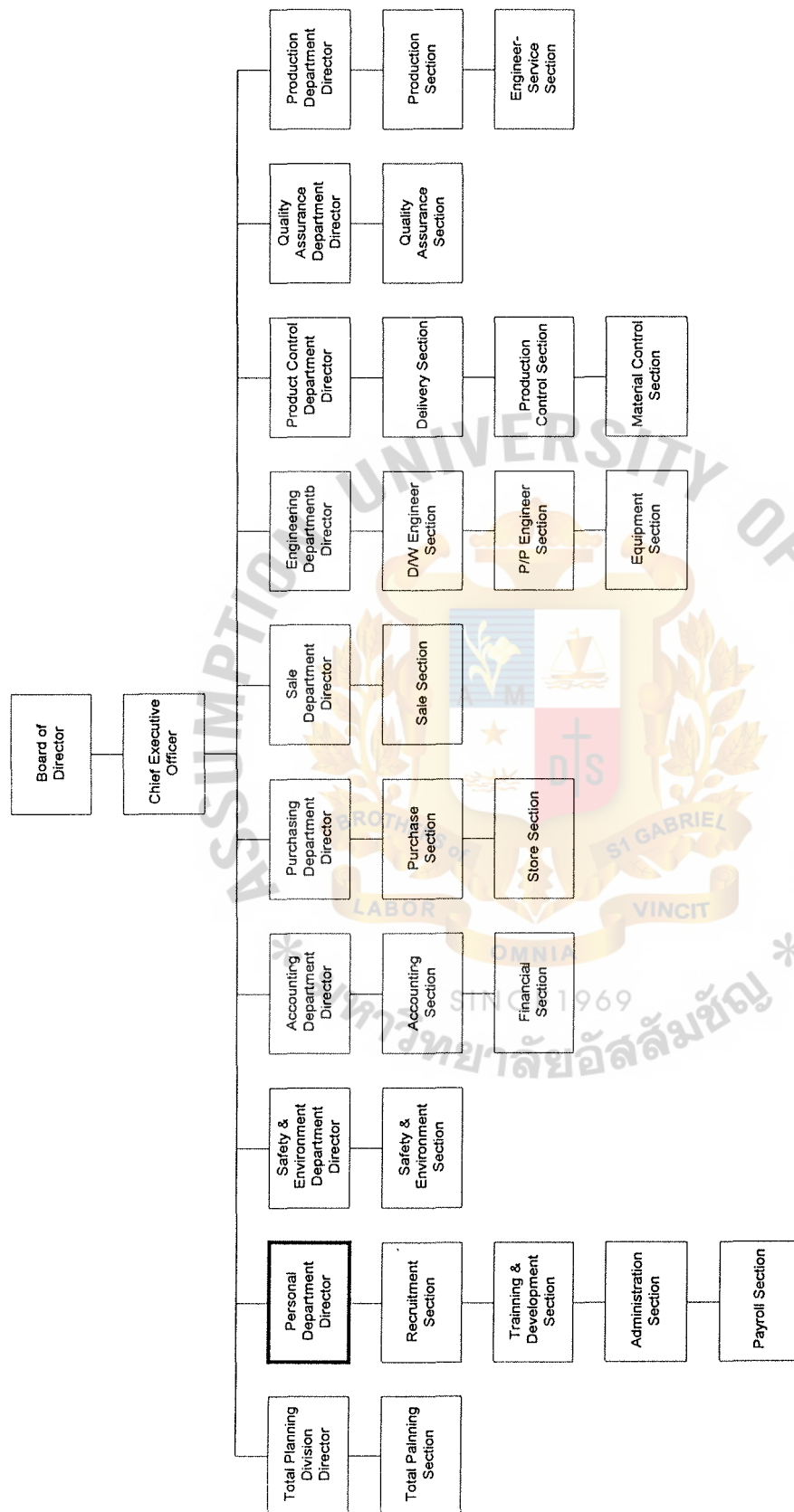
Figure 2.1. Organization Chart of Auto Parts Industry Co., Ltd.

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2.2 Current Problems and Areas for Improvement

2.2.1 Current Problem

The existing system is a manual system and stand-alone PC is used as the existing system. Problems occurred, classified as follows:

(a) Data Redundancy

Separated operation with own files, each department often generates the same interpreted data. That causes the data redundancy. Thus, generated information is more accurate than assured computer stores the current data.

(b) Data is not up to date.

It is very difficult to update the information of all employees in the company.

(c) Low Performance

More steps of verified information of customer and customer agents. In addition, the operators must verify by themselves and use paper documents to store information.

(d) More Mistakes

A few employees own their computers, so accurate information is very necessary. Output information should come from best processing. A little human mistake can cause big problems in business. Therefore, computer training for all employees is important; that database is used to classify the needed information for each area.

(e) Lake of Data Sharing

The current system has no network and computer to link their data together; therefore, unorganized data from different places are useless.

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2.2.2 Areas for Improvement

Because of the fast growth of organization and number of employees, human resource management that operates in manual system can cause many problems.

The under study area is the human resource management, the organization of the personal department is divided into four sections as follows:

(1)   Recruitment Section

(2)   Training & development Section

(3)   Administration section

(4)   Payroll Section

In the existing system, several areas of work have more problems because of manual operation and less IT technology. The existing system spends much money in operation and managed budget for planning and developing. Because of advanced technology in IT, the proposed system, based on computer and DBMS, is able to manage and operate for maximum performances in many areas of work, including decision making, managing budget and planning for the company.

The proposed system in the next chapter shows the area of IT technology, workflow cost and benefit in system development.

III. THE PROPOSED SYSTEM

After analyzing the existing system that defined the problems, the design of the proposed system is to assemble an overall picture of inputs, outputs operations and resource required by the system that meets the requirement in present and future of human resource department. The designation of proposed system is computerization of any area of work by using appropriate software and hardware and ability in sharing the information with other departments.

3.1 System Specification

The proposed system requirements are those features or details that are needs, activities, and improvements provided by the new system. The proposed system requirements are as follows:

(a) The new system is the computerized system that is the step of work must be designed in the form of menu driven so that the users who do not have computer knowledge can understand easily.

(b) The new system has relational database that should be efficient and can support create, update, backup and recovery data.

(c) The security and operation control must be included in new system.

(d) The database must be shared within the organization.

(e) Standard report form should be designed so that every department in organization can use and easily understands the information.

(f) The new system should be flexible and reliable to maintain and implement.

(g) The new system must be implemented by networking system that computers in each department can be linked together.

(h) Report must be generated clearly and cover all information needs.

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3.2 System Design

3.2.1 Input Design

The input forms for human resource department should be the form to record in the new system or command to processes the data in the new system as follows:

(1) Vacancy requirement information

(2) Applicant information

(3) Approval vacancy requirement

(4) Matching appropriate applicant and vacancy requirement

(5) Candidate's exam and interview score

(6) Employee information

(7) Set holiday, position, bank, employee type, work type

(8) Course Information

(9) Trainer Information

(10) Employee training information

(11) Employee working time

3.2.2 Output Design

Output report can be categorized as following. For example, the form of report will be shown in Appendix B as follows:

(1) Vacancy requirement report

(2) Approval vacancy report

(3) Applicant report

(4) Matching appropriate applicant and vacancy report

(5) Candidate's exam and interview score report

(6) Employee report

(7) Employee training report

(8) Employee working time report

(9) Course information report

(10) Trainer information report

(11) Holiday report

(12) Tax form

(13) Salary form

(14) Tax information

(15) Salary information

3.2.3 Screen Design

The screen layout was designed for user friendly for every department in the organization. The designed forms in each department will be different. The input and output screen will be shown in Appendix I.

3.2.4 Process Design

With analyzing the existing system, current problem was used as a basic for designing process of proposed system. The overview of process was shown in Figure C and the process specification will be shown in Appendix G.

3.2.5 Database Design

Database was designed by analyzing the information that records existing document. The database design was adjusted for information that was produced by the process, as well as, provided for information be occurred in the future. Besides, the database was designed in tabular form by a distributed relational database concept to duplicate table to multiple database in order to reduce the data traffic on the network and to ensure that data is always maintained on very related server.

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3.2.6 Feasibility Analysis Design

The one important activity to evaluate the alternative candidate solution is feasibility analysis design. Feasibility analysis should be limited to costs and benefits of the project. Then, in the project, it sets the four criteria in evaluating the candidate solutions, as follows:

(1) Technical feasibility is an assessment of the maturity, availability and desirability of the computer technology required to support the candidate solutions.

(2) Economic feasibility is the method for finding the optimal cost to develop the system, pay back period and net present value of each candidate solution.

(3) Operational feasibility is the description to what degree the candidate would benefit the organization and how will system work, which we can collect from the organization survey.

(4) Schedule feasibility. The purpose of this feasibility is to find out how long the solution will take to design and implement.

Feasibility Analysis Design is shown in Appendix A

3.3 Hardware and Software Requirement

In this system, we focus on the network system. We will change from the handle information manually and the standard alone PC to be a computerized system for more effective works. Therefore, the data in the system can be shared within the organization.

The human resource information system was implemented on the LAN and installed in the same floor and the same building, distance is about 50-100 m. The star topology with four workstations and one server is the best choice of the network system. The transmission of data between clients can be managed by the server. With installed

Ethernet 10 BaseT (UTP medium) and Hub for connection in the star topology, including connected server, workstations, printers and scanner can also reduce cost. Network configuration is shown in Figure 3.1. We also prefer 10-100 3com for LAN adapter or Network Interface Card (NIC).

The hardware and software specification is shown in Tables 3.1 – 3.4.
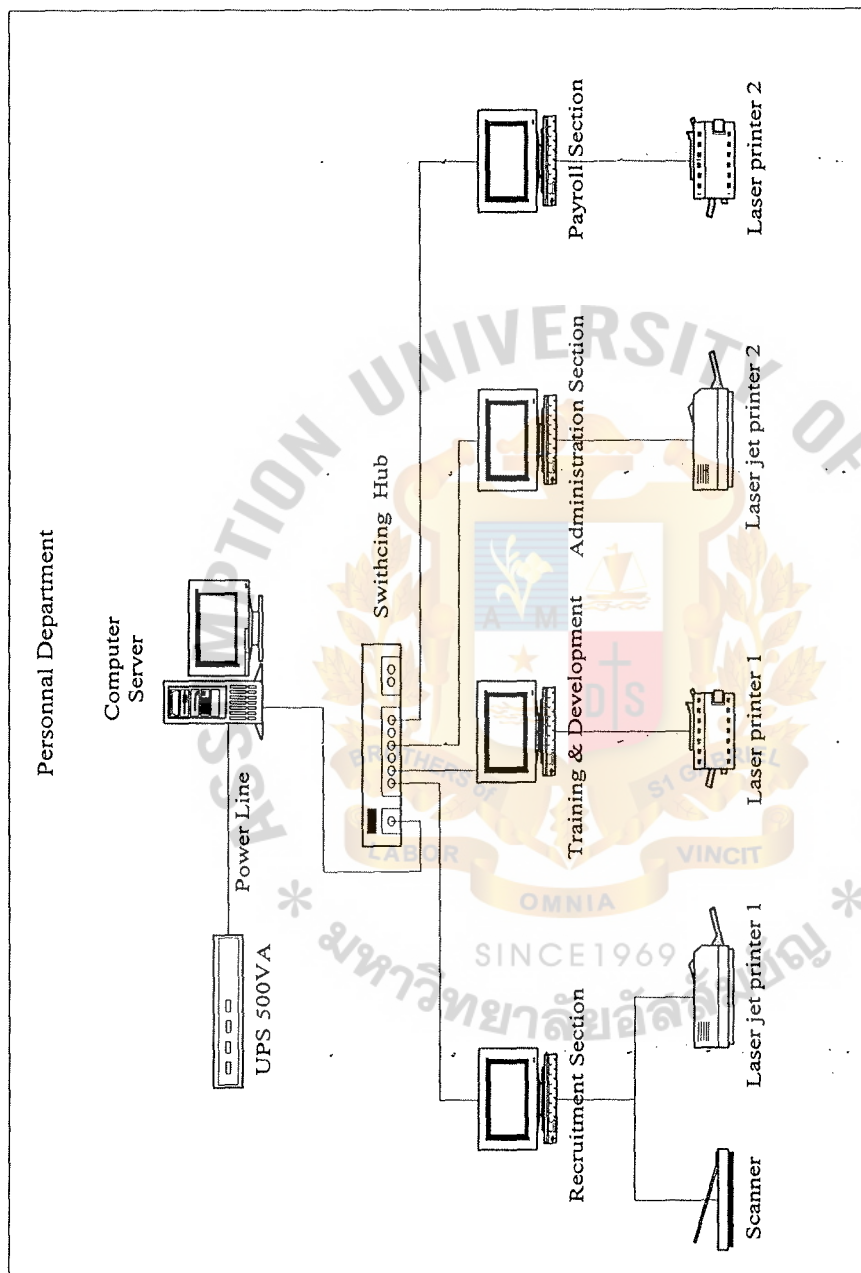
Figure 3.1. The Hardware Configuration of Human Resource Department.

Table 3.1. Hardware Specification for One Server Computer.

Items		Unit	Cost/Unit (Baht)	Remark
Server Computer		1	320,000	-
CPU	Pentium III 800 MHz			
Memory	256 MB SD-RAM			
Harddisk	20GB			
Floppy Disk	1.14 MB			
CD-Rom Drive	55X			
Network Adapter	3Com 10/100 Mbps			
Display Adapter	SVGA Card			
Display Adapter	17" Monitor			

Table 3.2. Hardware Specification for Four Workstations.

Items		Unit	Cost/Unit (Baht)	Remark
Workstation		4	36,000	-
CPU	Pentium III 550 MHz			
Memory	64 MB SD-RAM			
Harddisk GB				
Floppy Disk	1.14 MB			
CD-ROM Drive	55X			
Network Adapter	3Com 10/100 Mbps			
Display Adapter	SVGA Card			
Display Adapter	15" Monitor			

Table 3.3. Other Hardware Specification.

Items		Unit	Cost/Unit (Baht)	Remark
Other Hardware				
Printer	HP LASERJET	2	36,000	-
	HP DESKJET 880C	2	18,000	-
Scanner	HP SCANJET 5200C	1	15,000	-
UPS	LEONICS OA 500VA	1	12,000	-
SWITCHING	6PORT	1	32,000	-
Cable	UTP	1	25,000	-

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Table 3.4.   Software Specification.

Items		Unit	Cost/Unit (Baht)	Remark
Software				
Operating System	Microsoft Windows 2000 for server	1	29,000	-
	Microsoft Windows 98 for clients	1	15,000	-
Application Software	Microsoft Office 97	1	15,000	-

3.4   Network Configuration

The need to share expensive resources is another driving factor in the development of networks. The cost of processor hardware has dropped far more rapidly than the cost of mass storage devices, printers, and other peripheral devices. The result is a need to share these expensive devices among a number of users to justify the cost of the equipment. This sharing requires some sort of client-server architecture operating over a network that interconnects users and resources.

In network configuration of this system, since the company is not large and has a few staff, the network configuration selects the star topology. The term "topology" refers to the way a network is laid out, either physically or logically. In a star topology, each device or computer has a dedicated point-to-point linked only to a central controller, usually called a hub. The computers are not linked to each other.

The reason to select the star topology for this computerized system is less expensive. In a star, each computer needs only one link and one I/O port to connect it to any number of others. This factor also makes it easy to install and reconfigure. Other advantages include robustness. If one link fails, only that link is affected.

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3.5 Security and Control

The system security and control auditing procedure helps to ensure that the system runs as planned. The errors or inappropriate procedures are detected and corrected before the system is affected.

The following security and controls should be concerned for the computer band system:

(1) Database Security

The security must cover both unauthorized accesses to information, accident, malicious deletion or corruption of data, including change information in database.

All the database entry and modification must be double-checked either from the screen display using the password to protect unauthorized access so that the system must be done by authorized person only.

(2) Program Security

All the data files and system programs should be stored on the storage medium, such as floppy disk or tape backup to ensure the correctness of data and operations. All the files in database always are back up, updated and modified. Moreover, it is recommended the backup should be done within that day.

(3) Machine and Equipment Security

The security can protect and control because the information is the assets of the organization. It must be protected and managed by using an uninterrupted power supply (UPS) in order to ensure that the computers can work if the electricity fails or using the back up tools.

3.6   Cost/Benefit Analysis

Generally in any company, when a new computerized system has been developed and a new system proposed, the analyst can weigh the costs and benefits of each alternative. This is called a cost-benefit analysis. Cost can be divided into two categories. The first category is concerned with developing the system, and the second is associated with operating a system. The development cost can be estimated from the outset of a project and should be refined at the end of each phase of the project. The operating cost can be estimated only once specific computer-based solutions have been defined (during the selection phase or later). Systems development costs are usually one-time costs that will not recur after project has been completed.

3.6.1 Cost Analysis

In the Cost Analysis issue, there are two major cost categories that are concerned: development costs and operational costs, development costs are associated with system development, and operational costs are related to the day-to-day operation of information systems.

(1)   Development Costs:

To analyze the cost analysis, Investment Cost is the first direct cost that is concerned with the following:

(a)   Hardware purchase

(b)   Software purchase

(c)   Personnel hours for analysis, design, programming, and testing

(d)   Preparation of computer site

(e)   Documentation for new system

(f)   Changeover from old to new system

(g)   Conversion from old to new system format

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(1) Operating Cost:

The recurring cost can be determined as follows:

(a) Day-to-day personnel costs, including systems administrator, computer operations, and end-user costs

(b) Computer supplies

(c) Ongoing training

3.6.2 Benefits Analysis

Two types of proposed system benefits, tangible and intangible, make advantages in the company. Tangible benefit not only decreases paperwork, job procedure and responding time but reduces cost of company. Intangible benefit can improve confidential control, higher decision making and more accurate information.

(1) Tangible benefit

Tangible benefit can be measured and calculated. The value is measured in Baht currency. After implementing the proposed system, the tangible benefit can show the reducing cost as follows:

(a) To reduce the processing time

(b) To reduce overtime cost paid

(c) To reduce salary and bonus

(d) To reduce lost of paper work and documentation for using in management and decision making.

Table 3.5. Tangible Benefits, Baht.

Cost Items	Cost
Reduction of 2 personnel staffs per annual 2 @15,000	30,000
Reduction of 1 key operation staff per annual 1 @ 9,000	9,000
Reduction of typewriter	30,000
Reduction of overtime paid	65,000
Reduction of paper work	25,000
Reduction of station cost	20,000
Reduction of utility cost	35,000
Total	214,000

(2)   Intangible Benefit

Intangible benefit cannot be measured monetarily. However, it can increase benefits to the company in several ways as follows:

(a)   Enhance the decision making

(b)   Improving time management

(c)   Improving manpower management

(d)   Improving confidential control

(e)   Improving information management

(f)   Improving company's image

(g)   Faster operation

3.6.3 Cost/Benefit Analysis

In General, to develop the proposed system is a long-term investment which represents sizable outlays of funds that commit a company to some course of action, so procedures are needed to analyze and select it properly. Attention must be given to measuring relevant cash flow and applying appropriate decision making techniques. Capital budgeting is the process of evaluating and selecting long-term investments consistent the firm's goal of owner wealth maximization.

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The Payback Period Analysis and the Breakeven Analysis are the most popular tools to evaluate this issue.

3.6.4 Payback Period Analysis

The payback analysis technique is a simple and popular method for determining when an investment will pay for itself. Because systems development costs incurred long before benefits begin to accrue, it will take some time for the benefits to overtake the costs.

After implementation, we will incur additional operating expenses that must be recovered. Payback analysis determines how much time will lapse before accrued benefits overtake accrued and continuing costs. This period of time is called the Payback period.

3.6.5 Breakeven Analysis

Breakeven point is the simplest form of post cost comparison. We use this method when the costs of the proposed new system intersect the costs of the old system. At point of intersection, the proposed new system begins to generate a positive monetary return in comparison with the old system. From now on, the amount invested in the new system will be offset by the saving new system allows.

Calculation of Payback Analysis

This is used for estimating the amount of investment in proposed system. It is worth investment worth or not.

Formula $\quad$ P $\quad = \quad$ I / (1-T)R

Where $\quad$ P $\quad = \quad$ Payback period

$\qquad$ I $\quad = \quad$ Investment or capital expenditure

$\qquad$ T $\quad = \quad$ Tax rate (10%)

$\qquad$ R $\quad = \quad$ Annual saving realized by investment

$\qquad\qquad\qquad$ (Tangible benefit substracted by operational cost)

Therefore, payback period of the proposed system can be calculated as follows:

$\qquad$ I $\quad = \quad$ 1,355,300

$\qquad$ R $\quad = \quad$ 1,081,000 – 298,500

$\qquad\qquad = \quad$ 790,000

$\qquad$ P $\quad = \quad$ I / (1-T)R

$\qquad$ P $\quad = \quad$ 1,355,300 / (1 - 0.1) 790,000

$\qquad\qquad = \quad$ 1.73 years

Payback period (after tax) for the proposed system is 1.73 years

Table 3.6. Existing System Cost Analysis, Baht.

Cost Items	Years				
	1	2	3	4	5
Operating Cost					
Salary:					
Manager 1 unit@ 27,000	27,000	28,000	30,000	30,000	32,000
Personal Office 4 units@ 9,000	36,000	36,000	38,000	40,000	44,000
Key Operators 2 units@ 7,000	14,000	14,000	15,500	16,000	16,500
Total Monthly Salary Cost	77,000	78,000	83,500	86,000	92,500
Total Annual Salary Cost	924,000	1,016,400	1,118,040	1,229,844	1,352,828
Office Supplies & Utility Cost:					
Stationary Cost	9,500	10,000	10,500	11,000	12,000
Office Equipment Cost	8,500	9,000	11,000	13,000	14,000
Utility Cost	8,500	9,350	9,200	13,000	14,500
Communication Cost	18,000	18,000	18,000	18,000	18,000
Maintenance Cost	35,000	35,000	35,000	35,000	35,000
Total Annual Off. Sup. & Utility	79,500	81,350	83,700	90,000	93,500
Total Annual Operating Cost	1,003,500	1,097,750	1,201,740	1,319,844	1,446,328
Total Existing System Cost	1,927,500	2,114,150	2,319,780	2,549,688	2,799,157
Accumulated Cost	1,927,500	4,041,650	6,361,430	8,911,118	11,710,275

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Table 3.7. Proposed System Cost Analysis, Baht.

Cost Items	Years				
	1	2	3	4	5
Fixed Cost					
Hardware Cost:					
Computer Server 1 unit@ 320,000	320,000	320,000	320,000	320,000	320,000
Workstation Cost 4 units@ 36,000	132,000	132,000	132,000	132,000	132,000
Laserjet Printer 2 units@ 36,000	52,000	52,000	52,000	52,000	52,000
Deskjet Printer 2 units@ 18,000	36,000	36,000	36,000	36,000	36,000
Scanner 1 unit@ 15,000	15,000	15,000	15,000	15,000	15,000
Switching HUB 1 unit@ 32,000	32,000	32,000	32,000	32,000	32,000
UPS, 500 VA. 1 unit@ 12,000	12,000	12,000	12,000	12,000	12,000
UTP cable CAD 5	2,500	2,500	2,500	2,500	2,500
Total Hardware Cost	601,500	601,500	601,500	601,500	601,500
Software Cost:					
Window 2000 Server	29,000	29,000	29,000	29,000	29,000
Window 98	15,000	15,000	15,000	15,000	15,000
Office 97	15,000	15,000	15,000	15,000	15,000
Oracle 8i / Developer2000	44,800	44,800	44,800	44,800	44,800
Total Software Cost	103,800	103,800	103,800	103,800	103,800
Implement Cost:					
Software Development Cost	29,000	29,000	29,000	29,000	29,000
Basic Training Cost	15,000	15,000	15,000	15,000	15,000
Development and Installation Cost	15,000	15,000	15,000	15,000	15,000
Total Implementation Cost	44,800	44,800	44,800	44,800	44,800
Total Fixed Cost	103,800	103,800	103,800	103,800	103,800
Operating Cost					
People-Ware Cost:					
Manager 1 unit@ 30,000	30,000	33,000	36,300	39,930	43,000
Personal office 3 units@ 12,000	48,000	52,800	58,080	63,888	70,277
Total Monthly Salary Cost	78,000	85,800	94,380	103,818	113,277
Total Annual Salary Cost	936,000	1,029,600	1,132,560	1,245,816	1,370,398
Office Supplies & Utility Cost:					
Stationary Cost	35,000	40,000	44,000	48,400	53,240
Office Equipment Cost	50,000	55,000	60,500	65,000	68,000
Utility Cost	60,000	66,000	72,600	79,860	87,846
Total Annual Off. Sup. & Utility Cost	145,000	161,000	177,100	193,260	209,086
Total Annual Operating Cost	1,081,000	1,190,600	1,309,660	1,439,076	1,579,484
Total Proposed System Cost	2,436,300	2,005,100	2,117,460	2,240,506	2,373,984
Accumulated Cost	2,436,300	4,441,400	6,558,860	8,799,366	11,173,350

Table 3.8.   Five Years Accumulated Existing System Cost, Baht.

Year	Total Existing System	Accumulated Cost
1	1,927,500	1,927,500
2	2,114,150	4,041,650
3	2,319,780	6,361,430
4	2,549,688	8,911,118
5	2,799,157	11,710,275
Total	11,710,275	-

Table 3.9.   Five Years Accumulated Proposed System Cost, Baht.

Year	Total Proposed System	Accumulated Cost
1	2,436,300	2,436,300
2	2,005,100	4,441,400
3	2,117,460	6,558,860
4	2,240,506	8,799,366
5	2,373,984	11,173,350
Total	11,173,350	-

Table 3.10.   Comparison of System Cost, Baht.

Year	Accumulated Existing Cost	Accumulated Proposed Cost
1	1,927,500	2,436,300
2	4,041,650	4,441,400
3	6,361,430	6,558,860
4	8,911,118	8,799,366
5	11,710,275	11,173,350

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Table 3.11. Payback Analysis for Proposed System, Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development Cost	-1,159,400					
Operation & Maintenance Cost		-1,081,000	-1,190,600	-1,309,660	-1,439,076	-1,579,484
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted cost (Adjust to present value):	-1,359,300	-982,727	-983,727	-938,967	-982,908	-980,735
Accumulative Time-adjusted cost Over lifetime:		-2,338,027	-3,321,994	-4,300,961	-4,940,242	-5,882,795
Benefits derived from operation of New system:		2,120,250	2,332,275	2,556,563	2,822,053	3,104,258
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted Benefit (Adjust to present value):		1,752,273	1,592,275	1,448,159	1,316,508	1,196,826
Accumulative Time-adjusted cost Over lifetime:		1,752,273	3,345,248	4,793,407	6,109,916	7,306,741
Accumulative Lifetime Adjust Cost + Benefit	-1,355,300	-585,755	23,254	487,446	821,046	1,037,137

Figure 3. 3. Payback Analysis Graph for Human Resource System.

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In Figure 3.3, the first year costs of the proposed system will be considerable because of the hardware and software installation. In the second year and in later years, the cost will decrease slightly and continuously.

The result in Table 3.10 is the cost of the proposed system that will be higher than the existing system's cost in the first year. However when we study the following year, the cost is consecutive. The cost of the proposed system will be less than the existing system.

IV. PROJECT IMPLEMENTATION

Project implementation is the ongoing process of directing and coordinating all the steps in the development of system. Effective protect management is necessary through the entire system development life cycle. General management functions are planning, staff, organizing, directing and controlling. A project manager is planning activities, including selecting the project team and assigning specific team to team members, monitoring the progress of the project team and guiding, supervising, and coordinating. The teamwork load is part of a project manager to direct activities.

4.1   Installation

The installations are as follows:

(a)   Hardware Installation

To set workstation, printers and UPS to connect server with enable lines.

(b)   Software Installation

All software must be installed on the workstation and servers side.

(c)   Database Installation

The data will be created the form of database to support the new system.

(d)   Network Installation

All workstations must be connected to server by the involvement of network specialist.

4.2 Testing

Program testing is the test process of executing a program with the intent of finding an error, such as out of input sequence; interrupted system after a command has been entered.

System testing is the test of entire information system using current data supplied by end users, in an attempt to exercise all procession situations under typical conditions such as testing software for smooth overall operation, calling program operation and so on.

Though testing may use time, we cannot skip this step. We need to ensure that it is error-free when we actually implement the system.

(a) Verification testing must run the system in simulated environment using simulated data; the simulated test is called "alpha testing". The alpha testing is looking for errors and omissions regarding user and design specification.

(b) Validation testing runs the system in a live environment using real data, which is called "beta testing". During this validation, we are testing a number of items.

(1) System performance checks the throughput and response time for processing enough to meet in a normal processing workload, if not, some program may have to be rewritten to improve efficiency or hardware may have to be replaced or upgraded to handle the additional workload.

(2) Pack workload processing performance checks the system that it can handle the workload during peak procession period. If not, we may have to improve hardware or software to increase efficiency.

(3)   Human engineering test checks the system, which can be understood or can be learned by user. This test can do until after the system has been placed into operation.

(4)   Methods and procedures test. During conversion, the methods and procedures for new system will be put to their first real test. The methods and procedures may have to be modified if they prove to be awkward and inefficient.

(5)   Backup and recovery testing, to test the unexpected events which can cause damage to data, and to prevent the lost of data. Therefore, we have to backup their data and test all backup and recovery procedures. We perform a before and after comparison of data to ensure that the data are not damaged or destroyed and can be recovered.

(c)   Audit testing. This test level certifies that the system must not have errors and it is ready to be placed into operation. This testing may be required but user must certify the system and their document before the system is placed into operation.

4.3   Conversion

After unit and system testing has been completed, the most time-consuming activities is usually the conversion plan. Data from the old system must be transferred to the new system. Therefore, the converted data then must be carefully verified for accuracy and completeness.

As the existing system is manual, this new system is selected to use "parallel strategy" of the conversion which both the old system and its potential replacement are run together for a time unit. We are assured that the new system functions correctly and it carries less risk of the system failure. The existing data is converted to store in the

form of database system. The user will get trained before using the operations of the new system and actual implementation.

4.4 Training

Training begins at the end of the system, which is a way to guide users through the new system. The switch to new system requires the system users to be trained and provided with document (user's manuals), which guide the how to use the new system. Grouping training (2-3 processes per group) is held. Then, the first group of trainees (the group of management team) can train several other groups. All users will know the basic computer knowledge and overall function of the program, which are the ways to handle the programs and make use of data.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Human Resource System was developed for Auto Parts Industry Co., Ltd. The area under study is the personnel department that exists in a manual system. The proposed system is designed to support the urgent requirement. The proposed system is prepared to solve the existing problems, such as data redundancy, lack of data sharing and human error. The proposed system, moreover, serves full requirements, especially improving more efficiency in the existing workload and enhancing the overall system performance, department, planning the development plan and training employees facing problems of workload, including responding the user requirement with the following:

(1) Human resource information constraint for management decision making can online via computerization which to make decision making in future planning and support the growth of the company.

(2) The information can be shared among the several authorized users.

(3) The redundant operation and data can be eliminated.

(4) Fundamental of decrease time in accessing data can support the user in data manipulation.

(5) The new system is structural and flexible. If any changes in the system, it will be easy for maintenance and up-to-date.

(6) An authorized person is established in Human Resource system to allow accessing data.

(7) Designed backup and recovery system can support data manipulation and protect data lost by tape backup.

(8) Oracle Developer 2000 and Oracle database can transmit on path via same LAN network that is Client-Server.

(9) To manipulate data all time is unnecessary, just one time at the end of day.

Table 5.1. Degree of Achievement of the Proposed System based on one transaction.

Process	Existing System	Proposed System
Required position vacancy	30 mins.	3 secs.
Approved position vacancy requirement	10 mins.	1 mins.
Stored applicant record	30 mins.	3 mins.
Search applicant record	17 mins.	2 secs.
Stored candidate record	30 mins.	3 mins.
Stored passed candidate score	10 mins.	3 secs.
Search employee record	10 mins.	2 secs.
Stored employee record	30 mins.	4 mins.
Stored employee training record	20 mins.	4 mins.
Search employee training record	30 mins.	3 secs.
Calculate employee salary and tax	180 mins.	20 mins.
Generate reports	50 mins.	10 mins.

Degrees of Achievement of the proposed system in Table 5.1 is much faster than the existing system and saves a lot of time spent in the human resource system. Since, the existing is manual, the problems about paperwork and human error often occur in searching, manipulation and generating report in checking information need, recruitment, employee training, calculate employee salary on paper and stand alone PC. However, in the new system, human resource staffs can search, manipulate and generate reports from each file in the new system rapidly .In the old system, it takes much time to search each file in the paper file. Moreover, the human resource staff must collect much data to generate reports for analysis. Thus, the other processes in the old system take much time to achieve. The result, in the proposed system can save much time in operation and make the result more accurate, and also help the staff work efficiently.

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The new system design will perform all actives, which are best suited to all the user's requirements. The personnel department has categorized its operations into 4 sections as recruitment, training & development, administration and payroll section. All 4 sections need automated systems to facilitate their works. Therefore, 4 subsystems under the human resource information system are designed, mainly to serve all 4 sections of the personal department.

All computers can be linked together in order to have for the user to share data. For instance, Quality control supervisor of quality assurance section has identified a missing duty to be assigned. The quality assurance section takes the processes to the personal department and the steps in doing processes are as follows:

(1)　The quality assurance section creates a job description and job specification and is kept in the database of proposed system. The job description describes the activities and responsibilities of the job, as well as working condition. The job specification summarizes the personal qualities, skills, and background required for getting the job done.

(2)　When the recruitment section gets this job specification requirement and approval from director of department, it sends this job specification to the responsibility of recruitment officer.

(3)　The officer selects the appropriate media such as newspapers, magazines, radio and television, and etc; most firms use newspaper advertising as the best of media. Therefore the recruitment officer sends the necessary job specification information to selected media.

(4)　When applicants input information and the other necessary personnel information including transcript and resume. The recruitment officer selects the complete applicant information who matches with the job specification

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(9)   After the employee passed the first orientation, it sends the new employee to teach the basic skills that the new employee needs to perform their job. The training & development office selects course and categorize the new employee to the appropriated course, match trainer with course. The trainers are top manager, professional offices, or who trains from training school. For example, the quality control supervisor should be trained ISO 9000, foundation of inspection and measure equipment, and TQM (total quality management).

(10) When their training is completed, updates the employee training records and generates feedback as a report to the personal director and the other department director.

The training and development Concept

After employees are selected and oriented, they still may lack the necessary skill, knowledge, and abilities to perform successfully. Most employees require some training to do their jobs properly. If the company wishes to use these employees in more responsible positions in the future, the developmental activities also will have to take place. For most employees and trainers are a blend of training and development. The techniques to use training and development, there are as follows:

(1)   Job instruction training

Job instruction training is received directly on the job, so it is often simply called "on-the-job" training. It is used primarily to teach employees to do their jobs. A trained, supervisor, or coworker serves as the instructor. The trainer demonstrates the job to provide the employee with a model to copy. Since the employee is shown the actual actions that the job requires, the training is transferable to the job. Therefore, Demonstrations by the

trainer and practice by the trainee are repeated until the job is mastered by the trainee.

(2)   Lecture in classroom training and presentations

This approach is a popular approach. It involves learning from a more experienced employee, supervisor, manager, or job specialist. This approach has groups of trainees in a classroom and gives the trainee to write a description of organization problems. The trainees analyzes the case, diagnoses the problem and presents his or her finding and solutions in a discussion realistic experience in identifying and analyzing complex problems in an environment. It gives trainee real experience with actual problems, and to that extent it can develop skills like problem analysis and planning.

(3)   Outside seminars and subsidiary training with other companies

This approach offers special seminars and conferences aimed at providing skill-building training. The organization sends the employee to train in an other company, institution that has the specialist cognitive. It is a short-term that is a five-and-half-day advanced course. Their courses enhance employee's skills and abilities to involve the jobs.

(4)   University-Related Programs

This approach is a colleges and university, which is long-term. these range from one-to-four-day programs of the Graduate School of many programs at university. The organization sends the specialist employee to take courses in these programs.

5.2   Recommendations

The new computerized system has been designed to meet the requirements of the owner, administrative staffs and IT staffs of the company.

The management team plays an important role in developing the new system. Feedback from users will give valuable information for the evaluation of the new system after the implementation. The evaluation should be conducted three months after the implementation.

It should be noted that the information system would need some "fine-turning" just after the implementation. After that, throughout the production stage of the system usage, it could be modified to meet the changing needs of the company at times.

The post implementation review is a critical examination of the system after it has been put into productions. The evaluation should be conducted three to six months after the implementation. It focuses on the following:

(1)   A comparison between the system's actual performance and its anticipated performance activities.

(2)   Mistakes

(3)   Unexpected benefits

(4)   Unexpected problem

A difficulty for current users is the changing of the system. Finished step by step and to get every change in procedure feedback are quite important. User feedback for improvement of the system is important. By giving users the skill, knowledge and training, they will have positive attitudes towards the new system.

These are some recommendations to make the company manage organization.

(1)   The system can be accessed across the global network or Internet to update the customer information in the Database Server from Terminal Service

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Server by installing Windows2000. This feature is used for the Branch Offices.

(2) The system wants the specialist who has the acknowledgment about the Oracle database for maintenance of the proposed system.

(3) ID card is recommended for all employees. After employees stamp time for starting work, time is recorded in checking late, leaves. This information also is linked to personal management section for consideration of salary promotion.

(4) Annual checking healthcare planning is not in this new proposed system.

If this planning is more effective, it will cover employees in other departments. It helps all employees to reduce healthcare expense.

(5) Compensation covers administrators and board of director in with full cover. Social security holds accountability for all employees.

(6) Applicant database table is kept for searching when the department requires new employees so that recruitment section will hunt later.

(7) The specific personal staff can purge old data when he wants.

(8) The ad-hoc reports are not enough to analyse.

(9) Internet access will be used in promoted company. WAP technology will be used for communication between operational department and inspection staff at that site in remote areas. Besides, web site will be created as soon as possible so that customers can log in to web site for communication and FAQ between their business and the company.

(10) Applicants can apply information and send information to company via Internet access.

APPENDIX A

PAYBACK ANALYSIS

Table A.1.   Candidate System Matrix.

Characteristics	Candidate 1	Candidate 2	Candidate 3
Portion of System Computerized	System services and operation will be developed program to be compatible to the system need by ourselves	System services and operation will be written and fulfilled by software house	The package would be purchased and customized to satified services required functionality
Benefit	This solution is fully support business user requirement and more user friendly	Fully support users required more flexible, efficient and flexible for correction to implementation	The implementation will be quickly because it's purchased solutions
Servers and workstations	Pentium III 800, 256 MB SD RAM, MS Windows 2000 for server, Pentium III 550, 128 MB SD RAM, MS Windows 2000 for clients	Pentium III 800, 256 MB SD RAM, MS Windows 2000 for server, Pentium III 550, 128 MB SD RAM, MS Windows 2000 for clients	Pentium III 800, 256 MB SD RAM, MS Windows 2000 for server, Pentium III 550, 128 MB SD RAM, MS Windows 98 for clients
Software Tools	Developer2000 for customized application	MS Visual Basic6.0 for customized application	Developer2000 for customized application
Application Software	Custom solution	Custom solution	Package solution
Method of data processing	Client/Server	Client/Server	Client/Server
Output devices and implications	HP LaserJet 1100 HP Deskjet 880C	HP LaserJet 1100 HP Deskjet 880C	HP LaserJet 1100 HP Deskjet 880C
Input devices and implications	Keyboard & mouse Scanner	Same as candidate 1	Same as candidate 1
Storage devices and implications	Oracle 8.0.5 Server DBMS	MS SQL Server DBMS	Oracle 8.0.5 Server DBMS

Table A.2. Feasibility Analysis Matrix.

Feasibility Criteria	Weight	Candidate 1	Candidate 2	Candidate 3
Operational Feasibility	30%	Fully supports services required functionality and current business process	Fully supports user required functionality. Also it would cover and satified the management's viewpoint	Only supports some service requirements, not all functionality
		Score : 100	Score : 95	Score : 70
Technical Feasibility - Technology	30%	Developer2000, that is easy to develop applications and learn for programmer or technical supports	MS Visual Basic 6.0 helps customize the user requirement and is much better user interface. However, This charged and maintain when this problems for train fee occurred or for new requirement	Many softwares are releaesed. The functionality are acceptance for a period of time, this system is charged for train fee and maintain when this problems occurred or for new requirement
- Expertise		Programmers or technical supports are trained and hired at a cheap cost	Required to hire outsourcing to develop and train application to programmer or technical supports	Required to hire outsourcing to develop and train application to programmer or technical supports
		Score : 90	Score : 90	Score : 80
Economic Feasibility - Cost of develop	30%	Approximately 1,355,300 Baht	Approximately 1,559,280 Baht	Approximately 1,568,920 Baht
- Payback period		Approximately 1.73 Years	Approximately 2.2 Years	Approximately 3.2 Years
- Detailed Calculation		See Appendix A	See Appendix A	See Appendix A
		Score : 95	Score : 90	Score : 65
Schedule Feasibility	10%	3-6 months	9-12 months	3 months
		Score : 90	Score : 80	Score : 95
Ranking	100%	96.5	92.5	66

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Table A.3. Payback Analysis for Candidat Solution 1, Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development Cost	-1,359,300					
Operation & Maintenance Cost		-1,081,000	-1,190,600	-1,309,660	-1,439,076	-1,579,484
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted cost (Adjust to present value):	-1,359,300	-982,727	-983,727	-938,967	-982,908	-980,735
Accumulative Time-adjusted cost Over lifetime:		-2,338,027	-3,321,994	-4,300,961	-4,940,242	-5,882,795
Benefits derived from operation of New system:		2,120,250	2,332,275	2,556,563	2,822,053	3,104,258
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted Benefit (Adjust to present value):		1,752,273	1,592,275	1,448,159	1,316,508	1,196,826
Accumulative Time-adjusted cost Over lifetime:		1,752,273	3,345,248	4,793,407	6,109,916	7,306,741
Accumulative Lifetime Adjust Cost + Benefit	-1,355,300	-585,755	23,254	487,446	821,046	1,037,137

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Accumulative Cost, Baht

Figure A.1. Payback Analysis Graph for Candidate Solution 1.

Table A.4. Payback Analysis for Candidate Solution 2, Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development Cost	-1,559,280					
Operation & Maintenance Cost		-1,058,000	-1,165,600	-1,282,160	-1,408,826	-1,546,209
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted cost (Adjust to present value):	-1,559,280	-961,818	-963,306	-963,306	-962,247	-960,074
Accumulative Time-adjusted cost Over lifetime:	-1,559,280	-2,521,098	-3,484,404	-4,477,710	-5,409,957	-6,370,031
Benefits derived from operation of New system:		2,094,620	2,304,082	2,534,490	2,787,939	3,066,733
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted Benefit (Adjust to present value):		1,731,091	1,573,719	1,430,654	1,300,594	1,182,358
Accumulative Time-adjusted cost Over lifetime:		1,731,091	3,304,810	4,735,464	6,036,058	7,218,416
Accumulative Lifetime Adjust Cost + Benefit	-1,559,280	-790,007	-179,594	287,754	626,101	848,385

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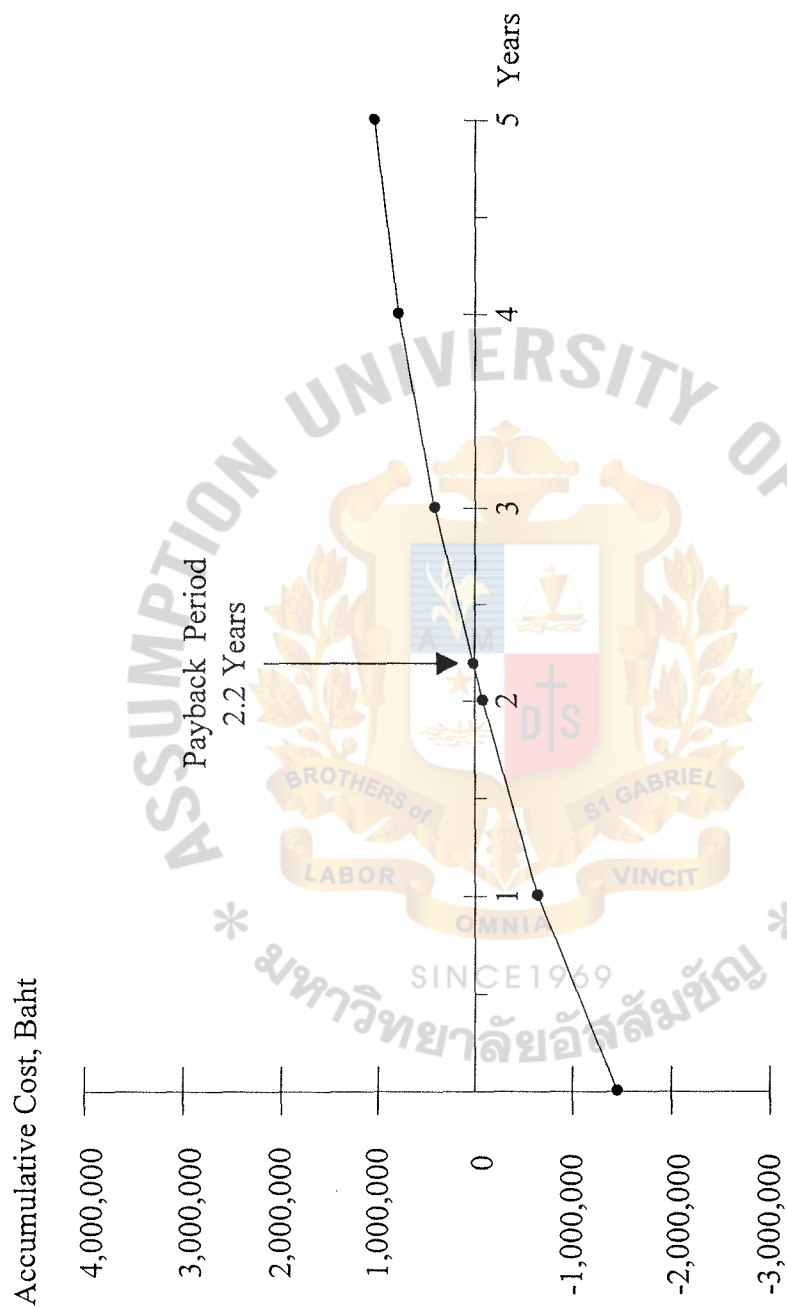
Figure A.2.   Payback Analysis Graph for Candidate Solution 2.

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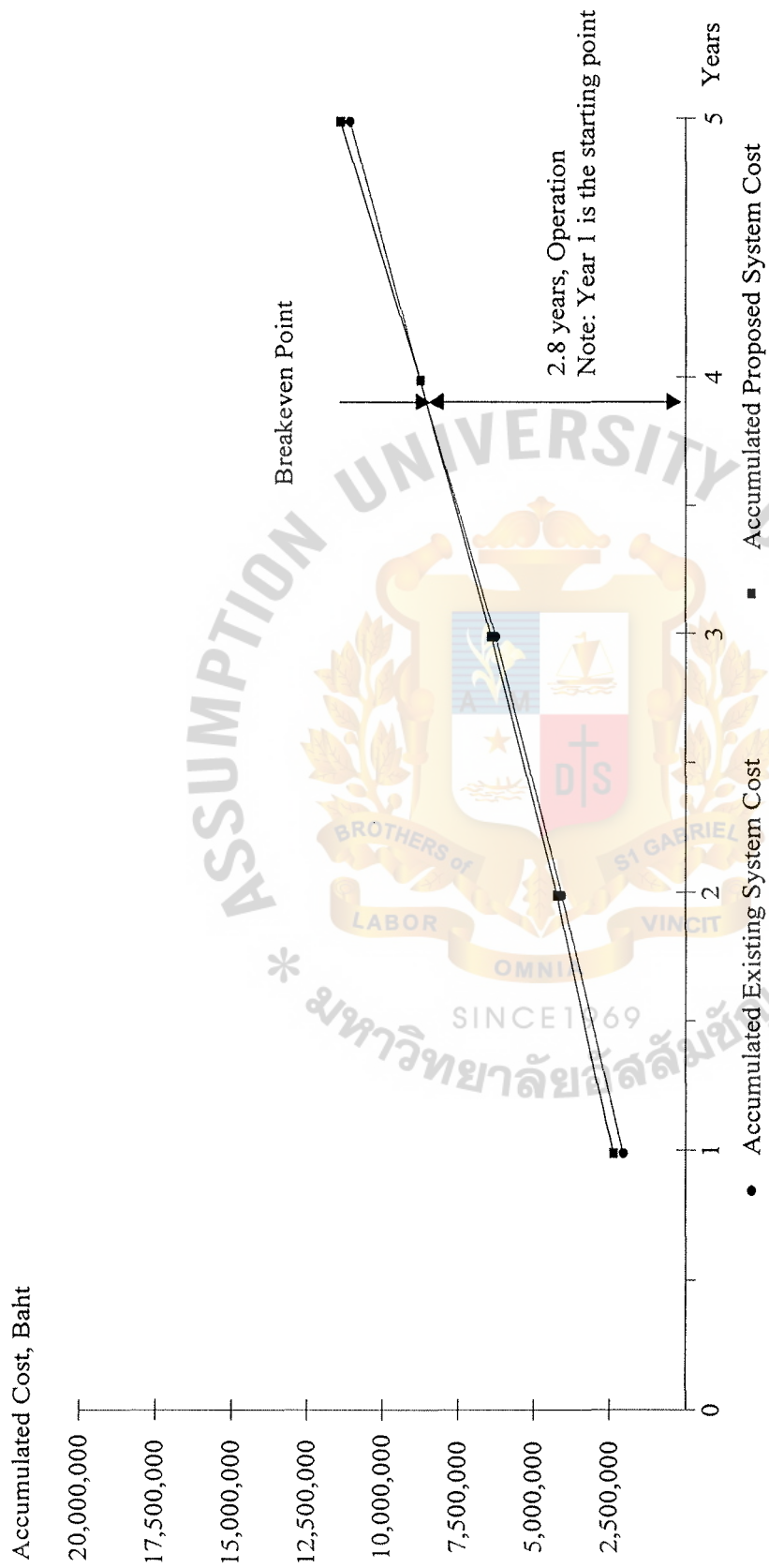
Figure A.3. Comparison of System Cost for Candidate Solution 2.

Table A.5. Payback Analysis for Candidate Solution 3, Baht.

Cost Items	Years					
	0	1	2	3	4	5
Development Cost	-1,568,920					
Operation & Maintenance Cost		-1,213,000	-1,338,400	-1,472,240	-1,613,764	-1,785,140
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted cost (Adjust to present value):	-1,568,920	-1,102,727	-1,106,116	-1,106,1165	-1,102,223	-1,108,432
Accumulative Time-adjusted cost Over lifetime:	-1,568,920	-2,671,647	-3,777,763	-4,883,879	-5,986,101	-7,094,533
Benefits derived from operation of New system:		2,116,510	2,328,161	2,560,977	2,817,075	3,098,782
Discount Factor for 10%	1.000	0.909	0.826	0.751	0.683	0.621
Time-adjusted Benefit (Adjust to present value):		1,749,182	1,590,165	1,445,605	1,314,186	1,194,715
Accumulative Time-adjusted cost Over lifetime:		1,749,182	3,339,347	4,784,952	6,099,138	7,293,853
Accumulative Lifetime Adjust Cost + Benefit	-1,568,920	-922,465	-438,416	-98,927	113,037	199,320

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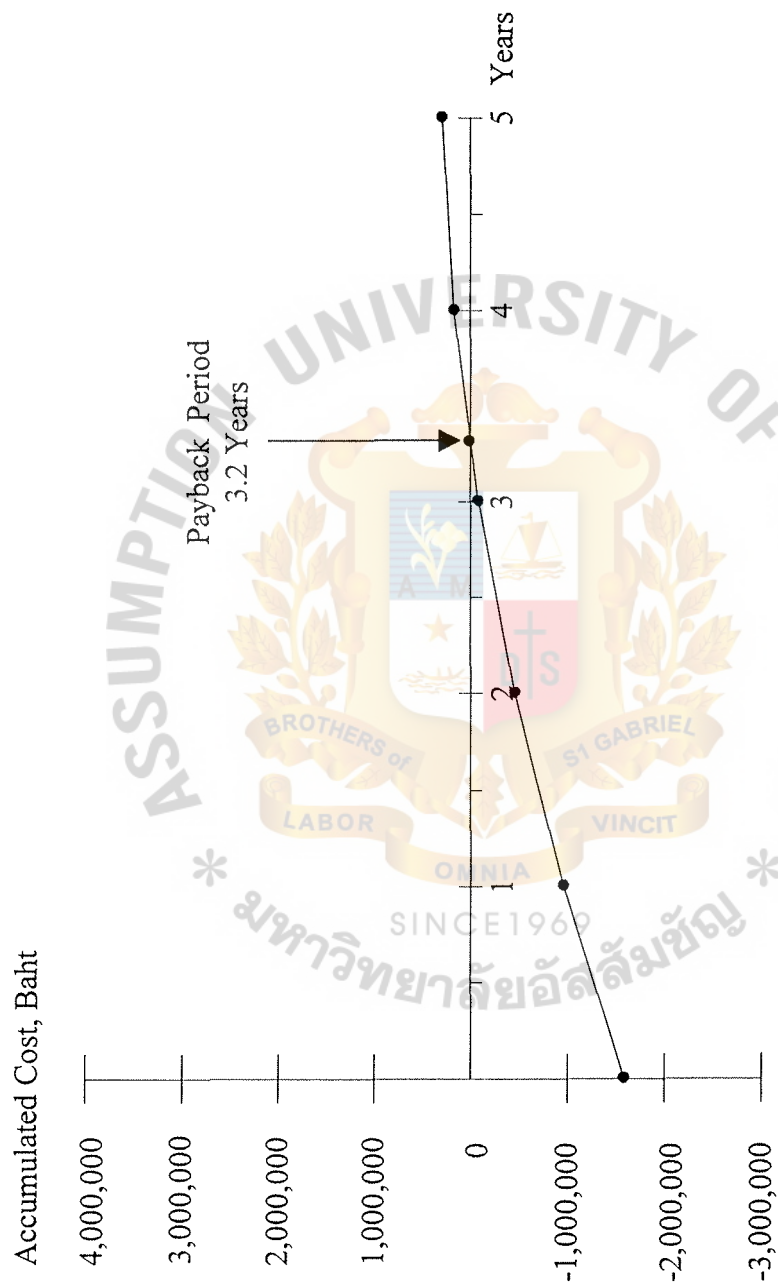
Figure A.4. Payback Analysis Graph for Candidate Solution 3.

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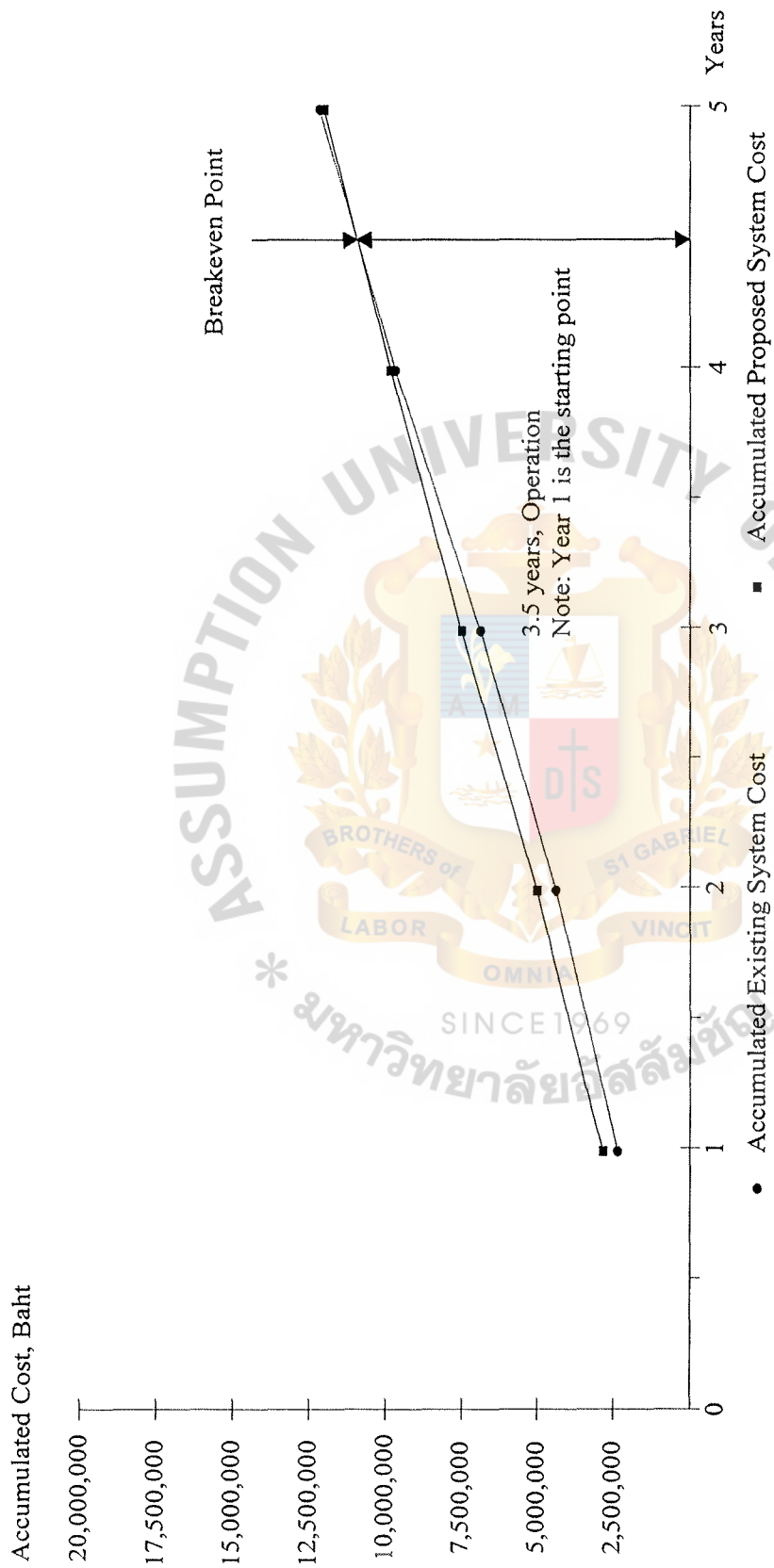
Figure A.5. Comparison of System Cost for Candidate Solution 3.

APPENDIX B

CONTEXT DIAGRAM
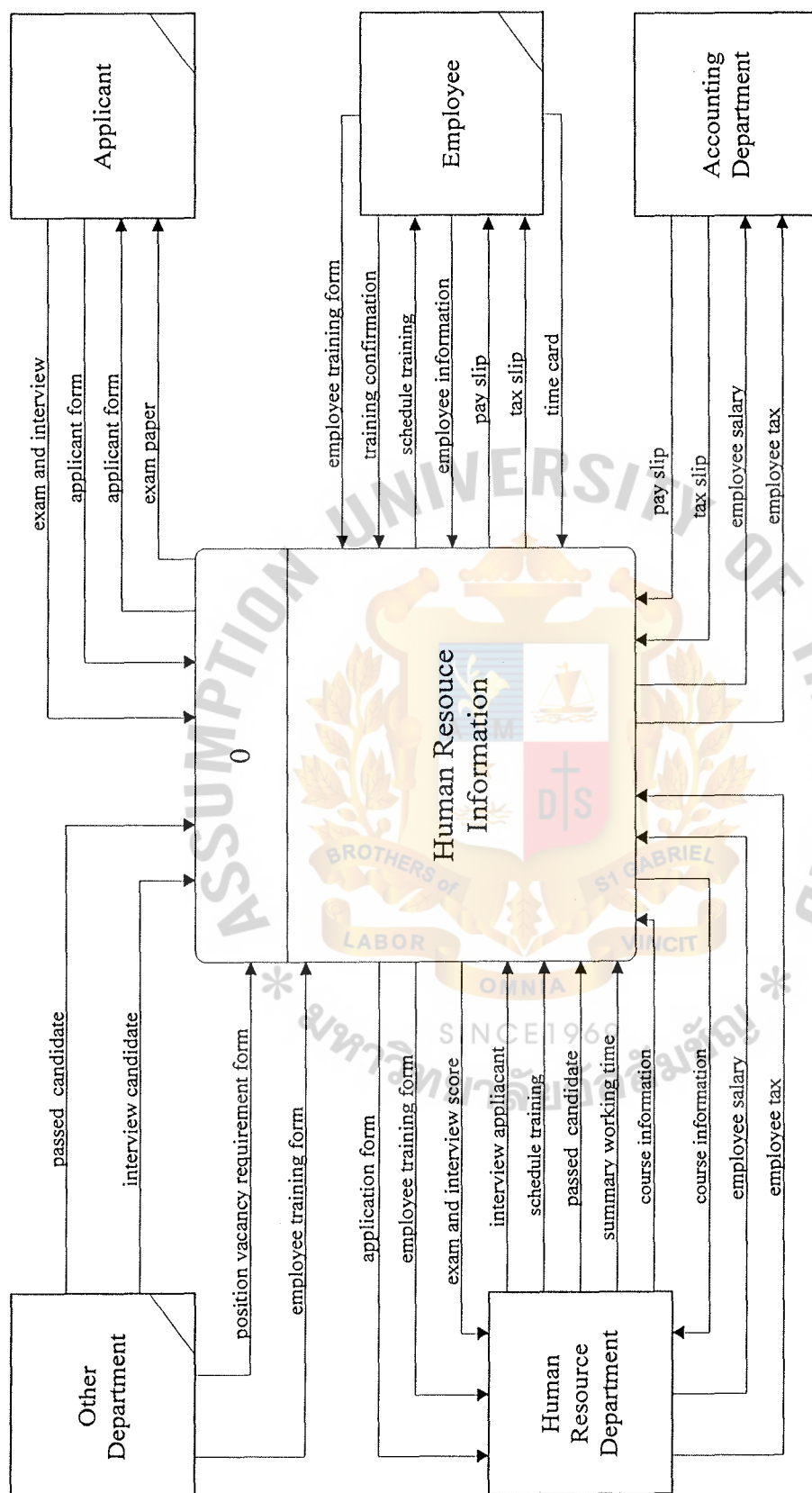
Figure B.1.   Existing System Context Diagram.

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Figure B.2.   Level 1 Data Flow Diagram of Existing System.

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Figure B.3.   Proposed System Context Diagram.

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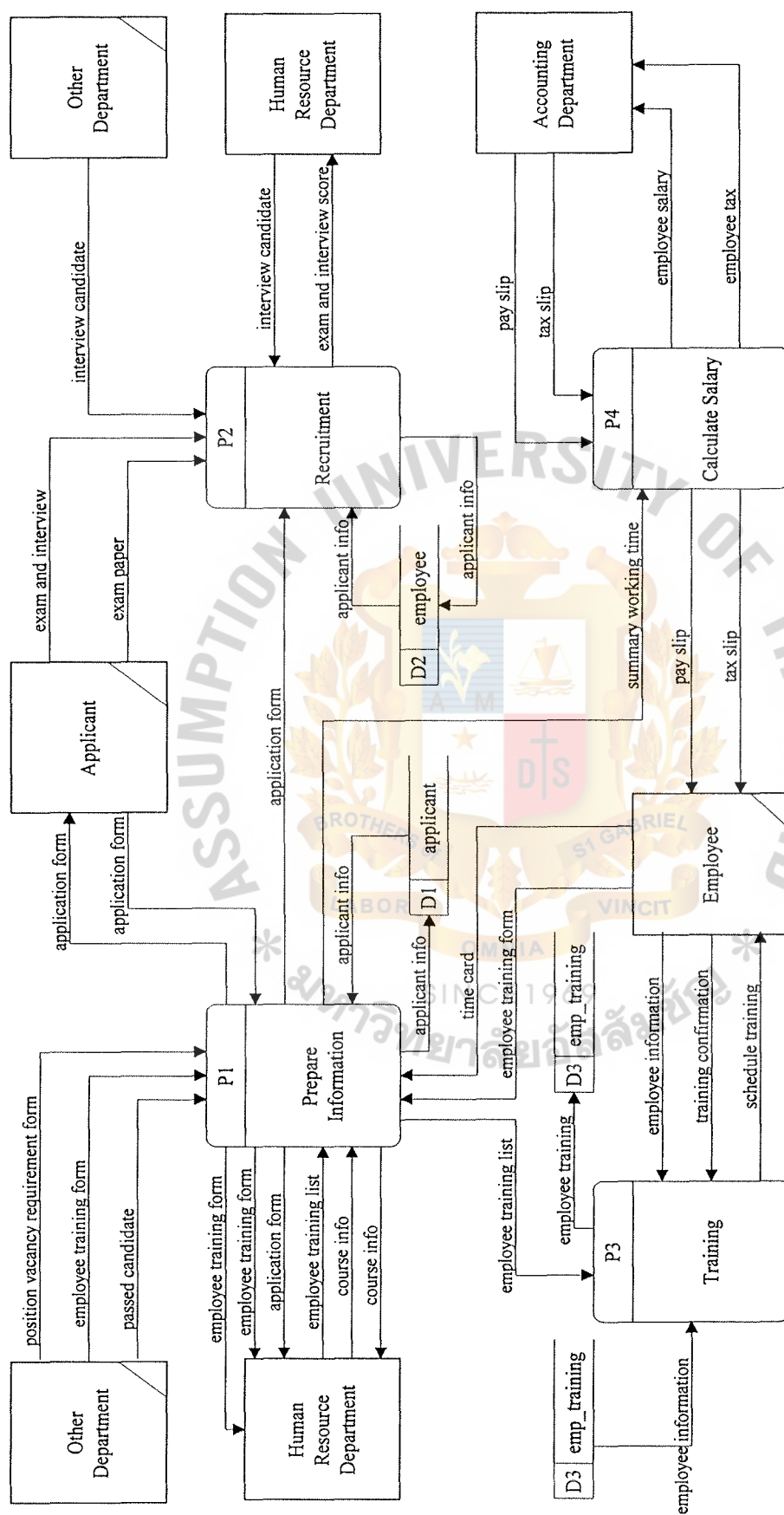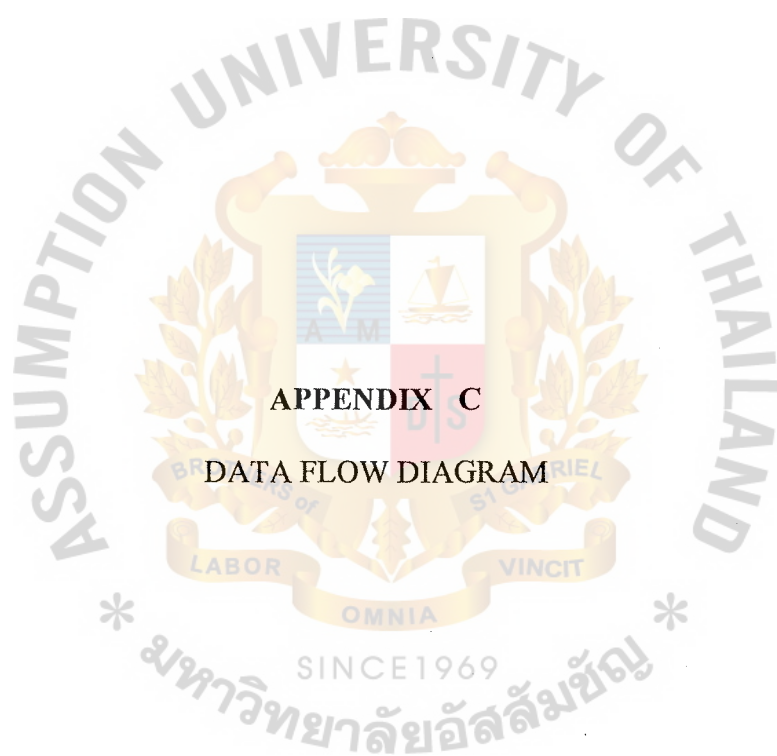
APPENDIX C

DATA FLOW DIAGRAM
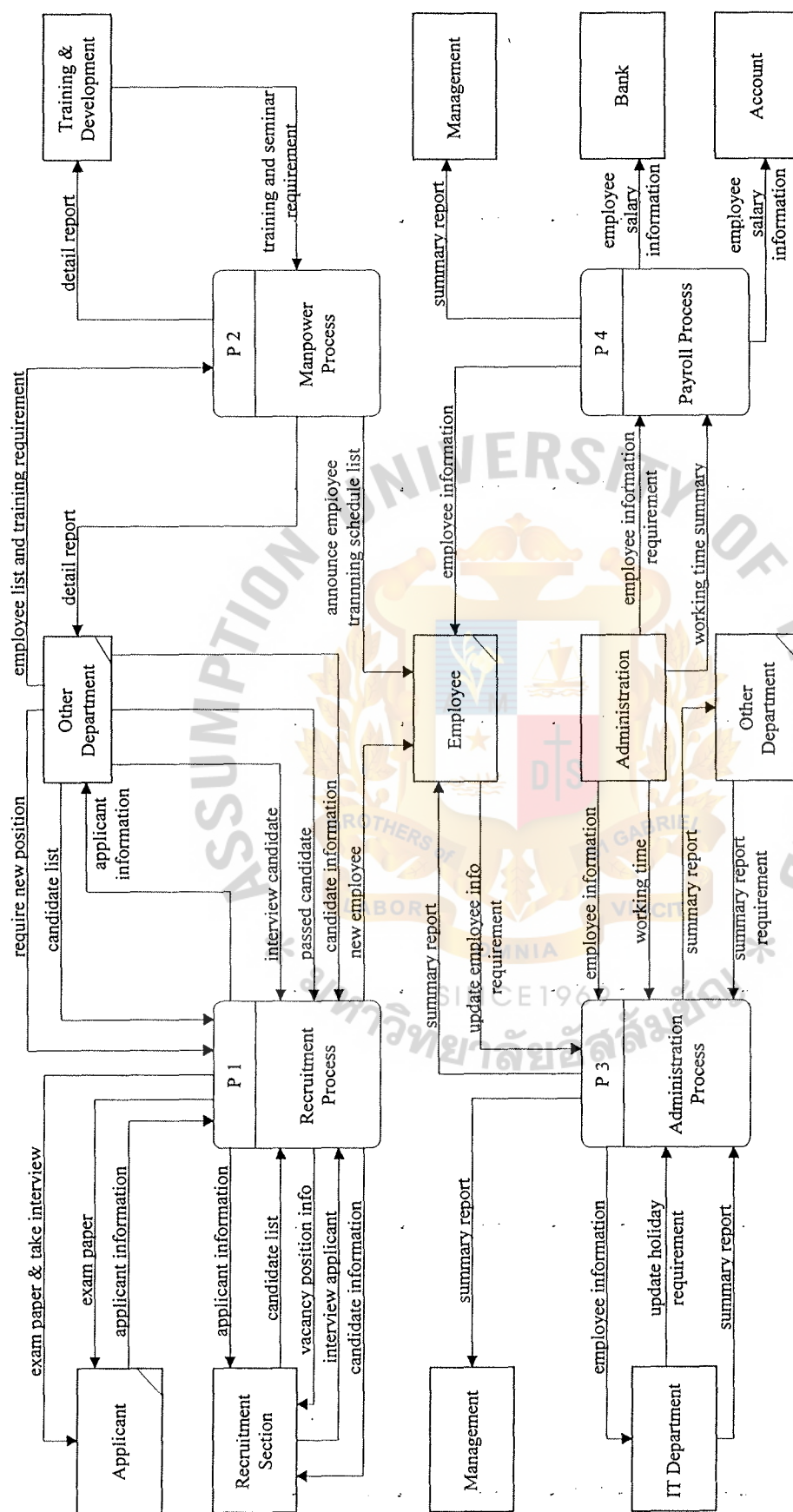
Figure C.1.   Level 1 Data Flow Diagram of each Process.

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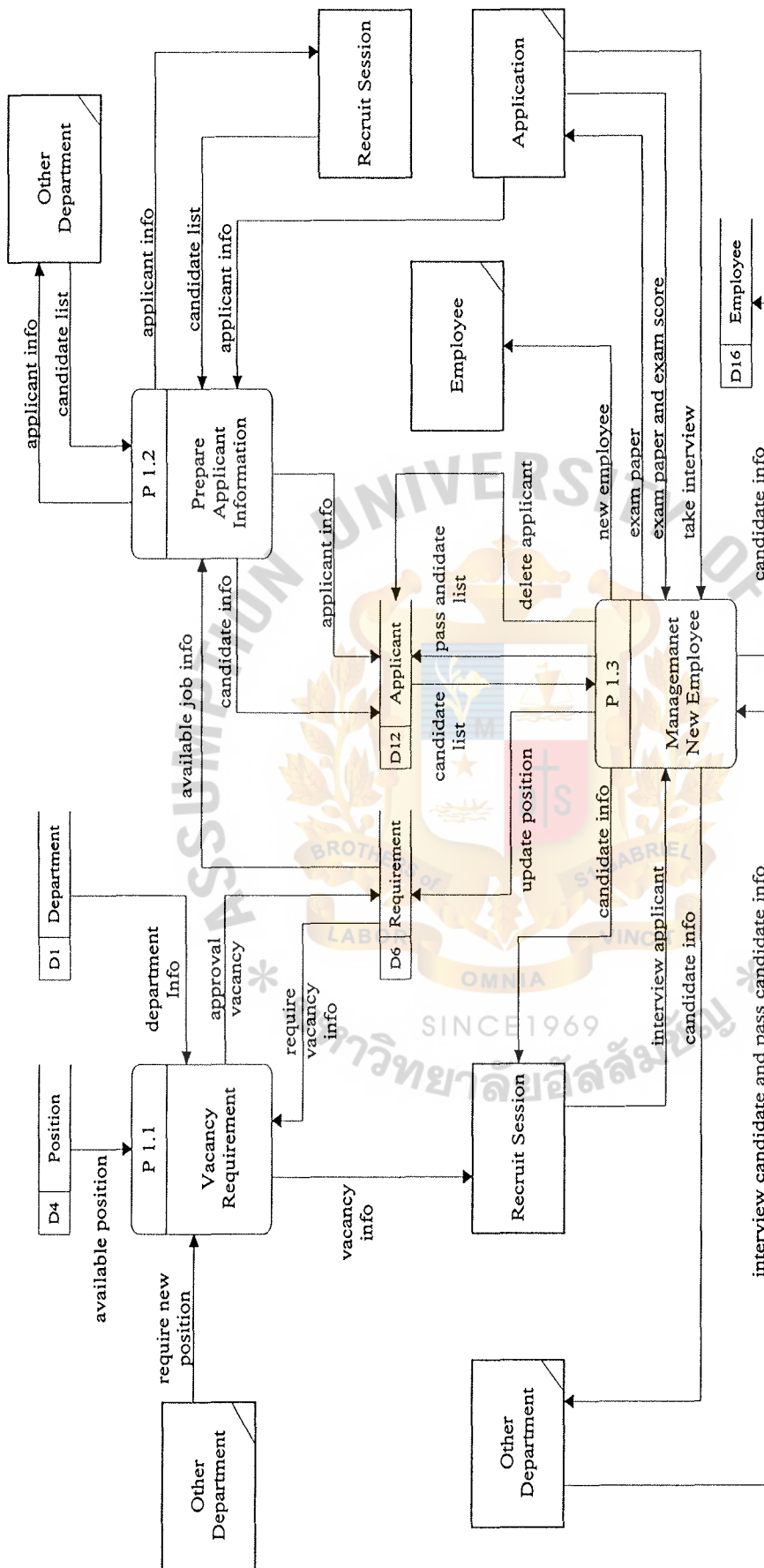
Figure C.2. Level 2 Data Flow Diagram of Recruitment Process.

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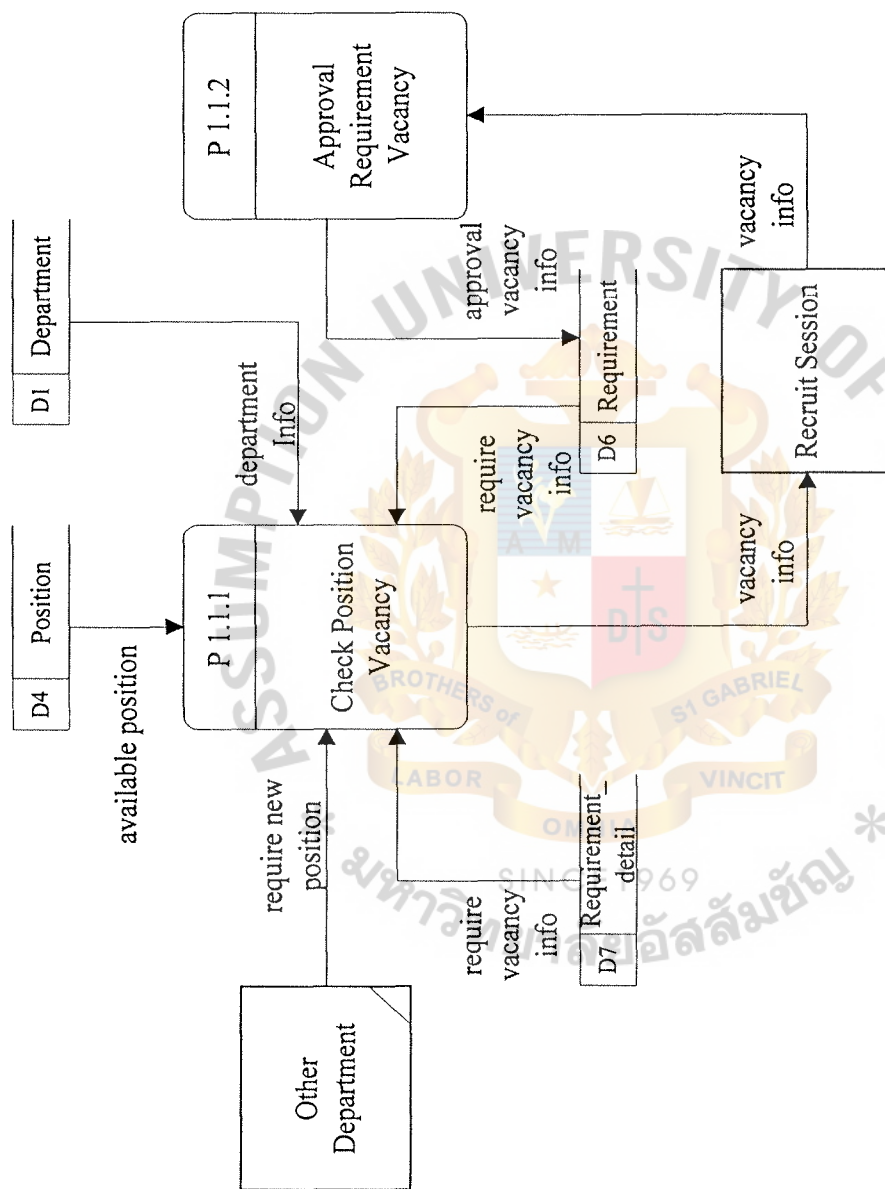
Figure C.3. Level 3 Data Flow Diagram of Vacancy Requirement Process.

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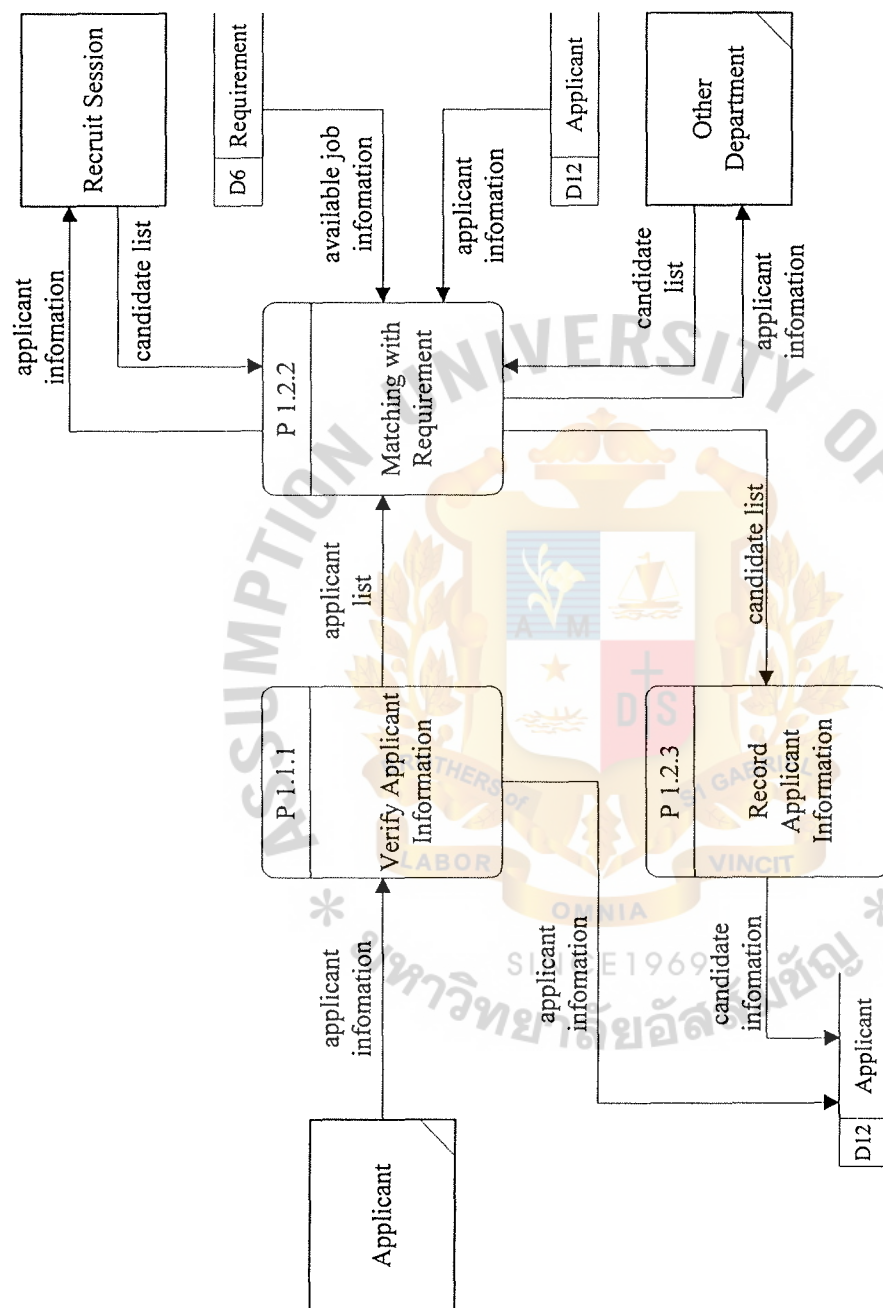
Figure C.4. Level 3 Data Flow Diagram of Prepare Application Information Process.
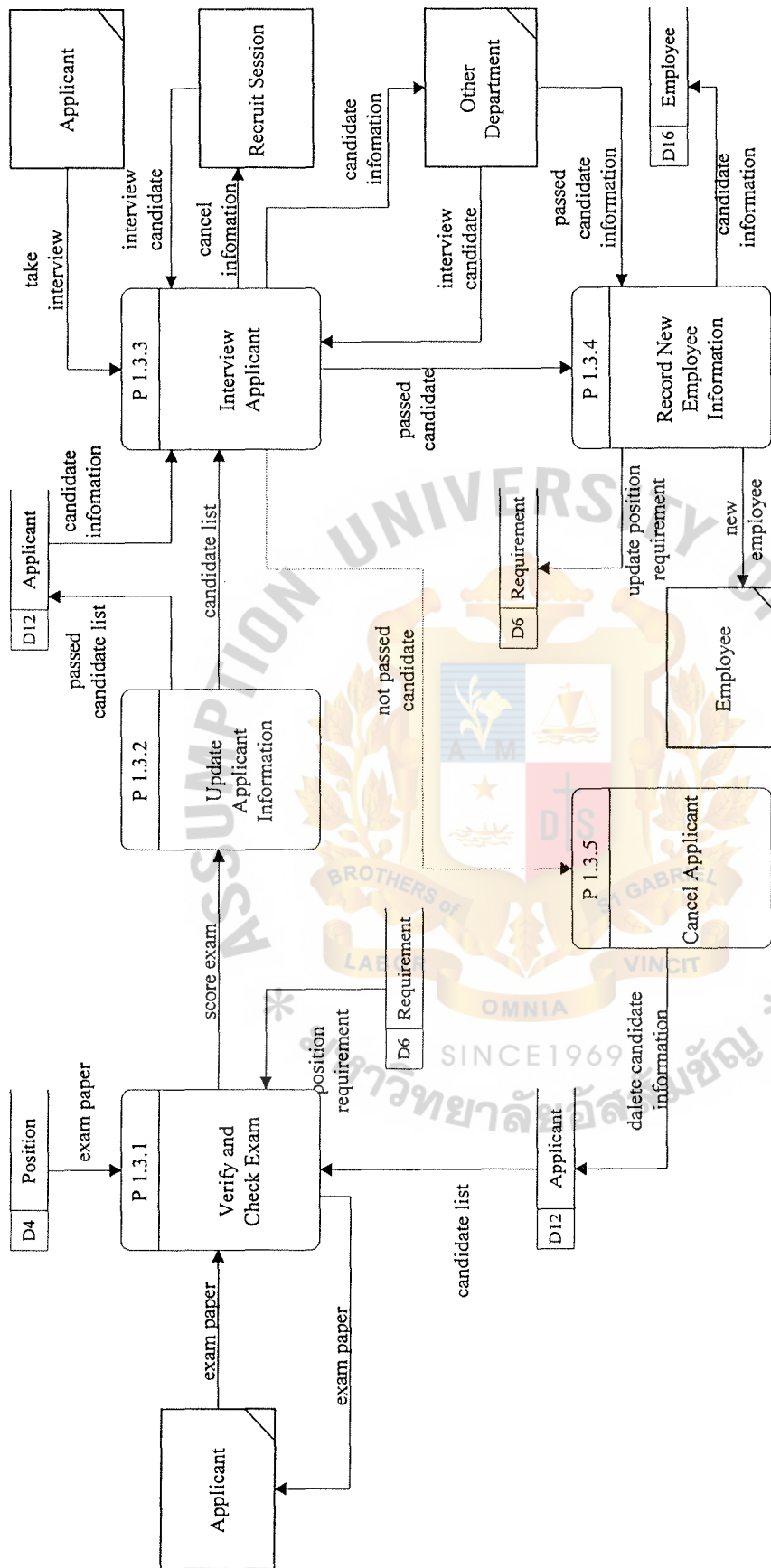
Figure C.5.   Level 3 Data Flow Diagram of Management New Employee Process.

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Figure C.6. Level 2 Data Flow Diagram of Manpower Process.

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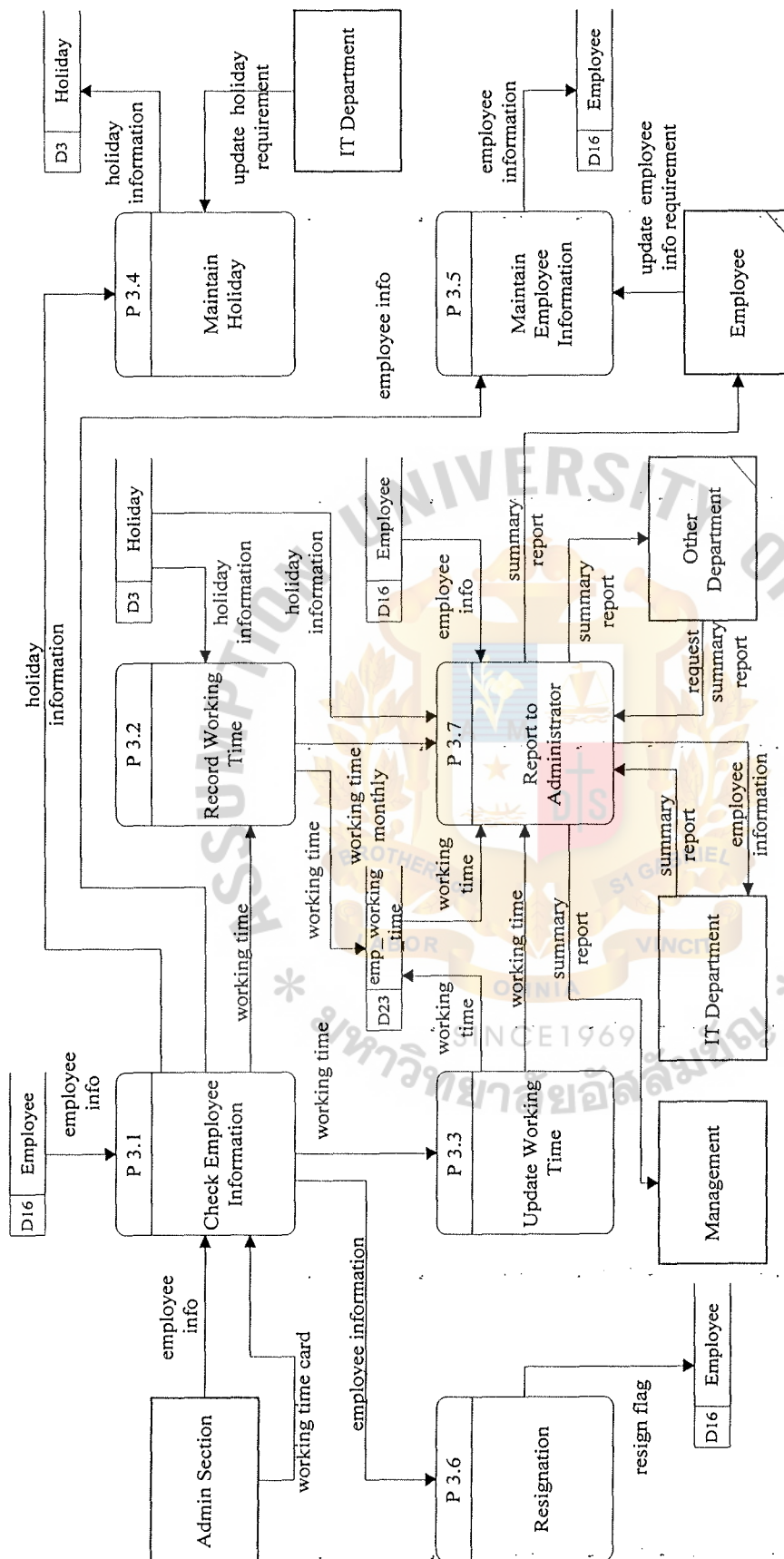
Figure C.7. Level 2 Data Flow Diagram of Administration Process.

63
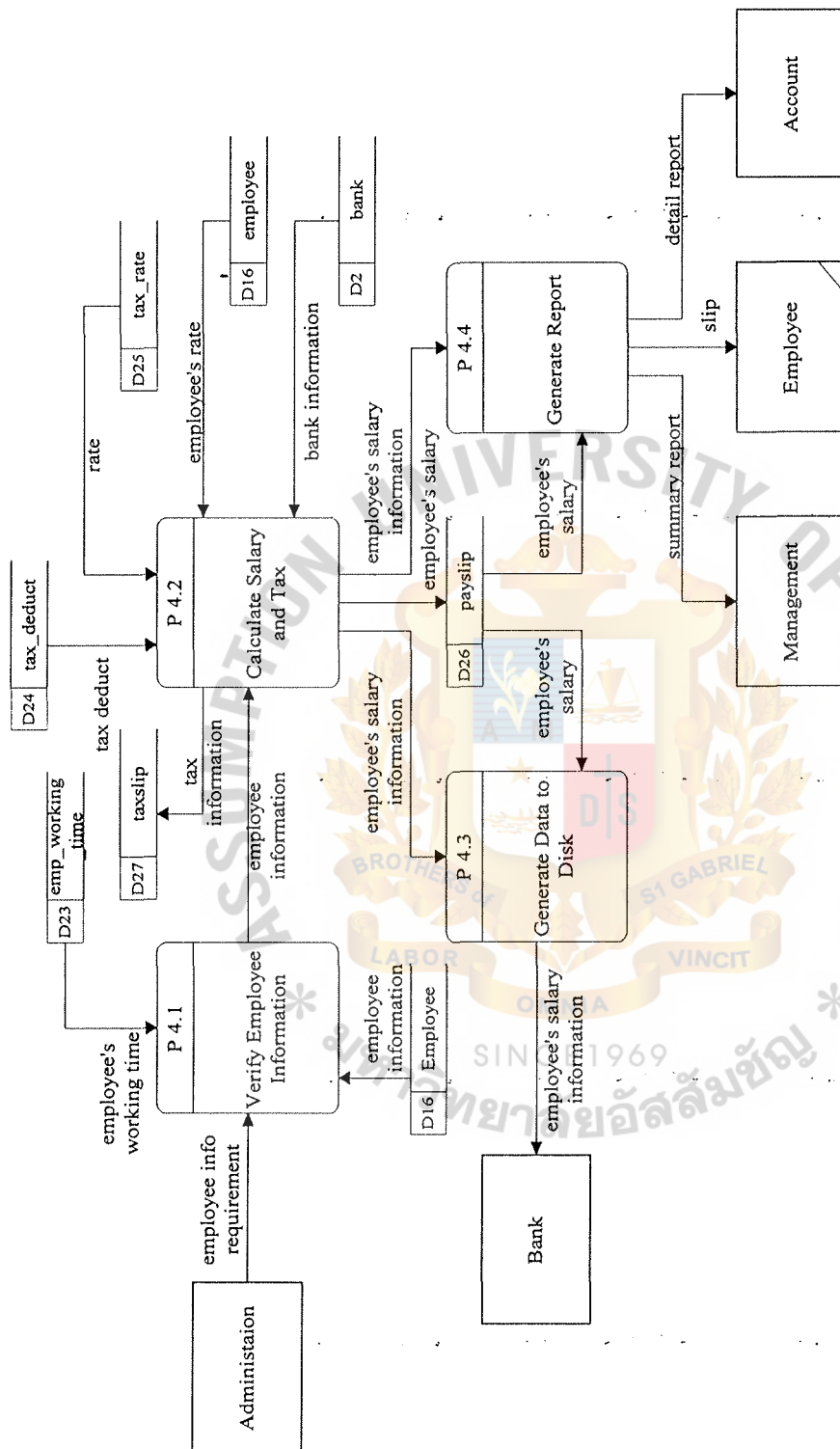
Figure C.8. Level 2 Data Flow Diagram of Payroll Process.
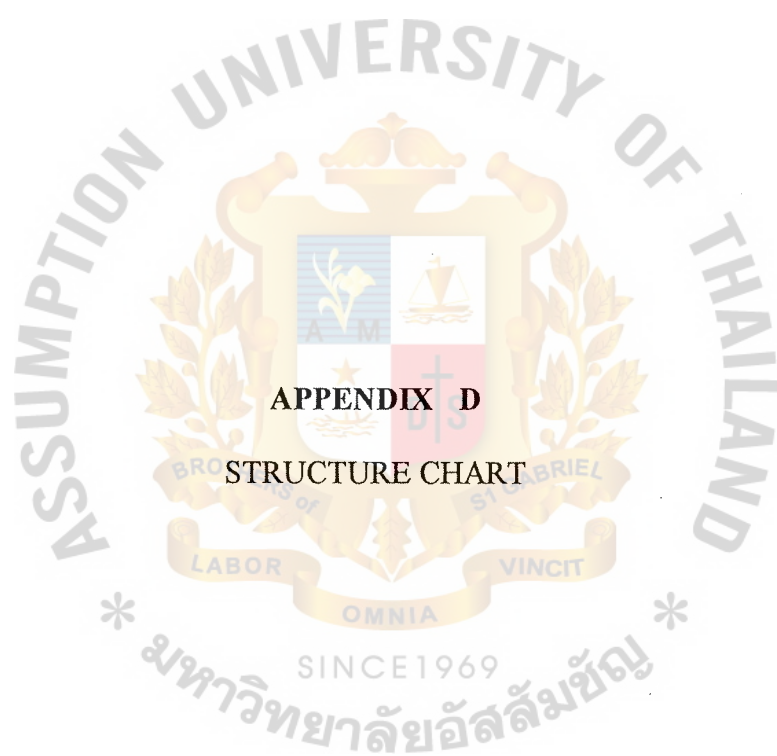
APPENDIX D

STRUCTURE CHART
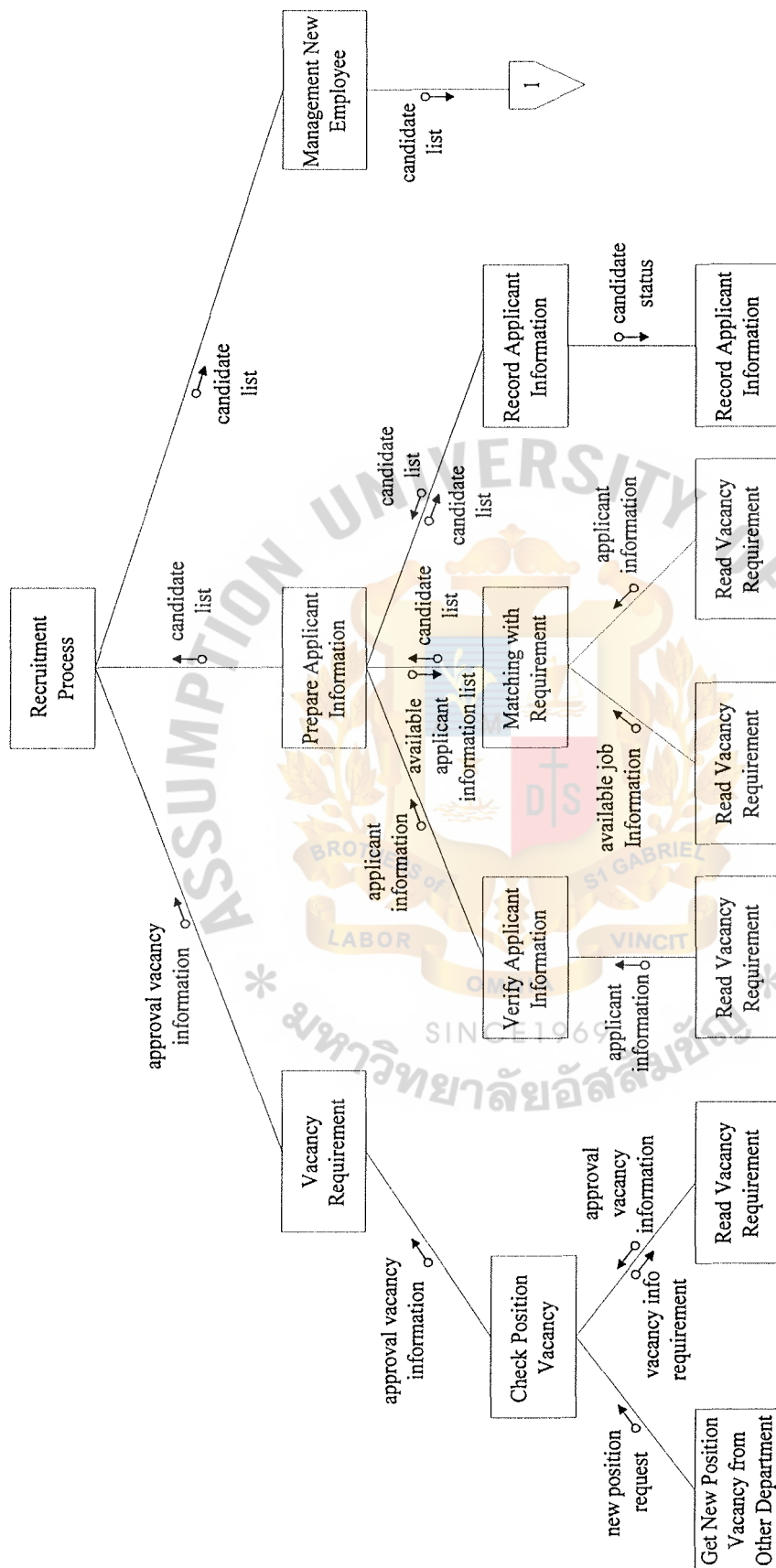
Figure D.1. Structure Chart of Recruitment Process.

65
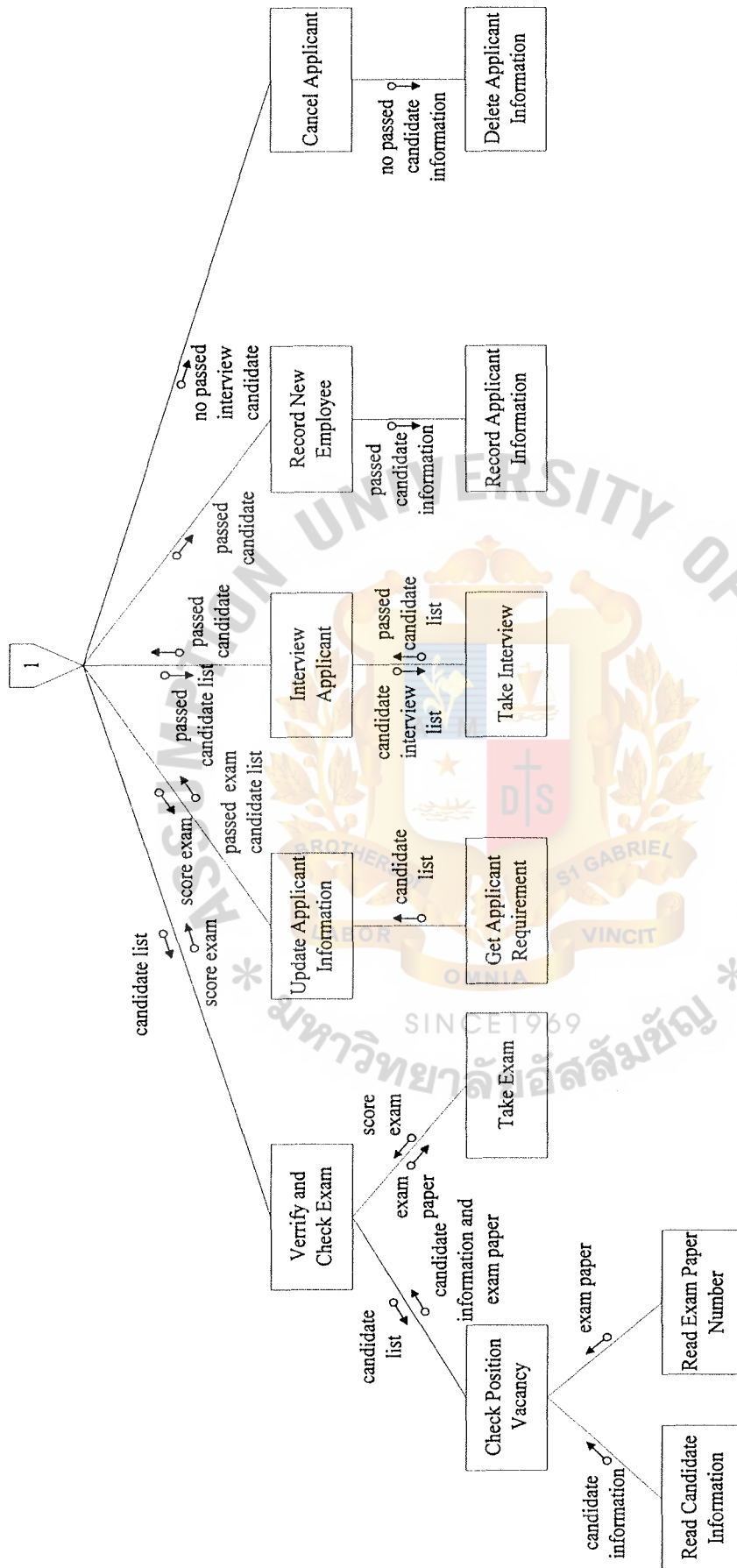
Figure D.2. Structure Chart of Recruitment Process (Continued).
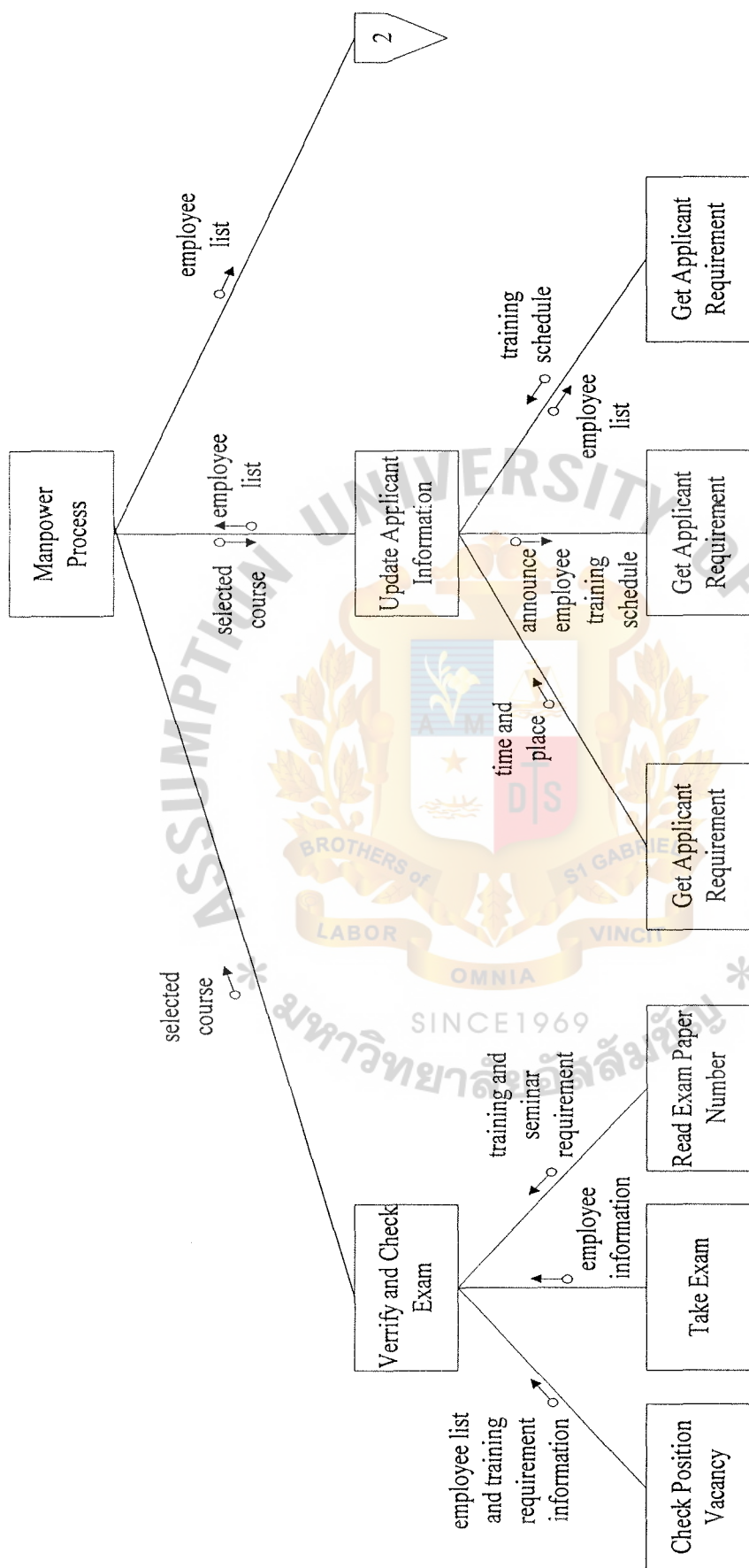
Figure D.3. Structure Chart of Manpower Process.
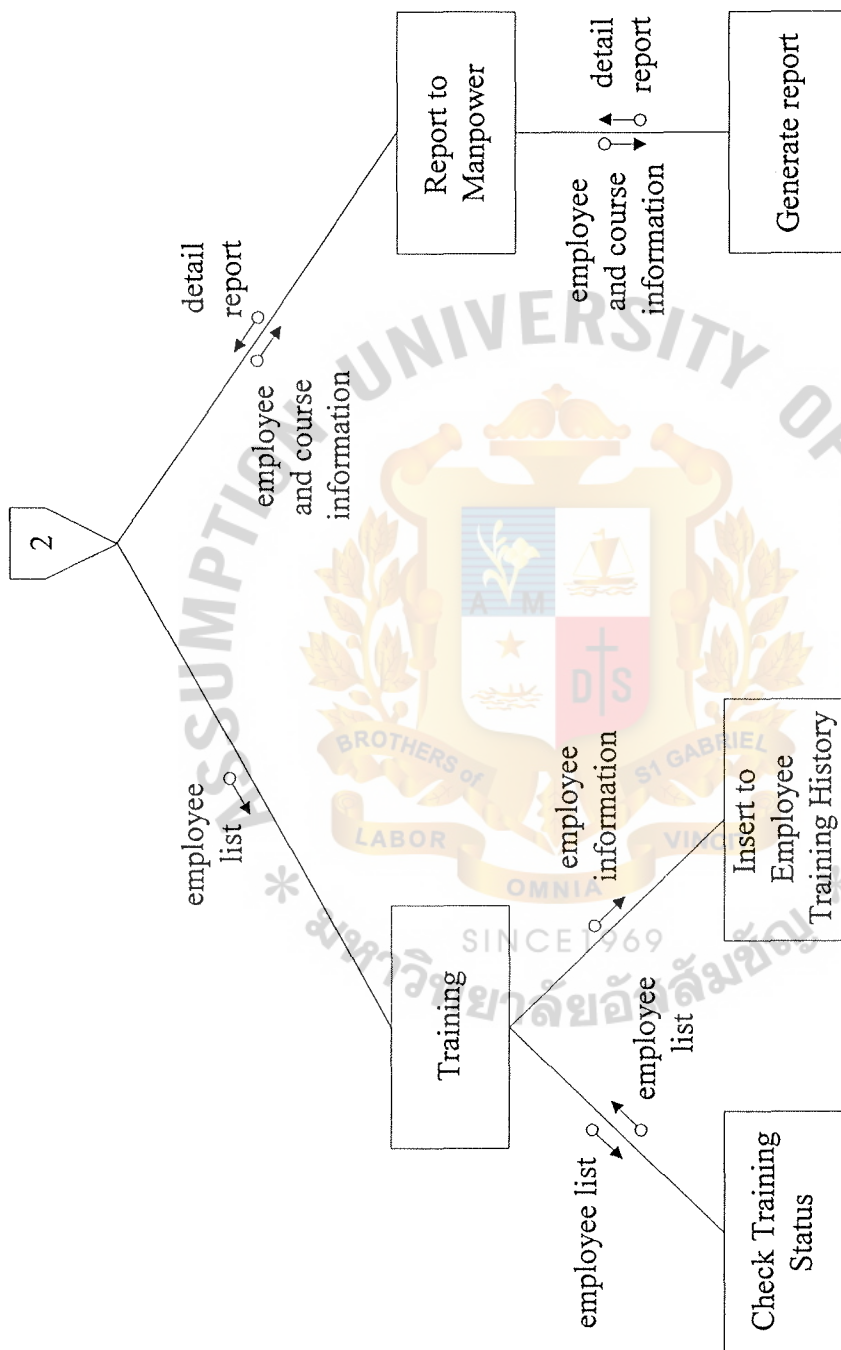
Figure D.4.   Structure Chart of Manpower Process (Continued).

68
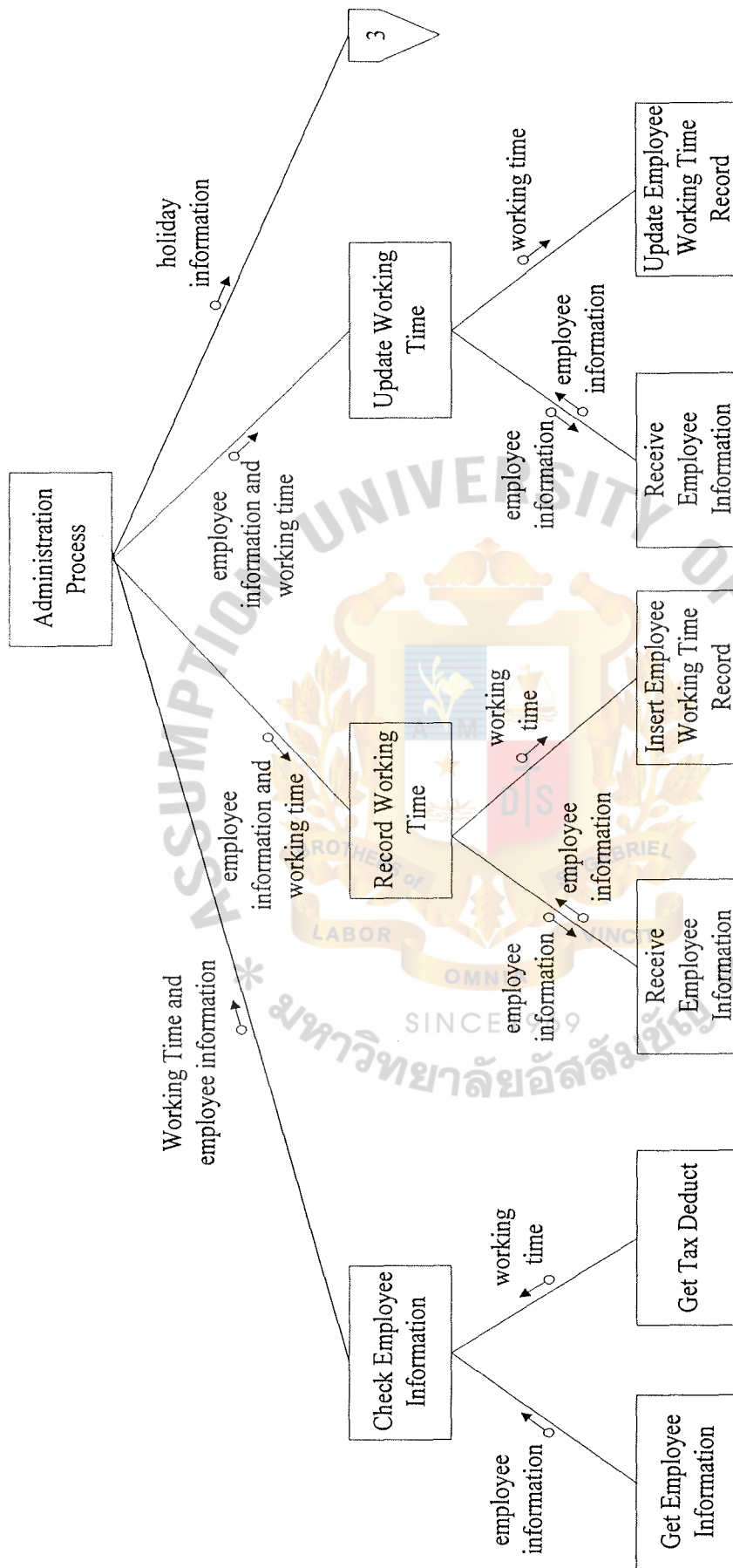
Figure D.5. Structure Chart of Administration Process.

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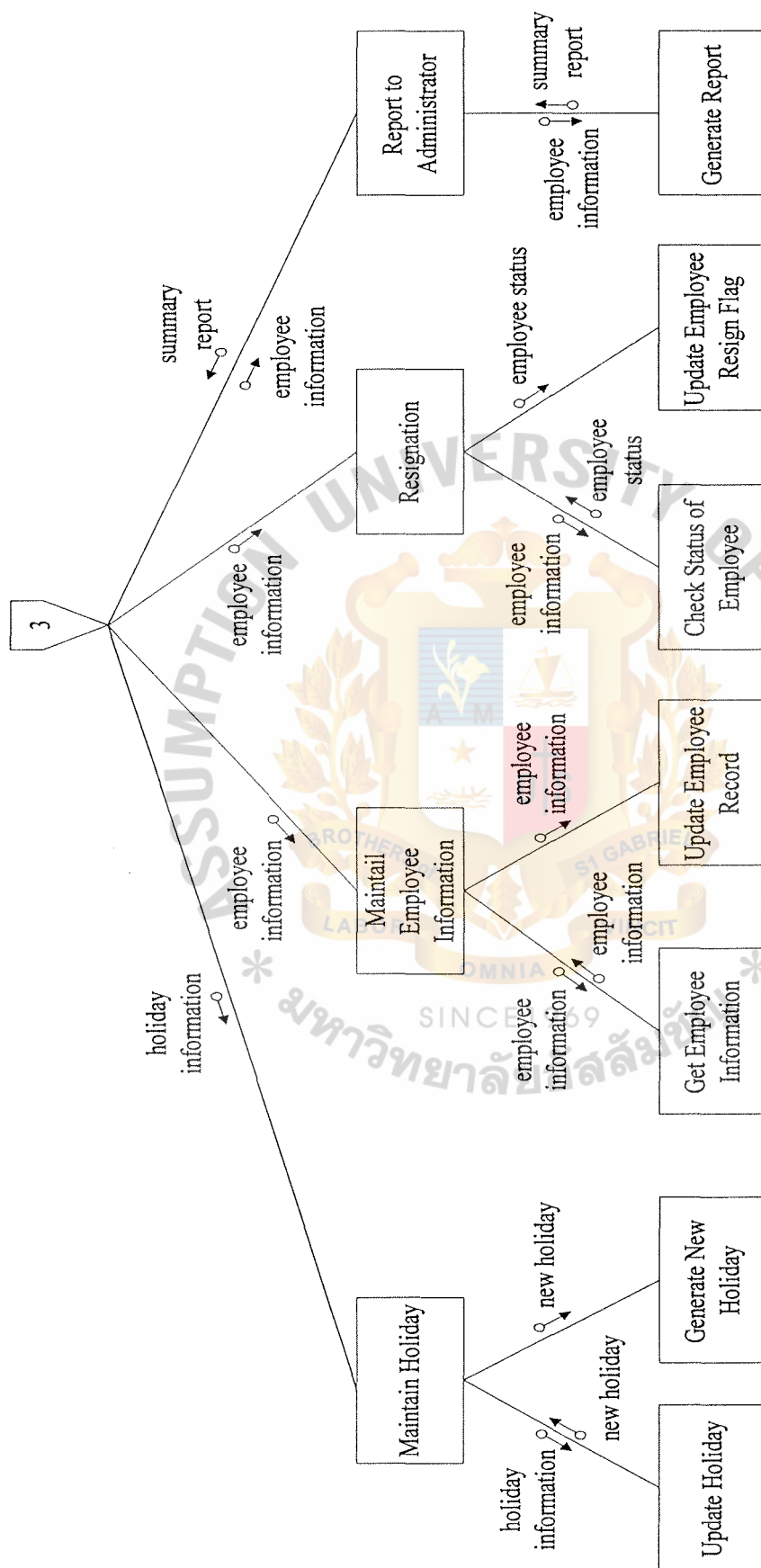
Figure D.6.   Structure Chart of Administration Process (Continued).
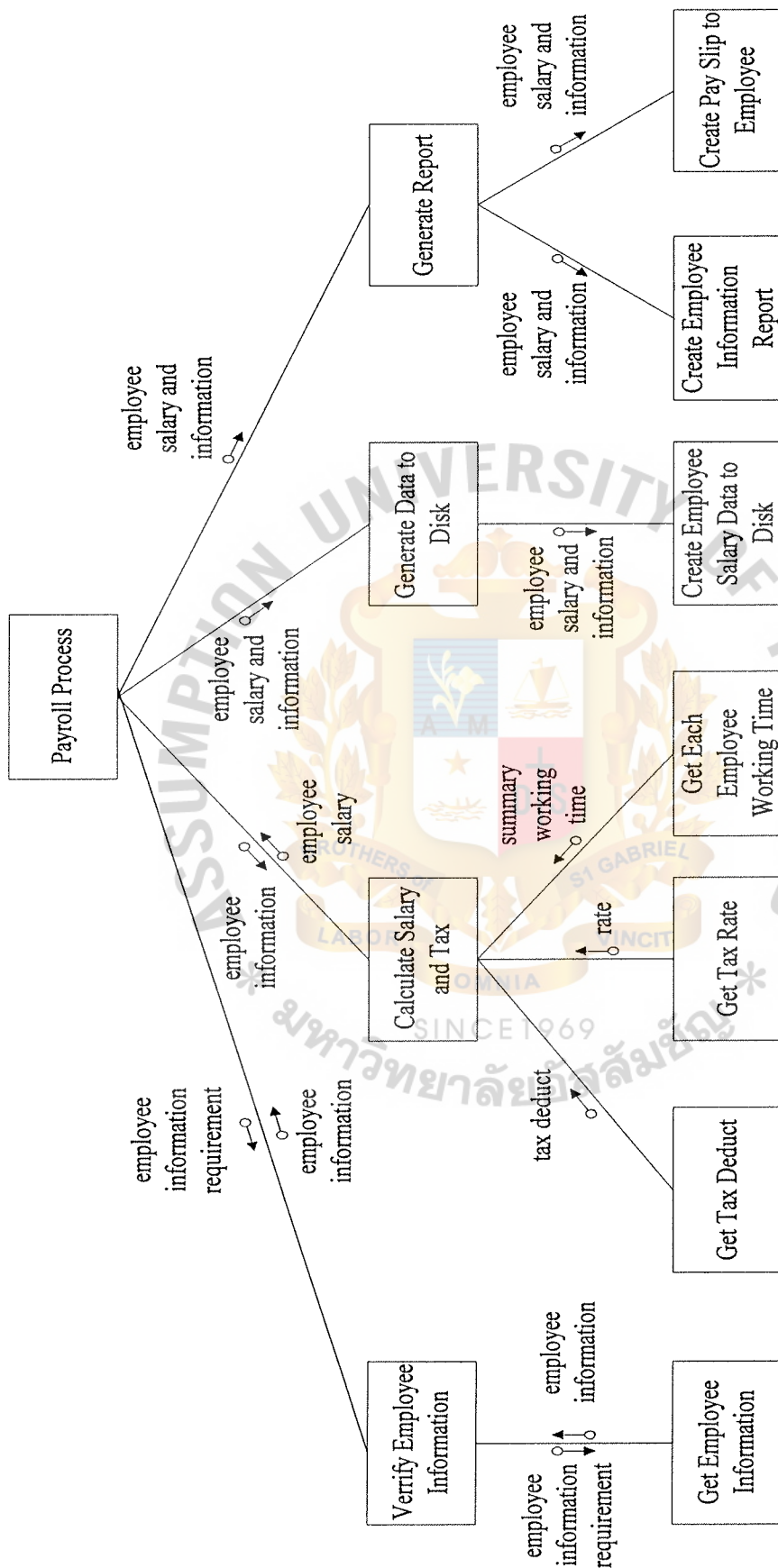
Figure D.7. Structure Chart of Payroll Process.

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APPENDIX E

FILE STRUCTURE

Table E.1.   Department Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Dept_id	Text	Primary Key	No	XXXXX
2	Sec_id	Text	Foreign Key	Section	XXXXX
3	Dept_name	Text		No	50 Characters

Table E.2.   Bank Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Bank_code	Text	Primary Key	No	XXX
2	Bank_name	Text		No	50 Characters

Table E.3.   Holiday Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Holiday_date	Date	Primary Key	No	dd/mm/yyyy
2	Holiday_name	Text		No	40 Characters

Table E.4.   Position Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Position_code	Text	Primary Key	No	XXX
2	Position_name	Text		No	40 Characters
3	Exam_no	Text		No	XXXXX

Table E.5.   Work_type Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Wt_code	Text	Primary Key	No	XXX
2	Wt_sub_code	Text	Primary Key	No	XXX
3	Wt_name	Text		No	40 Characters
4	Wt_unit	Integer		No	990
5	Wt_rate	Float		No	990.00

Table E.6. Requirement Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Req_no	Text	Primary Key	No	XXXXX
2	Req_dept	Text	Foreign Key	Department	XXXXX
3	No_req	Integer		No	90
4	Req_date	Date		No	dd/mm/yyyy
5	Req_gender	Text		No	X
6	Req_edu	Text		No	100 Characters
7	Req_exper	Text		No	100 Characters
8	Approval_flag	Text		No	X

Table E.7. Requirement_detail Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Req_no	Text	Primary Key	No	XXXXX
2	Position_code	Text	Foreign Key	Position	XXX
3	No_req	Integer		No	90
4	Approval_flag	Text		No	X

Table E.8. Course Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Course_code	Integer	Primary Key	No	XXXX
2	Course_name	Text		No	30 Characters
3	Course_time	Integer		No	0
4	Course_cost	Integer		No	9,990
5	Trainer_id	Integer	Foreign Key	Trainer	99999
6	Course_remark	Text		No	100 Characters

Table E.9. Training Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Train_code	Text	Primary Key	No	XXXX
2	Course_code	Text	Foreign Key	No	XXXXX
3	Course_start	Date		No	dd/mm/yy
4	Course_end	Date		No	dd/mm/yy
5	Emp_id	Integer	Foreign Key	Employee	99999

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Table E.10.   Training_History Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Course_code	Text	Primary Key/ Foreign Key	Course	XXXXX
2	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
3	Training_date	Date		No	dd/mm/yy

Table E.11.   Trainer Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Trainer_id	Integer	Primary Key	No	99999
2	Trainer_name	Text		No	40 Characters
3	Trainer_addr	Text		No	100 Characters

Table E.12.   Applicant Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key	No	99999
2	App_date	Date		No	dd/mm/yy
3	App_gender	Text		No	X
4	App_prefix	Text		No	XXXXXX
5	App_f_tname	Text		No	15 Characters
6	App_l_tname	Text		No	15 Characters
7	App_f_ename	Text		No	15 Characters
8	App_l_ename	Text		No	15 Characters
9	Position	Text	Foreign Key	Position	XXX
10	Req_no	Text	Foreign Key	Requirement	XXXXX
11	Interview_by	Text		No	30 Characters
12	Interview_ Score	Float		No	990.00
13	Exam_score	Float		No	990.00
14	Pass_flag	Text		No	X

Table E.13.   Applicant_Information Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key/ Foreign Key	Applicant	99999
2	Race	Text		No	30 Characters
3	Nationality	Text		No	30 Characters
4	Religion	Text		No	30 Characters
5	Id_card	Text		No	13 Characters
6	Issue_by	Text		No	100 Characters
7	Expired_date	Date		No	dd/mm/yy
8	Birthdate	Date		No	dd/mm/yy
9	Address	Text		No	100 Characters
10	Tel.	Text		No	9 Characters
11	Mobile	Text		No	9 Characters
12	Fax	Text		No	9 Characters
13	Ref_name	Text		No	50 Characters
14	Ref_address	Text		No	100 Characters
15	Ref_tel	Text		No	15 Characters

Table E.14.   Applicant_Family Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key/ Foreign Key	Applicant	99999
2	Family_status	Text		No	X
3	Sprouse_name	Text		No	40 Characters
4	Child_no	Integer		No	90
5	Father_name	Text		No	40 Characters
6	Mother_name	Text		No	40 Characters
7	Emer_name	Text		No	40 Characters
8	Emer_tel	Text		No	9 Characters

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Table E.15.   Applicant_Education Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key/ Foreign Key	Applicant	99999
2	level	Text		No	40 Characters
3	Institute	Date		No	dd/mm/yy
4	Degree	Text		No	50 Characters
5	Major	Text		No	50 Characters
6	Gpa	Float		No	9.99
7	Year_entrance	Text		No	XXXX
8	Year_passed	Text		No	XXXX

Table E.16.   Applicant_Experience Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key/ Foreign Key	Applicant	99999
2	App_company	Text		No	40 Characters
3	App_position	Text		No	40 Characters
4	App_salary	Integer		No	999,990
5	App_from	Text		No	XX/XXXX
6	App_to	Text		No	XX/XXXX
7	App_reason	Text		No	100 Characters

Table E.17.   Applicant_language Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	App_id	Integer	Primary Key/ Foreign Key	Applicant	99999
2	App_lang	Text		No	10 Characters
3	Understand	Text		No	10 Characters
4	Speak	Text		No	10 Characters
5	Read	Text		No	10 Characters
6	Write	Text		No	10 Characters

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Table E.18.   Employee Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key	No	99999
2	Emp_prefix	Text		No	15 Characters
3	Emp_f_name	Text		No	30 Characters
4	Emp_l_name	Text		No	30 Characters
5	Dept_id	Text	Foreign Key	Department	XXXXX
6	Pos_id	Text	Foreign Key	Position	XXX
7	Work_type	Text	Foreign Key	Work_type	XXX
8	Started_date	Date		No	dd/mm/yyyy
9	Started_salary	Integer		No	999,990
10	Emp_salary	Integer		No	999,990
11	Emp_type	Text	Foreign Key	Emp_type	XXX
12	Bank	Text	Foreign Key	Bank	XXX
13	Branch	Text	Foreign Key	Branch	XXX
14	Account_no	Text		No	20 Characters
15	Resign_flag	Text		No	X

Table E.19.   Employee_Information Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Race	Text		No	30 Characters
3	Nationality	Text		No	30 Characters
4	Religion	Text		No	30 Characters
5	Id_card	Text		No	13 Characters
6	Issue_by	Text		No	100 Characters
7	Expired_date	Date		No	dd/mm/yy
8	Birthdate	Date		No	dd/mm/yy
9	Address	Text		No	100 Characters
10	Tel.	Text		No	9 Characters
11	Mobile	Text		No	9 Characters
12	Fax	Text		No	9 Characters
13	Ref_name	Text		No	50 Characters
14	Ref_address	Text		No	100 Characters
15	Ref_tel	Text		No	9 Characters

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Table E.20. Employee_Family Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Family_status	Text		No	X
3	Sprouse_name	Text		No	40 Characters
4	Child_no	Integer		No	90
5	Father_name	Text		No	40 Characters
6	Mother_name	Text		No	40 Characters
7	Emer_name	Text		No	40 Characters
8	Emer_tel	Text		No	9 Characters

Table E.21. Employee_Education Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Level	Text		No	40 Characters
3	Institute	Date		No	dd/mm/yy
4	Degree	Text		No	40 Characters
5	Major	Text		No	XXX
6	Gpa	Text		No	X.XX
7	Year_entrance	Text		No	XXXX
8	Year_passed	Text		No	XXXX

Table E.22. Employee_Experience Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Emp_company	Text		No	40 Characters
3	Emp_position	Text		No	40 Characters
4	Emp_salary	Integer		No	999,990
5	Emp_from	Text		No	XX/XXXX
6	Emp_to	Text		No	XX/XXXX
7	Emp_reason	Text		No	100 Characters

Table E.23.　Employee_language Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Language	Text		No	10 Characters
3	Understand	Text		No	10 Characters
4	Speak	Text		No	10 Characters
5	Read	Text		No	10 Characters
6	Write	Text		No	10 Characters

Table E.24.　Employee_tax_information Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Tax_no	Text		No	13 Characters
3	Marital_status	Text		No	X
4	Child_learn	Text		No	X
5	Learn_No	Integer		No	990
6	Child_unlearn	Text		No	X
7	Unlearn_No	Integer		No	990
8	Ins_amt	Float		No	999,990.00
9	Res_amt	Float		No	999,990.00
10	Donate_amt	Float		No	999,990.00

Table E.25.　Emp_working_time Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Work_date	Date		No	dd/mm/yyyy
3	Work_type	Text	Foreign Key	Work_type	XXX
4	Work_hour	Integer		No	990
5	Work_min	Integer		No	90

Table E.26.   Tax_deduct Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Tax_type	Text	Primary Key	No	XXX
2	Tax_sub_type	Text	Primary Key	No	XXX
3	Tax_deduct	Float		No	999,990.00

Table E.27.   Tax_rate Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Seq	Integer	Primary Key	No	999
2	Salary_low	Integer		No	999,990
3	Salary_high	Integer		No	999,990
4	Salary_in_line	Integer		No	999,990
5	Tax_rate	Float		No	990.00
6	Tax_in_line	Float		No	999,990.00
7	Tax_highest	Float		No	999,990.00

Table E.28.   Payslip Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Bank_code	Text	Foreign Key	Bank	XXX
3	Branch_code	Text	Foreign Key	Branch	XXX
4	Slip_date	Date		No	dd/mm/yyyy
5	Salary	Integer		No	999,9900
6	Overtime	Float		No	999,990.00
7	Commission	Float		No	999,990.00
8	Bonus	Float		No	999,990.00
9	Total_income	Float		No	999,990.00
10	Total_deduct	Float		No	999,990.00
11	Tax	Float		No	999,990.00
12	Ytd_income	Float		No	9,999,990.00
13	Ytd_tax	Float		No	9,999,990.00

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Table E.29.   Taxslip Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_id	Integer	Primary Key/ Foreign Key	Employee	99999
2	Tax_date	Date		No	dd/mm/yyyy
3	Ytd_income	Float		No	9,999,990
4	Ytd_tax	Float		No	9,999,990

Table E.30.   Emp_Type Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Emp_type	Text	Primary Key	Yes	XXX
2	Period	Integer		No	990
3	Time_from	Text		No	XXXXXX
4	Time_to	Text		No	XXXXXX

Table E.31.   Section Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Sec_id	Text	Primary Key	No	XXXXX
2	Sec_name	Text		No	50 Characters

Table E.32.   Branch Table.

No.	Field Name	Field Type	Key Type	Foreign Key to Table	Length/Format
1	Bank_code	Text	Primary Key/ Foreign Key	Bank	XXX
2	Branch_code	Text	Primary Key	No	XXX
3	Bank_name	Text		No	50 Characters

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APPENDIX   F

DATA DICTIONARY

Table F.1. Data Dictionary of Human Resource Information System.

Field Name	Description
Account_no	The attribute in Employee table which identifies a account number in bank of each employee
Address	The attribute in Applicant_information table which identifies address of applicant
App_company	The attribute in Applicant_experience table which identifies worked company of applicant
App_date	The attribute in Applicant table which identifies date of application of applicant
App_id	The attribute in Applicant table which identifies identification of applicant
App_f_ename	The attribute in Applicant table which identifies applicants' English first names
App_f_tname	The attribute in Applicant table which identifies applicants' Thai first names
App_from	The attribute in Applicant_experience table which identifies start worked date of applicant
App_gender	The attribute in Applicant table which identifies gender of applicant
App_lang	The attribute in Applicant_language table which identifies languages of applicant
App_l_ename	The attribute in Applicant table which identifies applicants' English first names
App_l_tname	The attribute in Applicant table which identifies applicants' Thai last names
App_position	The attribute in Applicant_experience table which identifies worked position of applicant
App_prefix	The attribute in Applicant table which identifies prefix of applicant
App_reason	The attribute in Applicant_experience table which identifies reason of resign of applicant
App_salary	The attribute in Applicant_experience table which identifies worked salary of applicant
App_to	The attribute in Applicant_experience table which identifies end worked date of applicant
Approval_flag	The attribute in Requirement table which identifies flag of each requirements to approval
Birth_date	The attribute in Applicant_information table which identifies date of birth of applicant
Bonus	The attribute in Payslip table which identifies the bonus of payslip of employee
Bank_code	The attribute in Bank table which identifies bank code
Branch_code	The attribute in Branch table which identifies branch code

Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Bank_name	The attribute in Bank table which identifies bank name
Branch_name	The attribute in Branch table which identifies branch name
Child_no	The attribute in Applicant_family table which identifies amount of child of applicant
Child_learn	The attribute in Employee_tax_information table which identifies the flag of child learn of employee
Child_unlearn	The attribute in Employee_tax_information table which identifies the flag of none child learn of employee
Commission	The attribute in Payslip table which identifies the commission of payslip of employee
Course_code	The attribute in Course table which identifies identification of courses
Course_cost	The attribute in Course table which identifies the amount of cost of course
Course_end	The attribute in Training table which identifies the end date of each courses
Course_name	The attribute in Course table which identifies the name of courses
Course_start	The attribute in Training table which identifies the started date of each courses
Course_remark	The attribute in Course table which identifies remark of course
Course_time	The attribute in Course table which identifies the started date of each courses
Degree	The attribute in Applicant_education table which identifies degree education of applicant
Dept_id	The attribute in Department table which identifies department code
Donate_amt	The attribute in Employee_tax_information table which identifies the amount of donate values of employee
Emer_name	The attribute in Applicant_family table which identifies name of emergency of applicant
Emer_tel	The attribute in Applicant_family table which identifies telephone number of emergency of applicant
Emp_company	The attribute in Employee_experience table which identifies worked company of employee
Emp_f_name	The attribute in Employee table which identifies the first name of employee
Emp_from	The attribute in Employee_experience table which identifies the old start worked date of employee
Emp_id	The attribute in Applicant table which identifies identification of employee

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Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Emp_l_name	The attribute in Employee table which identifies the last name of employee
Emp_position	The attribute in Employee_experience table which identifies worked position of employee
Emp_prefix	The attribute in Employee table which identifies the prefix of employee
Emp_reason	The attribute in Employee_experience table which identifies reason of resign of employee
Emp_salary	The attribute in Employee table which identifies the current salary of employee
Emp_salary	The attribute in Employee_experience table which identifies the old worked salary of employee
Emp_to	The attribute in Employee_experience table which identifies the old end worked date of employee
Exam_no	The attribute in Position table which identifies the examination paper for each position
Exam_score	The attribute in Applicant table which identifies examination score
Expired_date	The attribute in Applicant_information table which identifies expired date of identified card of applicant
Family_status	The attribute in Applicant_family table which identifies status of family of applicant
Father_name	The attribute in Applicant_family table which identifies name of father of applicant
Fax	The attribute in Applicant_information table which identifies Fax number of applicant
Gpa	The attribute in Applicant_education table which identifies G.P.A. of education of applicant
Holiday_date	The attribute in Holiday table which identifies the holiday of company
Holiday_name	The attribute in Holiday table which identifies the holiday name of company
Id_card	The attribute in Applicant_information table which identifies identified card of applicant
Ins_amt	The attribute in Employee_tax_information table which identifies the amount of insurance of employee
Institute	The attribute in Applicant_education table which identifies instituted education of applicant
Interview_by	The attribute in Applicant table which identifies interviewed name
Interview_score	The attribute in Applicant table which identifies interview score
Issue_by	The attribute in Applicant_information table which identifies issue of identified card of applicant

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Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Learn_no	The attribute in Employee_tax_information table which identifies the amount of child learn of employee
Level	The attribute in Applicant_education table which identifies level education of applicant
Major	The attribute in Applicant_education table which identifies major education of applicant
Marital_status	The attribute in Employee_tax_information table which identifies status of marital of employee
Mobile	The attribute in Applicant_information table which identifies mobile number of applicant
Mother_name	The attribute in Applicant_family table which identifies name of mother of applicant
Nationality	The attribute in Applicant_information table which identifies applicant of nationality
No_req	The attribute in Requirement table which identifies the amount of each requirements
Overtime	The attribute in Payslip table which identifies the overtime of payslip of employee
Pass_flag	The attribute in Applicant table which identifies flag of pass
Pos_id	The attribute in Employee table which identifies position code of employee
Position_code	The attribute in Position table which identifies the position code
Position_name	The attribute in Position table which identifies the position name
Race	The attribute in Applicant_information table which identifies applicant of race
Read	The attribute in Applicant_language table which identifies level of read languages of applicant
Ref_address	The attribute in Applicant_information table which identifies address of reference name of applicant
Ref_name	The attribute in Applicant_information table which identifies reference name of applicant
Ref_tel	The attribute in Applicant_information table which identifies telephone no of reference name of applicant
Religion	The attribute in Applicant_information table which identifies applicant of religion
Req_no	The attribute in Applicant table which identifies requirement number
Req_no	The attribute in Requirement table which identifies identification of requirements

Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Req_dept	The attribute in Requirement table which identifies department code of each requirements
Req_date	The attribute in Requirement table which identifies date of each requirements
Req_gender	The attribute in Requirement table which identifies gender of each requirements
Req_edu	The attribute in Requirement table which identifies level of education of each requirements
Req_exper	The attribute in Requirement table which identifies level of experience of each requirements
Res_amt	The attribute in Employee_tax_information table which identifies the amount of resident values of employee
Resign_flag	The attribute in Employee table which identifies the status of employee resignation
Salary	The attribute in Payslip table which identifies the salary of payslip of employee
Salary_high	The attribute in Tax_rate table which identifies the maximized of salary
Salary_low	The attribute in Tax_rate table which identifies the minimized of salary
Salary_in_line	The attribute in Tax_rate table which identifies the salary between minimized and maximized salary values
Sec_id	The attribute in Department table which identifies section code
Slip_date	The attribute in Payslip table which identifies the date of payslip of employee
Speak	The attribute in Applicant_language table which identifies level of speak languages of applicant
Spourse_name	The attribute in Applicant_family table which identifies name of spourse of applicant
Started_date	The attribute in Employee table which identifies started work date of employee
Started_salary	The attribute in Employee table which identifies started salary of employee
Total_income	The attribute in Payslip table which identifies the total income of payslip of employee
Total_deduct	The attribute in Payslip table which identifies the total deduct of payslip of employee
Tax	The attribute in Payslip table which identifies the tax values of payslip of employee
Tax_deduct	The attribute in Tax_deduct table which identifies the deduct of tax
Tax_highest	The attribute in Tax_rate table which identifies the highest tax values between minimized and maximized tax

Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Tax_in_line	The attribute in Tax_rate table which identifies the tax values between minimized and maximized tax
Tax_date	The attribute in Taxslip table which identifies the date of taxslip of employee
Tax_no	The attribute in Employee_tax_information table which identifies tax identification of employee
Tax_rate	The attribute in Tax_rate table which identifies the rate of tax between minimized and maximized tax
Tax_sub_type	The attribute in Tax_deduct table which identifies sub type of tax
Tax_type	The attribute in Tax_deduct table which identifies type of tax
Tel	The attribute in Applicant_information table which identifies telephone number of applicant
Train_code	The attribute in Training table which identifies the identification of train
Trainer_addr	The attribute in Trainer table which identifies the address of trainer
Trainer_id	The attribute in Course table which identifies the identification of trainer
Trainer_name	The attribute in Trainer table which identifies the name of trainer
Training_date	The attribute in Training_history table which identifies the date of the past training of each employees in each courses
Understand	The attribute in Applicant_language table which identifies languages of applicant
Unlearn_no	The attribute in Employee_tax_information table which identifies the amount of none child learn of employee
Work_date	The attribute in Employee_working_time table which identifies the date of work
Work_hour	The attribute in Employee_working_time table which identifies the hours of work
Work_min	The attribute in Employee_working_time table which identifies the minutes of work
Work_type	The attribute in Employee table which identifies type of work of employee
Write	The attribute in Applicant_language table which identifies level of write languages of applicant
Wt_code	The attribute in Work_type table which identifies the type of work of each employee
Wt_name	The attribute in Work_type table which identifies the name of type of work
Wt_rate	The attribute in Payslip table which identifies the bonus of payslip of employee

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Table F.1. Data Dictionary of Human Resource Information System (continued).

Field Name	Description
Wt_sub_code	The attribute in Work_type table which identifies the sub type of work of each employee
Wt_unit	The attribute in Payslip table which identifies the commission of payslip of employee
Year_enteance	The attribute in Applicant_education table which identifies start date of institute of applicant
Year_passed	The attribute in Applicant_education table which identifies end date of institute of applicant
Ytd_income	The attribute in Payslip table which identifies the sum of year of income in payslip of employee
Ytd_tax	The attribute in Payslip table which identifies the sum of year of tax in payslip of employee

APPENDIX G

PROCESS SPECIFICATION

ACTIVITIES DIAGRAM OF HUMAN RESOURCE SYSTEM

The process diagram of the Human Resource System declares the scope and boundary of the system shown the interfaces between their environments. Illustrated in details of diagram procedure is shown as the following.

Process 1. Illustrated the activities of recruitment process is shown in Figure C.3. The process begins when other department requires and sends new position vacancy and job specification to recruitment section of personal department. The process will check the position vacancy. Manipulate position and application form of the candidates in proved data and is complemented with requirement of departments. The candidates take the examination and are taken the interviews. If passed candidate, then transfer passed candidate information to new employee information.

Process 2. Illustrated the activities of training process is shown in Figure C.7. Because of the employees, training is necessary. Training process, including preparing course, arranging time and course for training until employees are trained and also the results of their training are kept in history file and reports.

Process 3. Illustrated the activities of administration process is shown in Figure C.8. Because of the Manipulate the master file that including course, position, bank, employee information, employee resignation, and also input daily working time of employee for calculate salary and tax in payroll process.

Process 4. Illustrated the activities of payroll process is shown in Figure C.9. This process checks summary daily working time and uses it to calculate salary monthly and tax yearly. Send employee salary monthly data to employee account bank from employee file and also create pay slip, tax slip yearly to employee.

Table G.1.   Process Specification of Process 1.

Items	Description
Process Name:	Recruitment process
Data In:	Exam paper and interview applicant Applicant information Candidate list New position requirement Candidate list Candidate information Passed candidate information
Data Out:	Applicant information Exam paper Candidate information New employee information Vacancy position information
Process:	(1) Get new position vacancy from other department (2) Checking position vacancy by read available position form requirement file (3) Approval their requirement (4) Prepare applicant information by matching their requirement with appropriate applicant information and interview them (5) Record new employee
Attachment:	Data Store in employee file

Table G.2.   Process Specification of Process 1.1.

Items	Description
Process Name:	Vacancy requirement
Data In:	New requirement information from other department Available position Department Information
Data Out:	Vacancy portion Information to recruitment section Approval vacancy position status
Process:	(1) Get new position vacancy from other department (2) Checking available position Information from department file and position file by recruit session (3) Approval Requirement Vacancy Information
Attachment:	Data Store in requirement file

Table G.3.   Process Specification of Process 1.1.1.

Items	Description
Process Name:	Check new position vacancy
Data In:	New Requirement Information from other departments New Available position
Data Out:	New position vacancy information to recruit section
Process:	(1) Recruit session gets new require portion vacancy from other departments (2) Checking available position information from position file
Attachment:	-

Table G.4.   Process Specification of Process 1.1.2.

Items	Description
Process Name:	Approval vacancy requirement
Data In:	Available position vacancy information
Data Out:	Approval new position vacancy status
Process:	(1) Approval and update vacancy requirement information in requirement file
Attachment:	Status of approval vacancy requirement

Table G.5.   Process Specification of Process 1.2.

Items	Description
Process Name:	Prepare applicant Information
Data In:	Available job information Candidate list Applicant Information from Applicant form
Data Out:	Applicant Information Candidate Information
Process:	(1) Get and verify applicant Information (2) Update applicant Information to applicant file (3) Matching job information with applicant information by Recruit session and other department (4) Update status applicant to candidate in applicant file
Attachment:	-

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Table G.6. Process Specification of Process 1.2.1.

Items	Description
Process Name:	Verify applicant information
Data In:	Applicant Information from Applicant form
Data Out:	Record applicant information to applicant file Applicant list data
Process:	(1) Get applicant information from applicant (2) Verify applicant information and record to applicant file (3) Find appropriate applicant data for matching with vacancy requirement
Attachment:	Applicant data list

Table G.7. Process Specification of Process 1.2.2.

Items	Description
Process Name:	Matching with requirement
Data In:	Applicant list and information Candidate list from recruit session and other department who matching with vacancy requirement Available job information from requirement file
Data Out:	Applicant information used by recruit session and other department Candidate list
Process:	(1) Get available job and vacancy information from requirement file (2) Get applicant information from applicant file (3) Other departments who require new position vacancy and recruit session check matching vacancy information requirement and applicant information
Attachment:	Candidate list data

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Table G.8.   Process Specification of Process 1.2.3.

Items	Description
Process Name:	Record applicant information
Data In:	Candidate list information
Data Out:	Status of updated applicant information to candidate
Process:	Update status applicant who match with position vacancy requirement to candidate in applicant file
Attachment:	-

Table G.9.   Process Specification of Process 1.3.

Items	Description
Process Name:	Management New Employee
Data In:	Candidate Information Passed candidate Take exam paper and score Take interview applicant
Data Out:	Take exam paper Candidate Information Passed candidate Information Delete candidate who do not pass exam and interview Update position requirement that have passed candidate
Process:	(1) Get candidate information and position requirement (2) Applicant takes exam paper (3) If applicants can pass normal score and take interview with other department and recruit session (4) Record applicant to new employee in employee file (5) If applicant can not pass the take interview, Delete applicant information from applicant file
Attachment:	-

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Table G.10. Process Specification of Process 1.3.1.

Items	Description
Process Name:	Verify and check exam
Data In:	Exam paper from applicant Candidate Information
Data Out:	Exam paper to applicant Applicant's exam score
Process:	(1) Get candidate information and position requirement (2) Applicant takes exam paper (3) Check the applicant's exam paper and send score to next process
Attachment:	Score exam

Table G.11. Process Specification of Process 1.3.2.

Items	Description
Process Name:	Update Applicant Information
Data In:	Score exam
Data Out:	Passed candidate information to applicant file
Process:	Update candidate Information to applicant file who pass normal score exam for other department and recruit session
Attachment:	Candidate Information

Table G.12. Process Specification of Process 1.3.3.

Items	Description
Process Name:	Interview Applicant
Data In:	Candidate Information Applicant Interview Interview Applicant
Data Out:	Send candidate Information to other department and recruit session Passed candidate information
Process:	(1) Get candidate information from applicant file (2) Other department, which required position vacancy and recruit session, takes interview applicant
Attachment:	Passed candidate list

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Table G.13. Process Specification of Process 1.3.4.

Items	Description
Process Name:	Record New Employee Information
Data In:	Passed candidate Information
Data Out:	Candidate Information to Employee Update portion requirement
Process:	(1) Receive passed candidate from previous process (2) Update position vacancy requirement which other department require (3) Insert passed candidate information to new employee in employee file
Attachment:	Passed candidate list

Table G.14. Process Specification of Process 1.3.5.

Items	Description
Process Name:	Cancel Applicant
Data In:	No passed candidate
Data Out:	Delete candidate Information
Process:	(1) Receive no passed candidate from previous process (2) Delete applicant information
Attachment:	Passed candidate list

Table G.15. Process Specification of Process 2.

Items	Description
Process Name:	Manpower process
Data In:	Employee list and training requirement Training and seminar requirement
Data Out:	Detail report Announce employee training schedule list
Process:	(1) Prepare course for employee training from other department (2) Arrange time and course (3) Trained the employee by trainer. If finish training, record data to training_history file (4) Generate reports to manager's other department
Attachment:	Training employee list information and reports

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Table G.16. Process Specification of Process 2.1.

Items	Description
Process Name:	Prepare course
Data In:	Employee information Employee training request from other department
Data Out:	Training and seminar request to train and develop
Process:	(1) Receive employee list and training course information from other department (2) Get employee information from employee file (3) Determine course information by comparing schedule and place and record to training file
Attachment:	Course requirement Employee information

Table G.17. Process Specification of Process 2.2.

Items	Description
Process Name:	Arrange time and course
Data In:	Course requirement information Selected course Employee information
Data Out:	Time and place schedule information Employee training schedule information
Process:	(1) Get course and course requirement information (2) Preparing course from training record database and training requirement from other department (3) Arrange time and course from training record file and get schedule and place from training for employee list (4) Announce to employee list and other department update trained employee into training history
Attachment:	Employee information

Table G.18. Process Specification of Process 2.3.

Items	Description
Process Name:	Training
Data In:	Employee information from training file
Data Out:	Employee information to training_history file Employee training information to training file
Process:	(1) Receive employee information (2) When end of training, record to training_history and training file
Attachment:	Employee information and course information

Table G.19. Process Specification of Process 2.4.

Items	Description
Process Name:	Report to manager's other department
Data In:	Employee information Employee Training Information
Data Out:	Detail report of employee list to Training & development and Other department
Process:	(1) Get employee information and employee training information (2) Generate employee training's report to Training & development and Other department manager
Attachment:	-

Table G.20. Process Specification of Process 3.

Items	Description
Process Name:	Administration process
Data In:	Employee information Working time of employee Summary report requirement Update holiday data requirement Update employee information requirement
Data Out:	Many summary report
Process:	(1) Get employee requirement and employee's time card (2) Input or update working time (3) This process can manipulate holiday data, employee information (4) Employee resign in form and update employee status to resign (5) Generate report to other department and who requires
Attachment:	-

Table G.21. Process Specification of Process 3.1.

Items	Description
Process Name:	Check employer information
Data In:	Employee information Employee's working time data
Data Out:	Each employee's working time
Process:	Administration section receives employee requirement and employee's time cards
Attachment:	Employee's working time

Table G.22. Process Specification of Process 3.2.

Items	Description
Process Name:	Record working time
Data In:	Employee's working time Holiday information
Data Out:	Summary each employee's working time
Process:	(1) Insert each employee's working time to emp_working_time file (2) Calculate summary each employee's working time monthly
Attachment:	-

Table G.23. Process Specification of Process 3.3.

Items	Description
Process Name:	Update working time
Data In:	Employee information Employee's working time
Data Out:	Employee's working time is updated
Process:	(1) Update employee's working time in emp_working_time file (2) Recalculate summary each employee's working time monthly
Attachment:	-

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Table G.24. Process Specification of Process 3.4.

Items	Description
Process Name:	Maintenance holiday
Data In:	Holiday Information
Data Out:	Holiday Information is updated
Process:	Manipulate holiday information in holiday file
Attachment:	-

Table G.25. Process Specification of Process 3.5.

Items	Description
Process Name:	Maintenance employee Information
Data In:	Employee information
Data Out:	Employee information is updated
Process:	Manipulate employee information in holiday file
Attachment:	-

Table G.26. Process Specification of Process 3.6.

Items	Description
Process Name:	Resignation
Data In:	Employee information Resign form
Data Out:	Resignation information
Process:	(1) Filled in resign form by employee from recruitment section who allowed (2) Check employee status record (3) Calculate the money for resign employee responded by accounting department (4) Check correctly employee name information (5) Update status employee to resign in employee file
Attachment:	-

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Table G.27. Process Specification of Process 3.7.

Items	Description
Process Name:	Report Administration
Data In:	Holiday Information Employee Information Employee's working time Employee requirement
Data Out:	Detail and Summary Reports
Process:	(1) Employee requires working time Information OR (2) Other Department requires working time information, employee information OR (3) IT Department require working time information, employee information (4) So, those data are generated report and sent to employee, other department or IT department
Attachment:	-

Table G.28. Process Specification of Process 4.

Items	Description
Process Name:	Payroll process
Data In:	Employee information requirement Employee's working time summary
Data Out:	Employee information Employee salary data
Process:	(1) Verify employee information (2) Calculate salary and tax (3) Generate report (4) Generate employee salary data to account section and bank
Attachment:	-

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Table G.29.   Process Specification of Process 4.1.

Items	Description
Process Name:	Verify employee information
Data In:	Employee information Employee's working time summary Tax information
Data Out:	Employee information
Process:	(1) Receive employee information requirement from Administration section (2) Get employee from employee file (3) Summary working time of employee from emp_working_time file and tax information
Attachment:	Employee information Summary working time of employee and tax information

Table G.30.   Process Specification of Process 4.2.

Items	Description
Process Name:	Calculate salary
Data In:	Employee information from previous process Tax information from tax_rate, tax_deduct file
Data Out:	Employee salary and tax
Process:	(1) Get summary working time and non-working time (2) Calculated salary by work hour multiple to each work rate and non work hour multiple to OT work rate (3) Calculate tax monthly (4) Record their salary to pay slip file
Attachment:	Employee salary and employee information

Table G.31.   Process Specification of Process 4.3.

Items	Description
Process Name:	Generate data to disk
Data In:	Employee salary Employee information
Data Out:	Employee salary data
Process:	(1) Get employee ID., account number from employee file and salary monthly (2) Generated their data to file by following as format of each bank (3) Insert their data into disk and send to bank where is in the employee's account bank in employee file
Attachment:	Employee salary data

Table G.32.   Process Specification of Process 4.4.

Items	Description
Process Name:	Generate report
Data In:	Employee salary Employee information
Data Out:	Employee salary data
Process:	(1) Get employee information (2) Generate reports to IT department and account department (3) Create monthly pay slip and yearly tax slip to employee
Attachment:	Report information

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APPENDIX H

DATABASE DESIGN
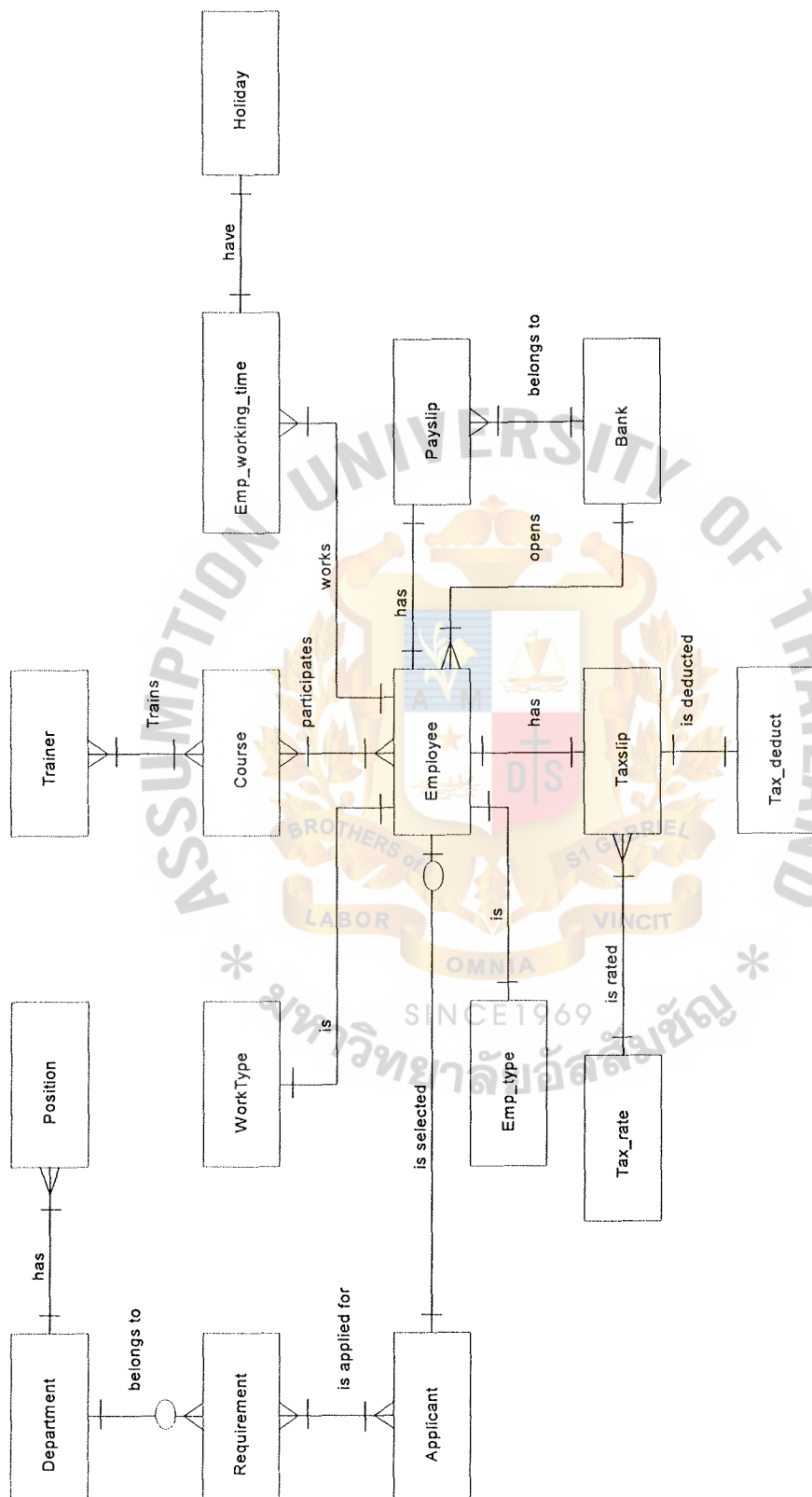
Figure H.1. Context Data Model of Human Resource System.

104
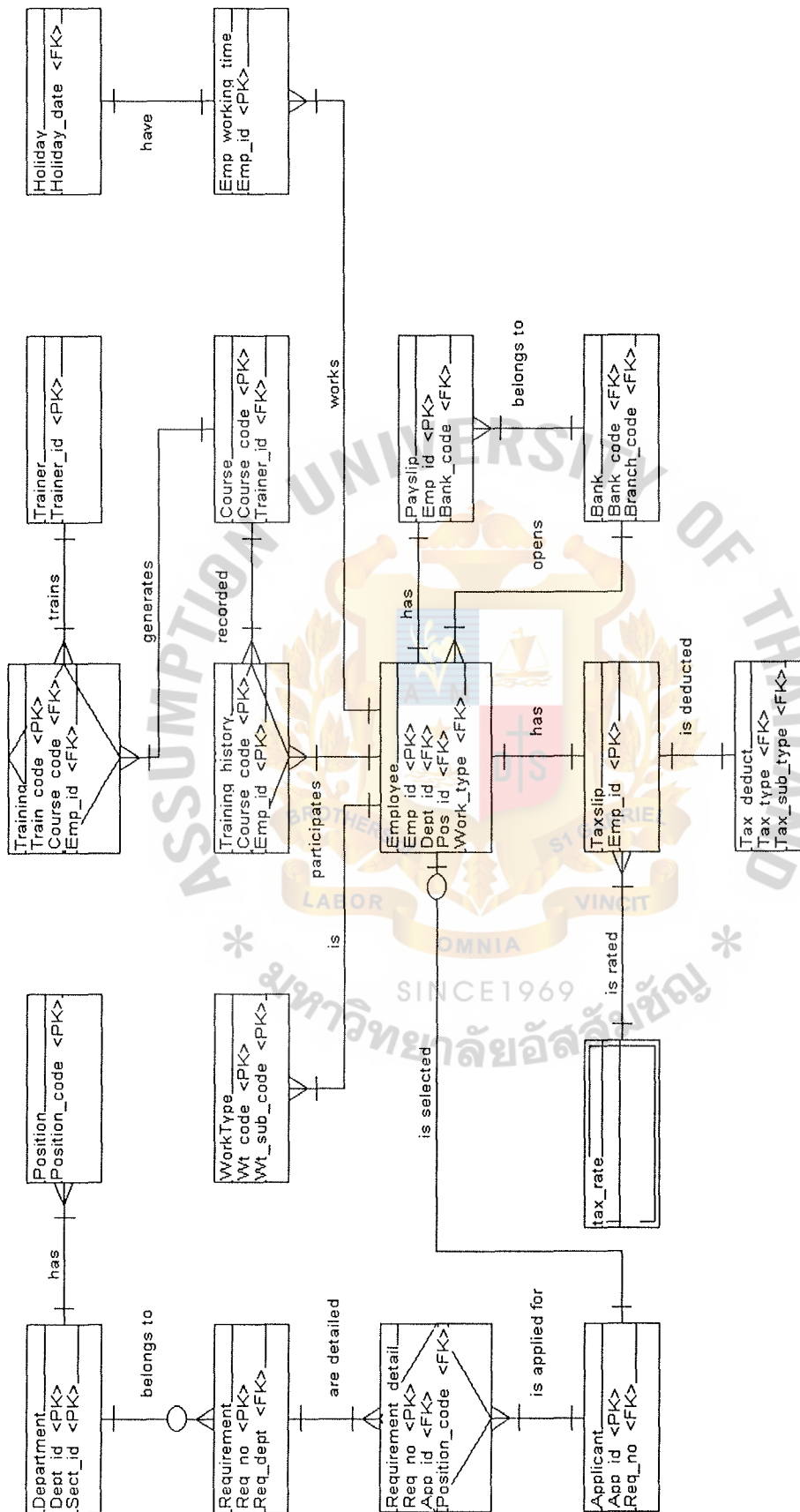
Figure H.2.   Key-Based Data Model of Human Resource System.

Figure H.3. Fully Attributed Data Model of Human Resource System.

APPENDIX I

SCREEN DESIGN
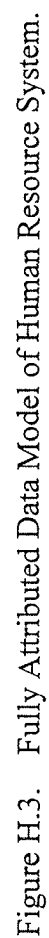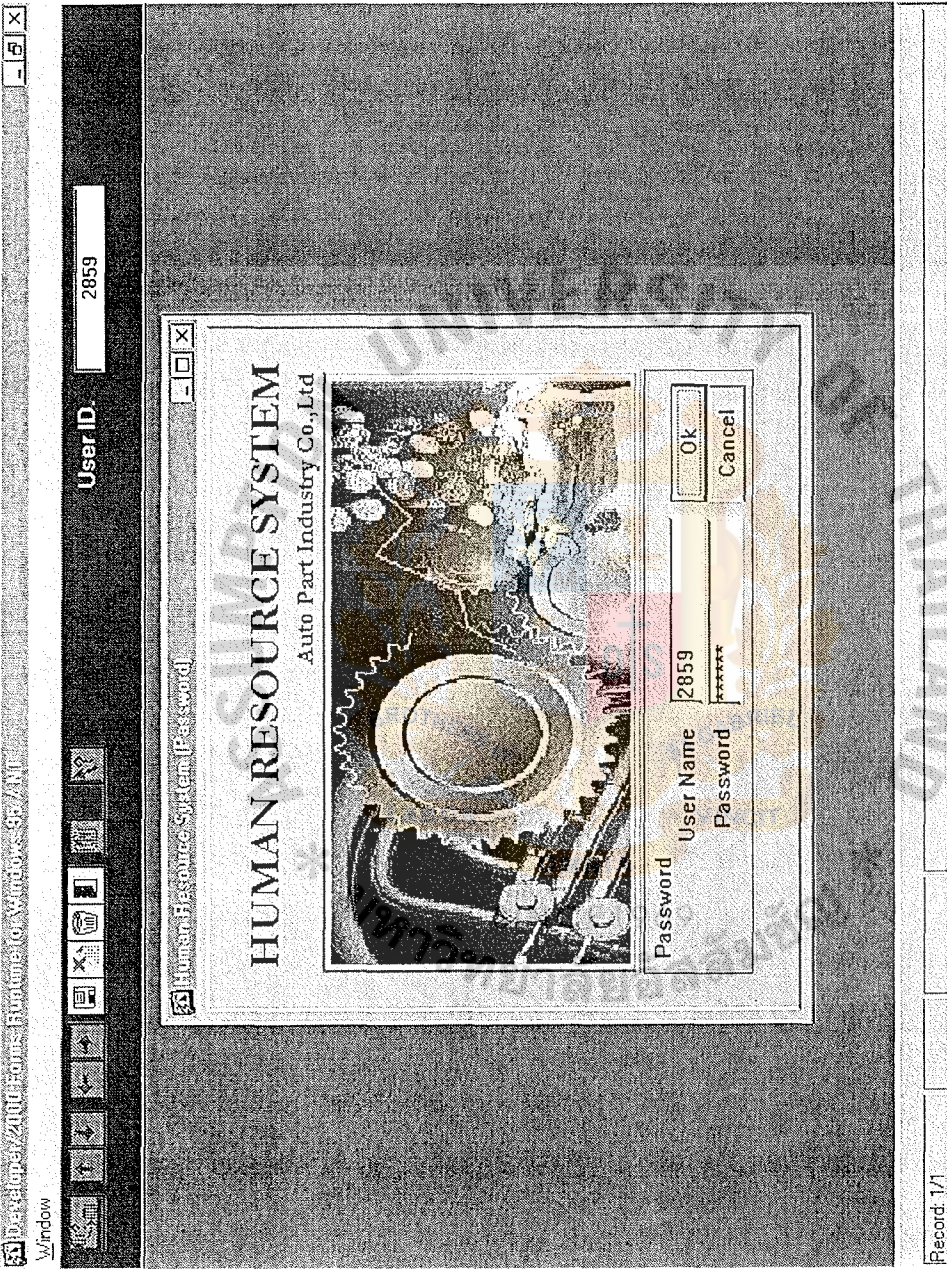
Figure I.1. Password.

Figure I.2. Main Menu.

108
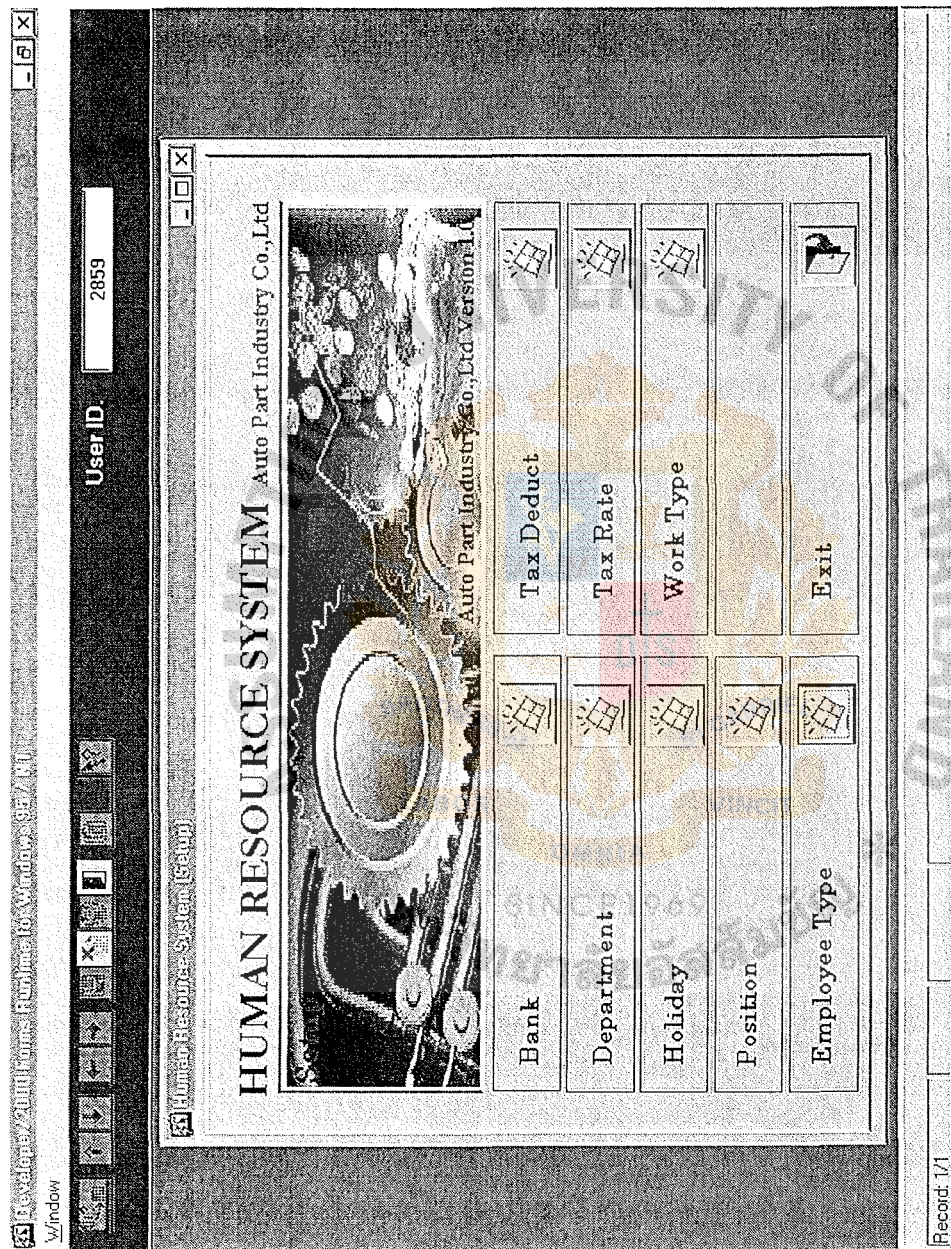
Figure I.3. Setup Data Menu.

109

Figure I.4. Bank.

Figure I.5. Department.

111

Figure I.6. Holiday.

112

Figure I.7.   Position.

113

Figure I.8. Employee Type.

Figure I.9. Tax Deduct.

Figure I.10. Tax Rate.

Figure I.11. Work Type.

117

Figure I.12. Application Form (Information).

118

Figure I.13. Application Form (Family).

119

Figure I.14.   Application Form (Education).

120

Figure I.15. Application Form (Experience).

Figure I.16. Application Form (Language).

Figure I.17. Recruitment Menu.

Figure I.18.   Job Requirement.

124

Figure I.19. Job Requirement with Department Code.

125

Figure I.20. Approval Job Requirement.

Figure I.21.   Matching Job Requirement.

127

Figure I.24. Transfer All Applicant Information to Employee Information.

Figure I.25.   Employee Information.

131

Figure I.26.   Employee Information (Family).

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Figure I.27.　Employee Information (Education).

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Figure I.28. Employee Information (Experience).

Figure I.29.   Employee Information (Language).

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Figure I.30. Employee Information (Tax).

Figure I.31.   Employee Information (Training).

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Figure I.32.   Manpower Menu.

Figure I.33. Course Information.

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Figure I.34.   Trainer Information.

Figure I.35. Employee Training.

Figure I.36.   Approval Employee Training.

Figure I.37.   Payroll Menu.
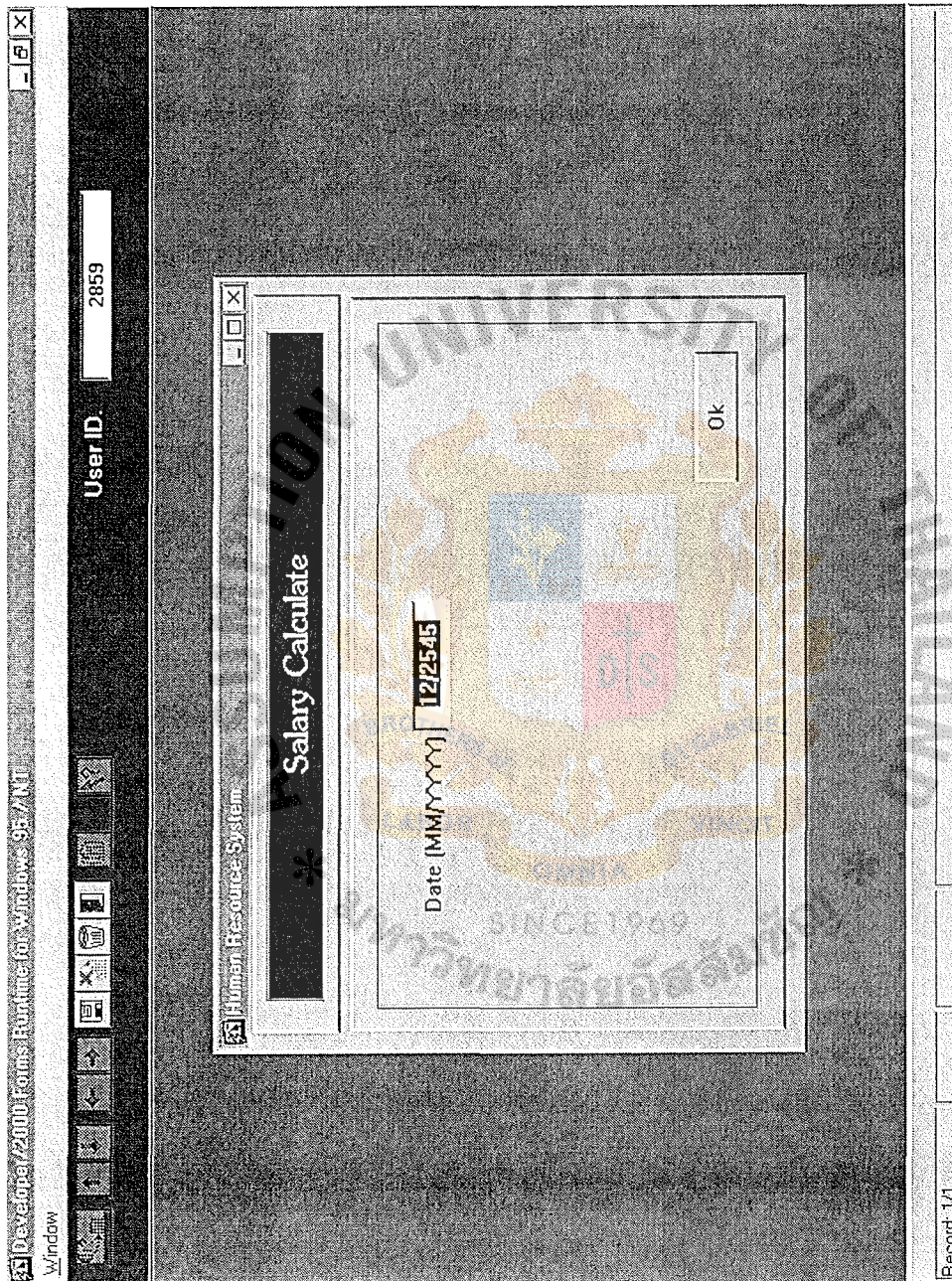
Figure I.38.   Calculate Employee Salary.
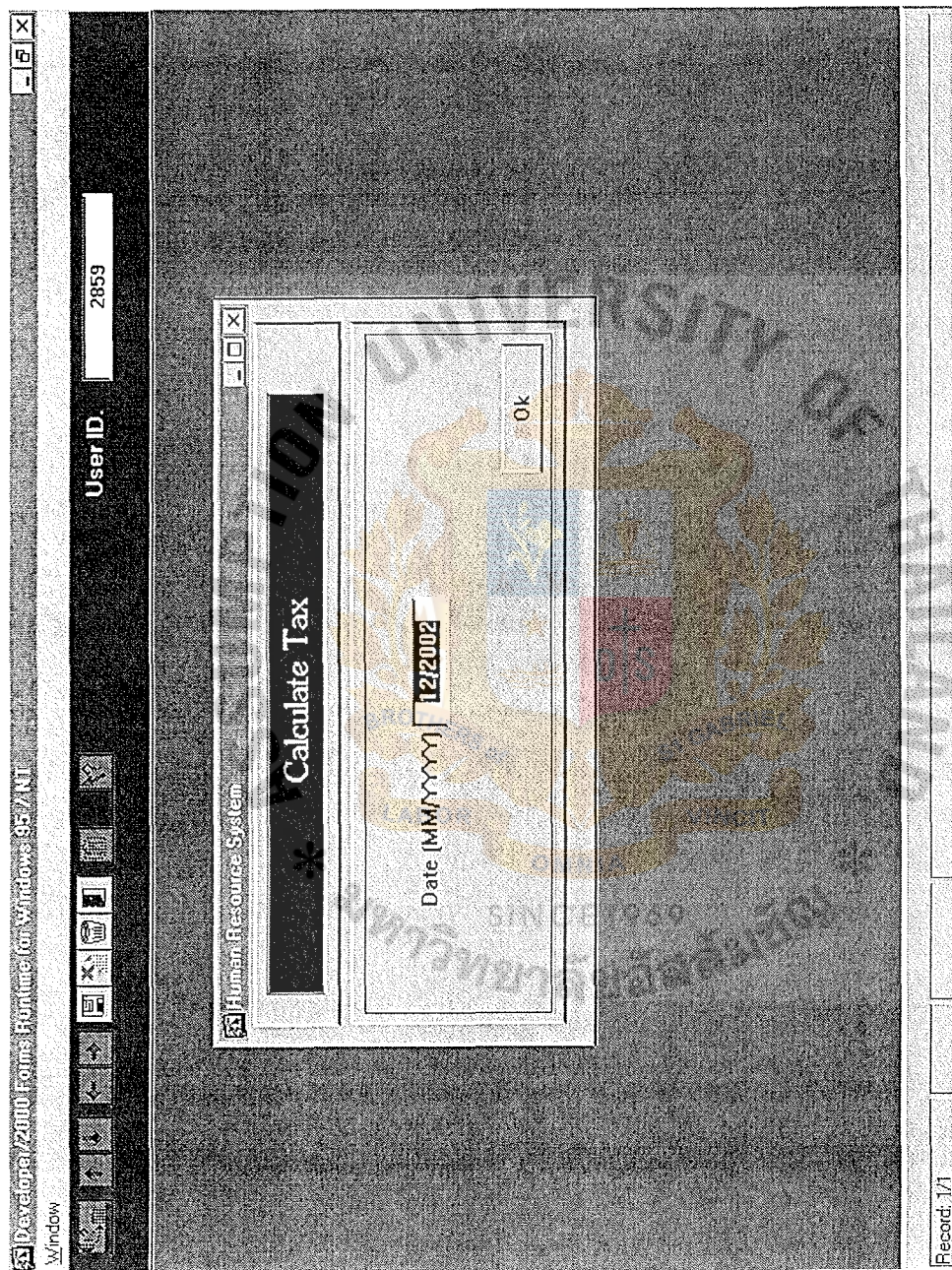
Figure I.39. Calculate Tax.

Figure I.40.   Print Employee Salary.
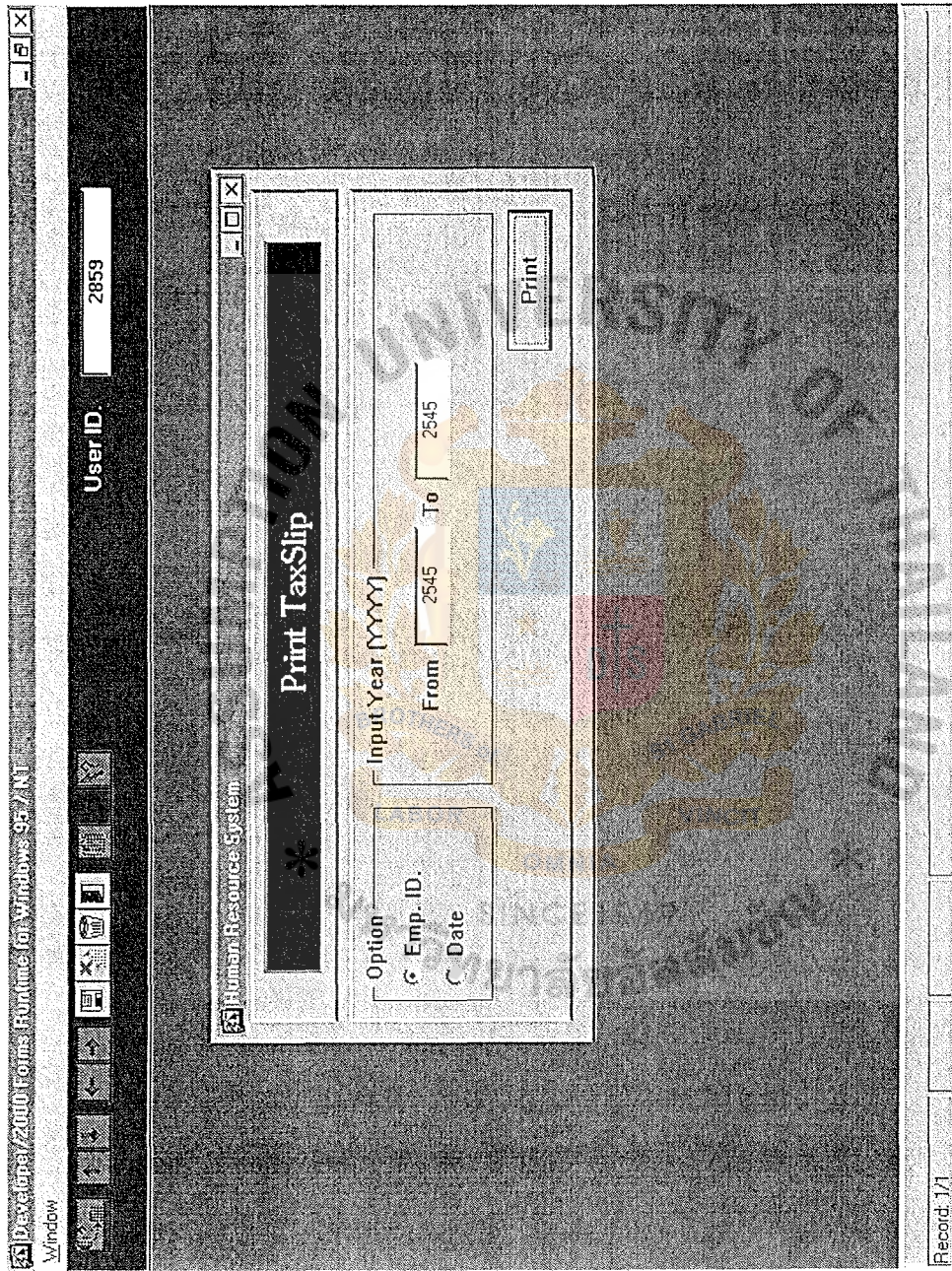
Figure I.41.   Print Employee Tax.

Figure I.42. Administration Menu.

Figure I.43. Employee Working Time.
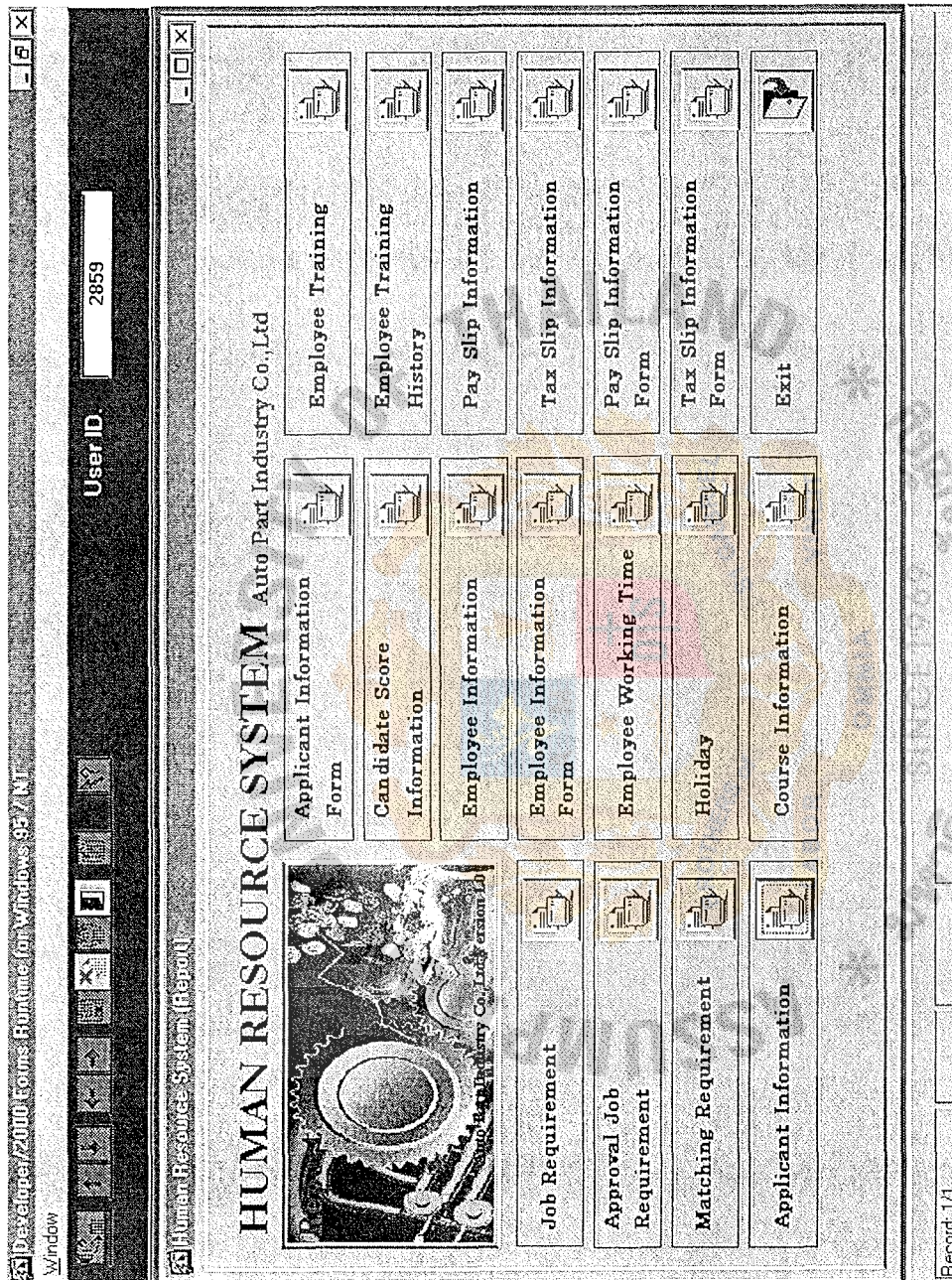
149

Figure I.44.   Report Menu.

Figure I.45.   Requirement Report (by Department Code).

Figure I.46. Requirement Report (by Position Code).

Figure I.47. Requirement Report (by Date).

Figure I.48. Approval Requirement Report (by Requirement No.).

154

Figure I.49. Approval Requirement Report (by Deportment Code).

155

Figure I.50. Approval Requirement Report (by Position Code).
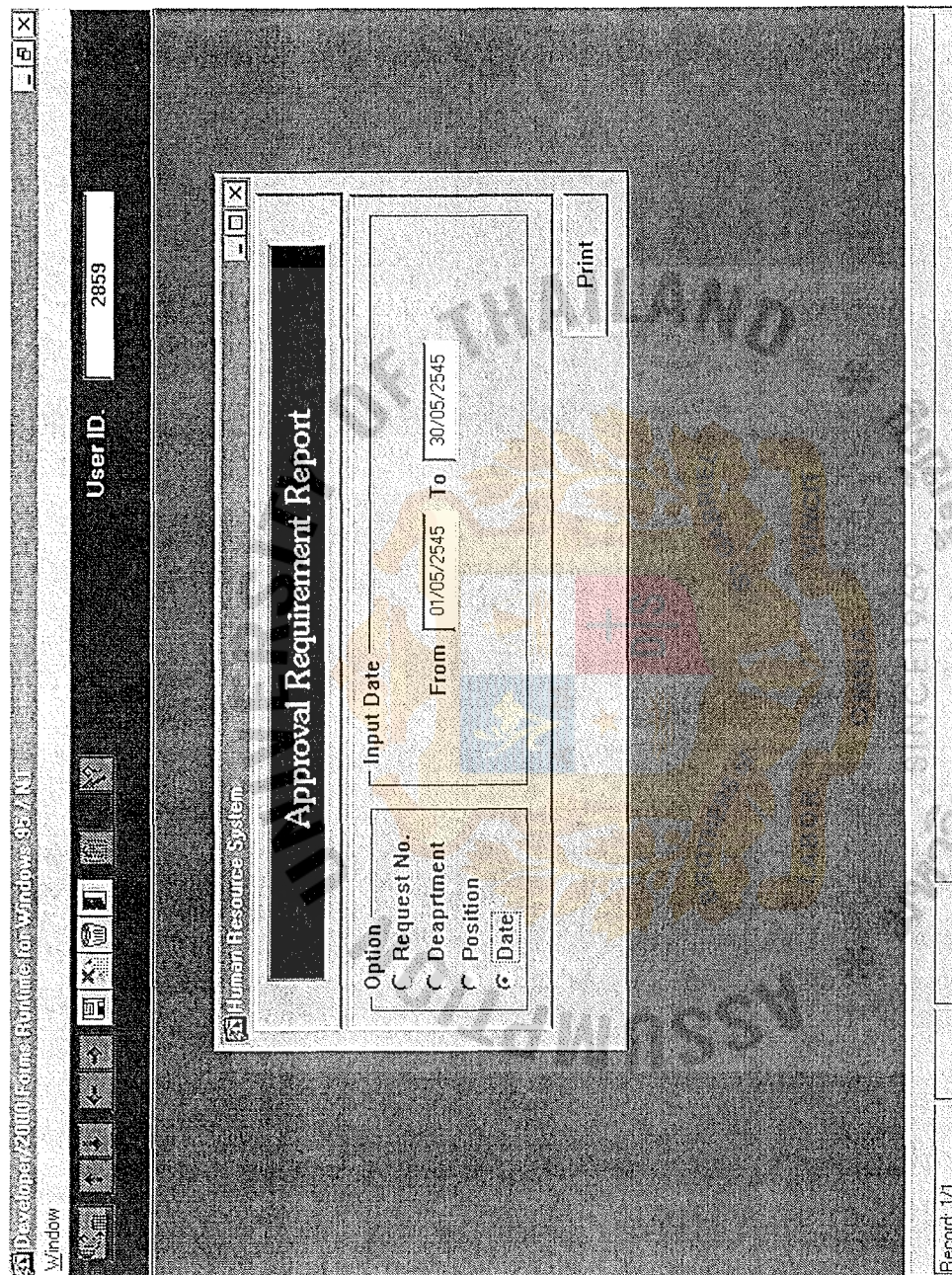
Figure I.51. Approval Requirement Report (by Date).

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Figure I.52. Matching Requirement Report (by Requirement No.).

Figure I.53.   Matching Requirement Report (by Department Code.).

159
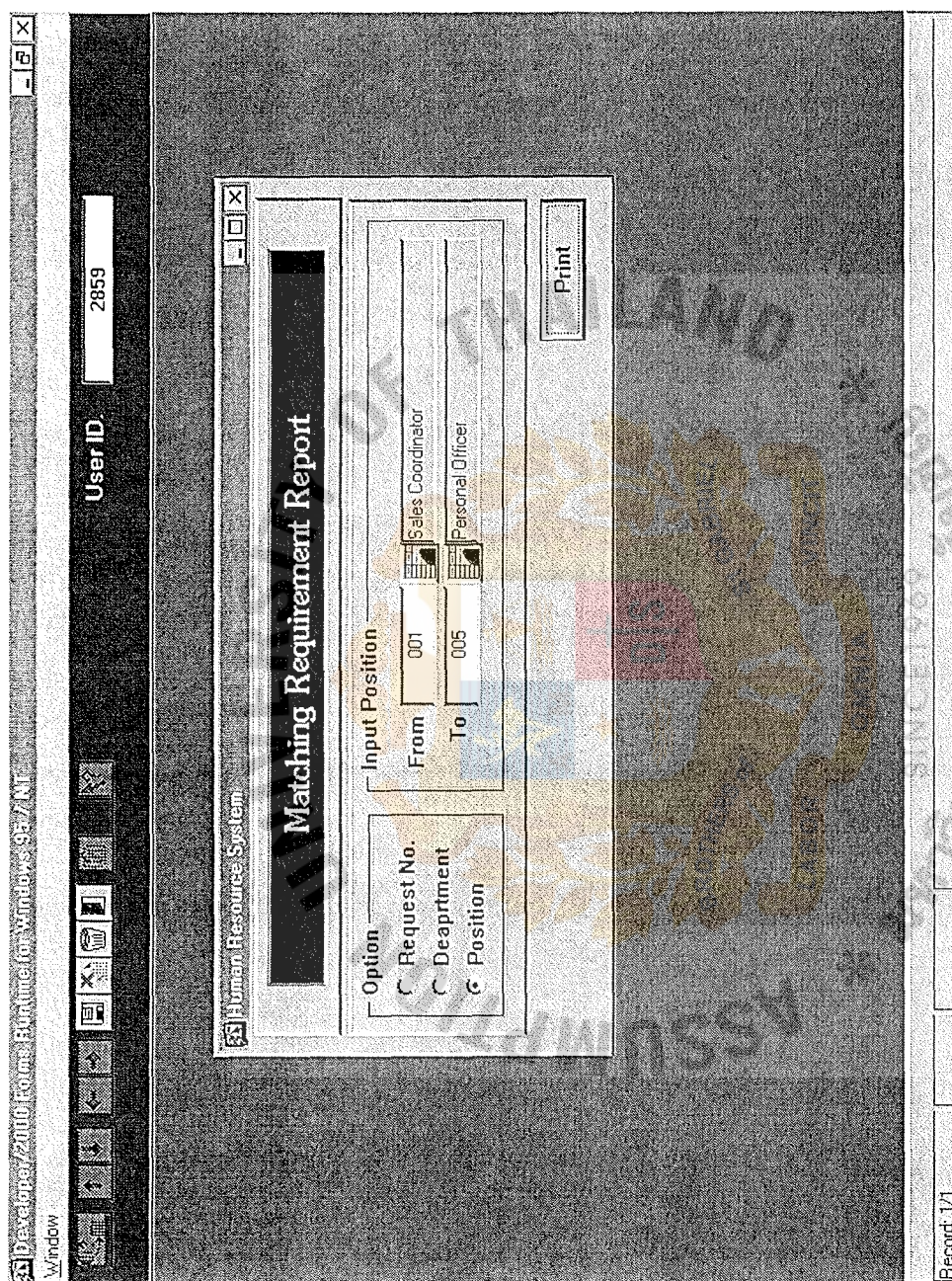
Figure I.54.   Matching Requirement Report (by Position Code).

Figure I.55. Applicant Information Report (by Applicant ID.).

Figure I.56.   Applicant Information Report (by Position Code).

162

Figure I.57. Interview Applicant Report (by Applicant No.).

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Figure I.58. Interview Applicant Report (by Request No.).

164

Figure I.59. Interview Applicant Report (by Department Code).

165

Figure I.60.   Interview Applicant Report (by Position Code).

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Figure I.61. Employee Information Report (by Employee ID.).

Figure I.62.   Employee Information Report (by Department Code).

168
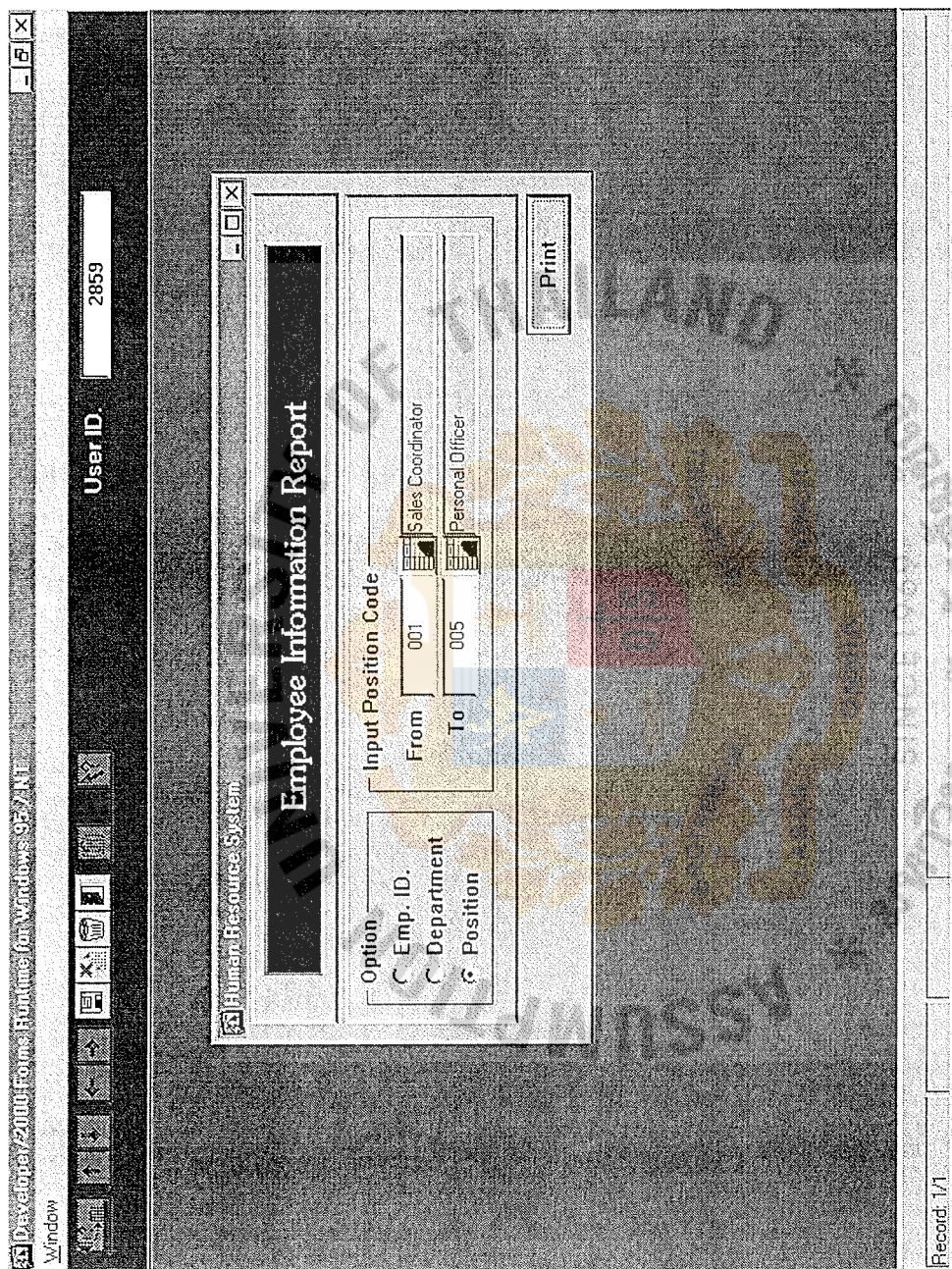
Figure I.63.   Employee Information Report (by Position Code).

Figure I.64.   Employee Working Time Report (by Employee ID.).

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Figure I.65.   Employee Working Time Report (by Date).
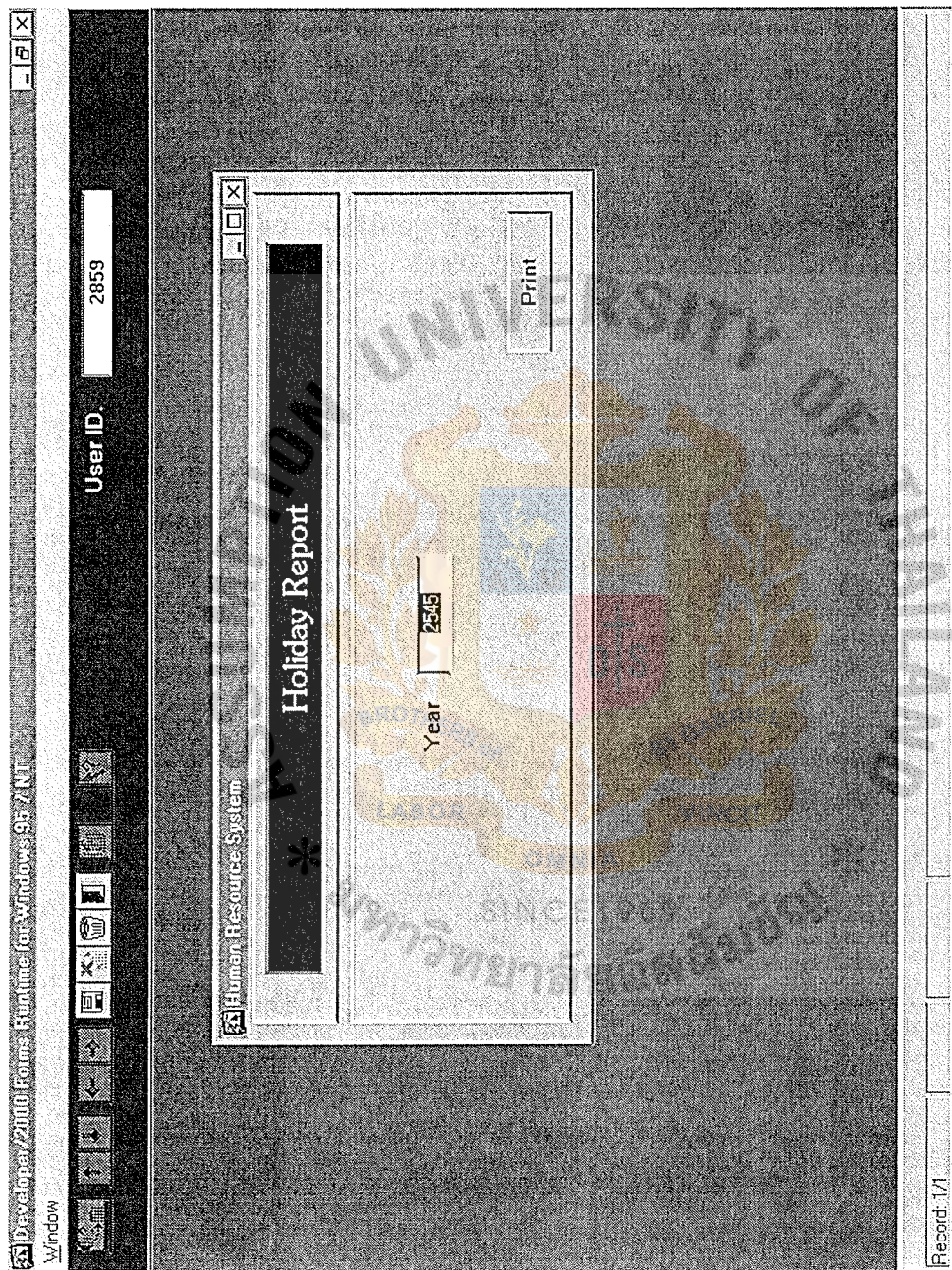
Figure I.66. Holiday Report.

172

Figure I.67. Course Information Report (by Course Code).

Figure I.68.   Course Information Report (by Trainer ID.).

Figure I.69. Training Information Report (by Course Code).

175

Figure I.70.   Pay Slip Report.

176
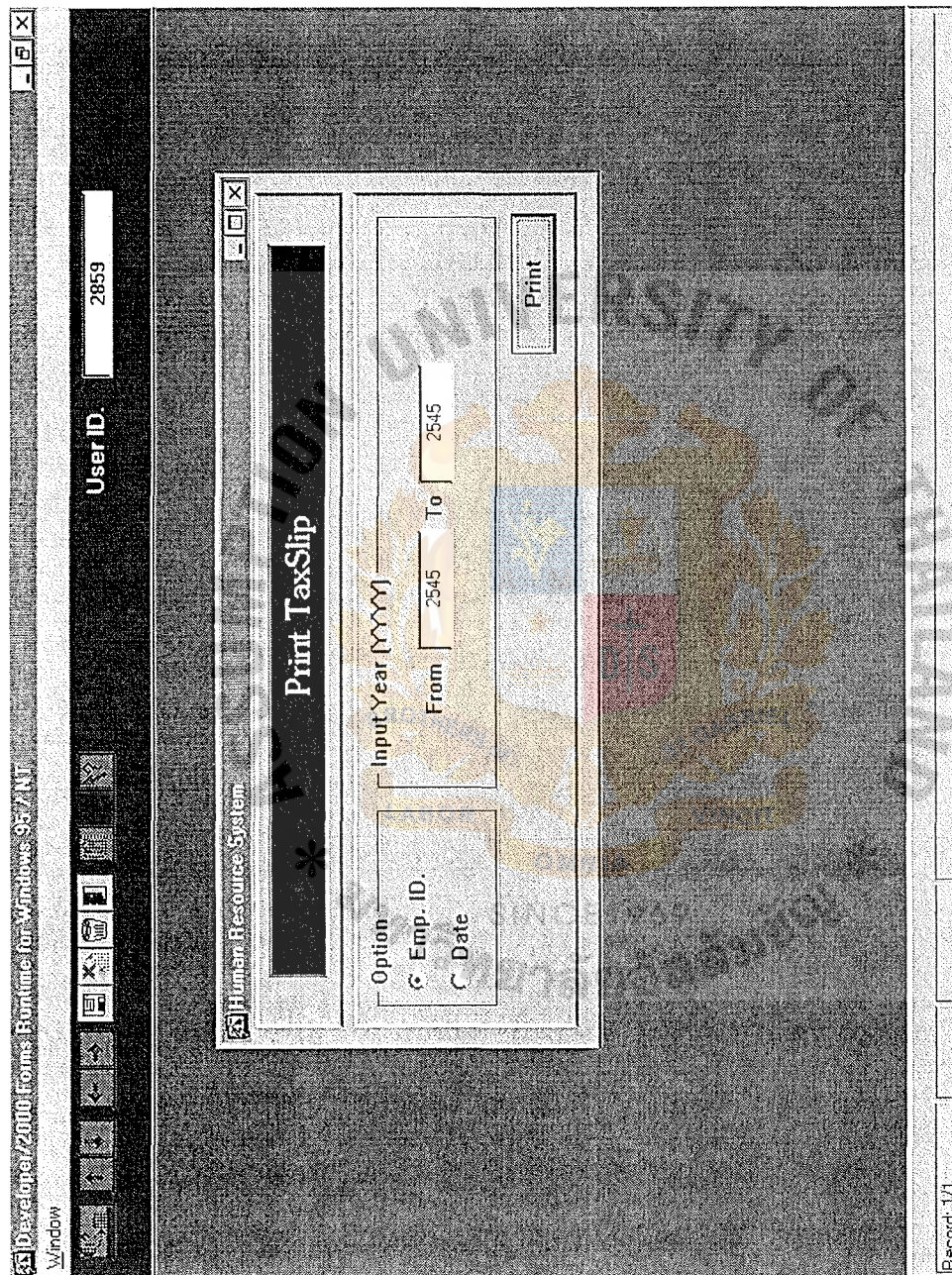
Figure I.71. Tax Slip Report.

Figure I.72.   Pay Slip Form Report.

Figure I.73.   Tax Slip Form Report.

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Applicant Information Report

Auto Part Industry Co ., Ltd

INFORMATION

Applicant ID : 000014   **Date** 26/12/2002   **Reauirement No . :** 0658

English Name : Mr.Teeranit Chattanon   **Thai Name :** นายธีรนิจ ฉัตตานันท์

Gender : Male   **BirthDate :** 15/02/1974

Department : Accounting   **Position :** Accounting Employee

Race : Thai   **Nationality :** Thai   **Religion :** Buddhism

ID Card No : 123456   **Issue by :** Bangkapi   **Expired Date :** 31/08/2009

Address : 45 Ladprow 110 Rd., Bangkapi Bangkok 10220

Home Phone : 0-279-2475   **Mobile Phone :** 01-6299720

Fax : Non

FAMILY

Status : Single

Spouse's Name : Non

Age : Non

No of Children : Non

Father Name : Mr. Kanok Chattanon

Mother Name : Ms. Natee Chattanon

Emergency Contract Name : Ms. Somchin Manoonsilp

How to related? Parent

Emergency Contect Address : 58 Intamara 1 Sutisan Bangkok 10400

Tel : 0-279-2475

EDUCATIONAL LEAVEL

Level	Institute	Degree	Major	GPA	Year Attended
College	Thepleela School			3.21	3
Unversity	Assumption University	Bachelor	Accounting	2.96	4
Others					

Figure J.1.   Applicant Information Form.

Applicant Information Report

LANGUAGE

Language	Understand	Speak	Read	Write
English	Good	Good	Good	Good
Japan	Fair	Fair	Fair	Fair
Mandarin	Fair	Fair	Fair	Fair

EXPERIENCE(Present to Last)

Company: XYZ Company

Position: Accounting Employee

Last Salary: 20,000

Duration Time: 05/05/98 - 05/08/00

Reason :

Company: SuZuki Company

Position: Accounting Employee

Last Salary: 15,000

Duration Time: 05/05/96 - 05/08/98

Reason :

Company: ABCD Company

Position: Accounting Officer

Last Salary: 10,000

Duration Time: 05/05/95 - 05/08/96

Reason :

Figure J.2. Applicant Information Form (Continued).

Applicant Report

Auto parts Industry Co.,Ltd.

Applicant ID.

From 000100 To 000700

Page : 1

Date : 06/12/2002

Applicant		Requirement	Department	Position	Education	Req.Date	Interview by
ID.	Name						
000024	Mr.Phana Pamanaw	0008	Accounting	Assistant Account Manage	Bachelor	15/11/2002	Mr.Somsak
000025	Mr.Weera Changkit	0008	Accounting	Assistant Account Manage	Bachelor	15/11/2002	Mr.Somsak
000074	Mr.Wuttipong Kawsanit	0011	IT Service	Database Administrator	Bachelor	20/11/2002	Mr.Somsak
000096	Mrs.Porntip Pewnuan	0008	Accounting	Assistant Account Manage	Bachelor	15/11/2002	Mr.Somsak
000102	Mr.Weera Somkamkit	0011	IT Service	Database Administrator	Bachelor	20/11/2002	Mr.Somsak
000602	Mr.Manitt Teerakull	0001	Accounting	Account Employee	College	15/11/2002	Mr Somjid
000690	Mr.Teeranit Chattanon	0001	Accounting	Account Employee	College	15/11/2002	Mr.Somsak
000695	Mrs.Prapat Supapp	0001	Accounting	Account Employee	College	15/11/2002	Mr.Somsak

Figure J.3.   Applicant Report by Applicant ID.

Position	Department	Requirement	Applicant		Education	Req.Date	Interview by
			ID.	Name			
Account Employee	Accounting	0001	000602	Mr.Manitt Teerakull	College	15/11/2002	Mr Somjid
			000690	Mr.Teeranit Chattanon	College	15/11/2002	Mr.Somsak
			000695	Mrs.Prapat Supapp	College	15/11/2002	Mr.Somsak
Assistant Account Manag	Accounting	0008	000024	Mr.Phana Pamanaw	Bachelor	15/11/2002	Mr.Somsak
			000025	Mr.Weera Changkit	Bachelor	15/11/2002	Mr.Somsak
			000096	Mrs.Porntip Pewnuan	Bachelor	15/11/2002	Mr.Somsak
Database Administrator	IT Service	0011	000074	Mr.Wuttipong Kawsan	Bachelor	20/11/2002	Mr.Somsak
			000102	Mr.Weera Somkamkit	Bachelor	20/11/2002	Mr.Somsak

Applicant Report
Position
From 001 To 009

Auto parts Industry Co.Ltd.

Page: 1

Date: 06/12/2002

Figure J.4.   Applicant Report by Position Code.

Working Time Report

Auto parts Industry Co.,Ltd.		Date From 01/12/2002 To 01/12/2002						Page : 1 Date : 06/12/2002	

Date	Employee		Department	Position	Emp.Type	Period	Satrt Time	End Time
	ID.	Name						
01/12/2002	000029	Mr.Manitt Teerakull	Accounting	Account Employee	Full Time	1	08.00	17.00
	000045	Mr.Teeranit Chattanon	Accounting	Account Employee	Full Time	1	08.10	17.01
	000081	Mr.Wuttipong Kawsanit	IT Service	Database Administrator	Full Time	1	08.00	17.30
	000094	Mr.Weera Somkamkit	IT Service	Database Administrator	Full Time	1	08.05	17.00
	000185	Ms.Tida Mongkornthong	Accounting	Assistant Account Manager	Full Time	1	08.01	17.04

Figure J.5.   Working Time Report by Date.

Job Requirement Report

Auto parts Industry Co .,Ltd .

Department Code

From   001 To 006

Page : 1

Date : 01/12/2002

Dept_code : 001 Accounting

Requirement No	Date	Gender	Position	Amount	Education	Experience
001	15/11/2002	Male	Account Employee	2	College	2 Years
005	15/11/2002	Female	Account Employee	1	College	2 Years
008	20/11/2002	Male	Assistant Account Manager	1	Bachelor	5-8 Years MBA .

Dept_code : 003 IT Service

Requirement No	Date	Gender	Position	Amount	Education	Experience
011	15/11/2002	Male	Database Administrator	1	Bachelor	3 Years / Web Design /RDBMS

Figure J.6.   Job Requirement Report by Department Code.

Job Requirement Report

Auto parts Industry Co .,Ltd.

Position Code

From   001 To 009

Page   : 1

Date : 01/12/2002

Position code   : 001 Account Employee

Requirement No .	Date	Department	Gender	Amount	Education	Experience
001	15/11/2002	Accounting	Male	2	College	2 Years
005	15/11/2002	Accounting	Female	1	College	2 Years

Position code   : 006 Assistant Account Manager

Requirement No .	Date	Department	Gender	Amount	Education	Experience
008	20/11/2002	Accounting	Male	1	Bachelor	5-8 Years MBA .

Position code   : 009 Database Administrator

Requirement No .	Date	Department	Gender	Amount	Education	Experience
011	15/11/2002	IT	Male	1	Bachelor	3 Years / Web Design /RDBMS

Figure J.7.   Job Requirement Report by Position Code.

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Job Requirement Report

Auto parts Industry Co.,Ltd.

Date

From 01/12/2545 To 31/12/2545

Page : 1

Date : 01/12/2002

Date	Requirement	Department	Position	Gender	Amount	Education	Experience
15/11/2002	001	Accounting	Account Employee	Male	2	College	2 Years
	005	Accounting	Account Employee	Female	1	College	2 Years
	011	IT	Database Administrator	Male	1	Bachelor	3 Years / Web Design/RDBMS
20/11/2002	008	Accounting	Assistant Account Manager	Male	1	Bachelor	5-8 Years MBA

Figure J.8. Job Requirement Report by Date.

Approval Requirement Report

Auto parts Industry Co   .,Ltd .

Requirement No   .
From   001   To   050

Page   : 1
Date   : 06/12/2002

Requirement	Position	Department	Gender	Amount	Education	Experience
001	Account Employee	Accounting	Male	2	College	2 Years
005	Account Employee	Accounting	Female	1	College	2 Years
007	Operator	Human Resource	Female	1	College	Self -study and self -motivation, Good Command of English
008	Assistant Account Manager	Accounting	Male	1	Bachelor	5-8 Years MBA .
011	Database Administrator	IT Service	Male	1	Bachelor	3 Years / Web Design /RDBMS
025	Customer Service	IT Service	Male	3	Bachelor	Implementation, Tuning and problem resolution

Figure J.9.   Approval Requirement Report by Requirement No.

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Approval Requirement Report

Auto parts Industry Co   .,Ltd .

Date

From   01/11/2002   **To** 30/11/2002

Page   : 1

Date   : 06/12/2002

Date	Position	Department	Gender	Amount	Education	Experience
15/11/2002	Account Employee	Accounting	Male	2	College	2 Years
	Account Employee	Accounting	Female	1	College	2 Years
	Assistant Account Manager	Accounting	Male	1	Bachelor	5-8 Years MBA .
16/11/2002	Operator	Human Resource	Female	1	College	Self-study and self -motivation, Good Command of English
20/11/2002	Database Administrator	IT Service	Male	1	Bachelor	3 Years / Web Design /RDBMS
	Customer Service	IT Service	Male	3	Bachelor	Implementation, Tuning and problem resolution

Figure J.10.   Approval Requirement Report by Date.

Matching Requirement and Applicant Report

Auto parts Industry Co .,Ltd .

Requirement No .
From 0001 To 0006

Page : 1

Date : 06/12/2002

Requirement No .	Department	Position	Applicant	
0001	Accounting	Account Employee	000602	Mr .Manitt Teerakull
			000690	Mr .Teeranit Chattanon
			000695	Mrs .Prapat Supapp
0008	Accounting	Assistant Account Manager	000024	Mr .Phana Pamanaw
			000025	Mr .Weera Changkit
			000096	Mrs .Porntip Pewnuan
0011	IT Service	Database Administrator	000074	Mr .Wuttipong Kawsanit
			000102	Mr .Weera Somkamkit

Figure J.11.   Course Information Report by Requirement No.

Matching Requirement and Applicant Report

Auto parts Industry Co .,Ltd.

Department

From 001 To 003

Page : 1

Date : 06/12/2002

Department	Requirement No .	Position	Applicant	
001 Accounting	001	Account Employee	000602	Mr.Manitt Teerakull
			000690	Mr.Teeranit Chattanon
			000695	Mrs.Prapat Supapp
	008	Assistant Account Manager	000024	Mr.Phana Pamanaw
			000025	Mr.Weera Changkit
			000096	Mrs.Porntip Pewnuan
003 IT Service	011	Database Administrator	000074	Mr.Wuttipong Kawsanit
			000102	Mr.Weera Somkamkit

Figure J.12. Course Information Report by Department.

Matching Requirement and Applicant Report

Auto parts Industry Co.,Ltd.

Position

From 001 To 009

Page : 1

Date : 06/12/2002

Position	Requirement No.	Department	Applicant	
001 Account Employee	001	001 Accounting	000602	Mr.Manitt Teerakull
			000690	Mr.Teeranit Chattanon
			000695	Mrs.Prapat Supapp
006 Assistant Account Manager	008	001 Accounting	000024	Mr.Phana Pamanaw
			000025	Mr.Weera Changkit
			000096	Mrs.Porntip Pewnuan
009 Database Administrator	011	003 IT Service	000074	Mr.Wuttipong Kawsanit
			000102	Mr.Weera Somkamkit

Figure J.13.   Course Information Report by Position Code.

Interview Applicant Report

| Auto parts Industry Co .,Ltd . | | | Requirement No . From 0001 To 0006 | | | | Page : 1 Date : 06/12/2002 |

Requirement	Department	Position	Applicant		Score		Interview by
			ID.	Name	Exam	Interview	
0001	Accounting	Account Employee	000602	Mr .Manitt Teerakull	45	6.5	Mr Somjid
			000690	Mr .Teeranit Chattanon	42	5.5	Mr.Somsak
			000695	Mrs .Prapat Supapp	46	6.5	Mr.Somsak
0008	Accounting	Assistant Account Manager	000024	Mr .Phana Pamanaw	32	4.5	Mr.Somsak
			000025	Mr .Weera Changkit	49	6.0	Mr.Somsak
			000096	Mrs .Porntip Pewnuan	46	7.0	Mr.Somsak
0011	IT Service	Database Administrator	000074	Mr .Wuttipong Kawsanit	31	6.5	Mr Somjid
			000102	Mr .Weera Somkamkit	47	6.5	Mr Somjid

Figure J.14.   Interview Applicant Report by Requirement No.

			Interview Applicant Report					

Auto parts Industry Co .,Ltd .

Interview Applicant Report
Department
From 001 To 009

Page : 1
Date : 06/12/2002

Department	Requirement	Position	Applicant		Score		Interview by
			ID.	Name	Exam	Interview	
Accounting	0001	Account Employee	000602	Mr .Manitt Teerakull	45	6.5	Mr Somjid
			000690	Mr .Teeranit Chattanon	42	5.5	Mr.Somsak
			000695	Mrs .Prapat Supapp	46	6.5	Mr.Somsak
Accounting	0008	Assistant Account Manager	000024	Mr .Phana Pamanaw	32	4.5	Mr.Somsak
			000025	Mr .Weera Changkit	49	6.0	Mr.Somsak
			000096	Mrs .Porntip Pewnuan	46	7.0	Mr.Somsak
IT Service	0011	Database Administrator	000074	Mr .Wuttipong Kawsanit	31	6.5	Mr Somjid
			000102	Mr .Weera Somkamkit	47	6.5	Mr Somjid

Figure J.15. Interview Applicant Report by Department Code.

			Interview Applicant Report				
Auto parts Industry Co .,Ltd.			Position			Page : 1	
			From 001 To 009			Date : 06/12/2002	

Position	Requirement	Department	Applicant		Score		Interview by
			ID.	Name	Exam	Interview	
Account Employee	0001	Accounting	000602	Mr.Manitt Teerakull	45	6.5	Mr Somjid
			000690	Mr.Teeranit Chattanon	42	5.5	Mr.Somsak
			000695	Mrs.Prapat Supapp	46	6.5	Mr.Somsak
Assistant Account Manager	0008	Accounting	000024	Mr.Phana Pamanaw	32	4.5	Mr.Somsak
			000025	Mr.Weera Changkit	49	6.0	Mr.Somsak
			000096	Mrs.Porntip Pewnuan	46	7.0	Mr.Somsak
Database Administrator	0011	IT Service	000074	Mr.Wuttipong Kawsanit	31	6.5	Mr Somjid
			000102	Mr.Weera Somkamkit	47	6.5	Mr Somjid

Figure J.16.   Interview Applicant Report by Position Code.

Interview Applicant Report							
Auto parts Industry Co .,Ltd.			Applicant ID . From 000100 To 000700			Page : 1 Date : 06/12/2002	
Applicant		Requirement	Department	Position	Score		Interview by
ID.	Name				Exam	Interview	
000024	Mr.Phana Pamanaw	0008	Accounting	Assistant Account Manager	32	4.5	Mr.Somsak
000025	Mr.Weera Changkit	0008	Accounting	Assistant Account Manager	49	6.0	Mr.Somsak
000074	Mr.Wuttipong Kawsanit	0011	IT Service	Database Administrator	31	6.5	Mr.Somsak
000096	Mrs.Porntip Pewnuan	0008	Accounting	Assistant Account Manager	46	7.0	Mr.Somsak
000102	Mr.Weera Somkamkit	0011	IT Service	Database Administrator	47	6.5	Mr.Somsak
000602	Mr.Manitt Teerakull	0001	Accounting	Account Employee	45	6.5	Mr Somjid
000690	Mr.Teeranit Chattanon	0001	Accounting	Account Employee	42	5.5	Mr.Somsak
000695	Mrs.Prapat Supapp	0001	Accounting	Account Employee	46	6.5	Mr.Somsak

Figure J.17.   Interview Applicant Report by Applicant ID.

Employee Information Report

Auto Part Industry Co ., Ltd

Page : 1

Date : 06/03/2003

Information

Employee ID : 000045

English Name : Mr.Teeranit Chattanon

Emp. Type : Full-Time

Gender : Male

Department : Accounting

Race : Thai　　　　Nationality : Thai

ID Card No : 123456　　Issue by : Bangkapi

Address : 45 Ladprow 110 Rd., Bangkapi Bangkok 10220

Home Phone : 0-279-2475

Fax : Non

Started Date : 03/01/2003

Thai Name : นายธีรนิจ ฉัตตานันท์

Salary : 22,000

BirthDate : 15/02/1974

Position : Accounting Employee

Religion : Buddhism

Expired Date : 31/08/2009

Mobile Phone : 01-6299720

FAMILY

Status : Single　　Spouse's Name : Non

　　　　　　Age : Non　　　　　No. of Children : Non

　　　　　　No. of Children learn : Non　No. of Children unlearn : Non

Insurance Amount : 15,000　Resident Amount : 60,000　Donate Amount : 0

Father Name : Mr. Kanok Chattanon

Mother Name : Ms. Natee Chattanon

Emergency Contect Name : Ms. Somchin Manoonsilp

How to related?　Parent

Emergency Contect Address :　58 Intamara 1 Sutisan Bangkok 10400

Tel:　0 279 2475

EDUCATIONAL LEAVEL

Level	Institute	Degree	Major	GPA	Year Attend
College	Thepleela School			3.21	3
Unversity	Assumption University	Bachelor	Accounting	2.96	4
Others					

Figure J.18.　Employee Information Form.

Employee Information Report

Auto Part Industry Co ., Ltd			Page : 2	
			Date : 06/03/2003	

Language

Language	Understand	Speak	Read	Write
English	Good	Good	Good	Good
Japan	Fair	Fair	Fair	Fair
Mandarin	Fair	Fair	Fair	Fair

EXPERIENCE (Present to Last)

Company: XYZ Company
Position: Accounting Employee
Last Salary: 20,000
Duration Time: 05/05/98 - 05/08/00
Reason :

Company: SuZuki Company
Position: Accounting Employee
Last Salary: 15,000
Duration Time: 05/05/96 - 05/08/98
Reason :

Company: ABCD Company
Position: Accounting Officer
Last Salary: 10,000
Duration Time: 05/05/95 - 05/08/96
Reason :

Figure J.19.   Employee Information Form (Continued).

Employee Report

Auto parts Industry Co.,Ltd.

Employee ID.

From 000001 To 000200

Page : 1

Date : 06/12/2002

Employee		Department	Position	Emp.Type	BirthDate	Salary	Degree	Major	Started Date
ID.	Name								
000029	Mr.Manitt Teerakull	Accounting	Account Employee	Full Time	08/11/1982	20,000	Collage	Accounting	05/03/2002
000045	Mr.Teeranit Chattanon	Accounting	Account Employee	Full Time	15/02/1974	22,000	Bachelor	Accounting	03/01/2003
000081	Mr.Wuttipong Kawsanit	IT Service	Database Administrator	Full Time	02/03/1974	21,500	Bachelor	Computer Science	03/01/2003
000094	Mr.Weera Somkamkit	IT Service	Database Administrator	Full Time	01/12/1975	20,000	Bachelor	Computer Science	15/07/2002
000185	Ms.Tida Mongkornthong	Accounting	Assistant Account Manager	Full Time	12/05/1965	53,000	Master	M.B.A	01/07/2001

Figure J.20.   Employee Report by Employee ID.

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Employee Report

Auto parts Industry Co.,Ltd.

Department

From 001 To 050

Page : 1

Date : 06/12/2002

Department	Position	Employee		Emp.Type	BirthDate	Salary	Degree	Major	Started Date
		ID.	Name						
Accounting	Account Employee	000029	Mr.Manitt Teerakull	Full Time	08/11/1982	20,000	Collage	Accounting	05/03/2002
		000045	Mr.Teeranit Chattanon	Full Time	15/02/1974	22,000	Bachelor	Accounting	03/01/2003
	Assistant Account Manager	000185	Ms.Tida Mongkornthong	Full Time	12/05/1965	53,000	Master	M.B.A	01/07/2001
IT Service	Database Administrator	000081	Mr.Wuttipong Kawsanit	Full Time	02/03/1974	21,500	Bachelor	Computer Science	03/01/2003
		000094	Mr.Weera Somkamkit	Full Time	01/12/1975	20,000	Bachelor	Computer Science	15/07/2002

Figure J.21.   Employee Report by Department Code.

Employee Report								
Auto parts Industry Co .,Ltd.		Position					Page: 1	
		From 001 To 009					Date: 06/12/2002	

Employee		Department	Emp.Type	BirthDate	Salary	Degree .	Major	Started Date
ID.	Name							
Position : 001 Account Employee								
000029	Mr.Manitt Teerakull	Accounting	Full Time	08/11/1982	20,000	Collage	Accounting	05/03/2002
000045	Mr.Teeranit Chattanon	Accounting	Full Time	15/02/1974	22,000	Bachelor	Accounting	03/01/2003
Position : 006 Assistant Account Manager								
000185	Ms.Tida Mongkornthong	Accounting	Full Time	12/05/1965	53,000	Master	M.B.A	01/07/2001
Position : 009 Database Administrator								
000081	Mr.Wuttipong Kawsanit	IT Service	Full Time	02/03/1974	21,500	Bachelor	Computer Science	03/01/2003
000094	Mr.Weera Somkamkit	IT Service	Full Time	01/12/1975	20,000	Bachelor	Computer Science	15/07/2002

Figure J.22. Employee Report by Position Code.

Course Information Report

Auto parts Industry Co,Ltd.

Course Code

From AC001 To MG025

Page : 1

Date : 06/12/2002

Course Code	Course Name	Time(Days)	Cost(Baht)		Trainer	Remark
AC010	General Account	5	12,000.00	00189	Mr.Eakkachai Phanachai	For New Account Officer
CC051	Computer Basic	5	5,000.00	00047	Mr.Wuttipong Phamanaw	
CC052	E-Commerce	4	25,000.00	00016	Dr.Manuu Suwankarn	After Object-Oriented Design Course
DC032	Business Role	3	1,950.00	00261	Mrs.Suda Sripho	
DC040	Business Management	10	5,800.00	00212	Mr.Suchart Pantawee	
EC014	Customer Service For Implementation	9	2,500.00	09442	Mrs.Wannee Pantawee	
EC019	Customer Mind For Management	3	1,800.00	00487	Mr.Nantatip Pakung	

Figure J.23.   Course Information Report by Course Code.

Course Information Report
Trainer

From 00010 To 00900

Page : 1

Date : 06/12/2002

Trainer		Course Code	Course Name	Time(Days)	Cost(Baht)	Remark
00016	Dr.Manuu Suwankarn	CC052	E-Commerce	4	25,000.00	After Object-Oriented Design Course
00047	Mr.Wuttipong Phamanaw	CC051	Computer Basic	5	5,000.00	
00189	Mr.Eakkachai Phanachai	AC010	General Account	5	12,000.00	For New Account Officer
00212	Mr.Suchart Pantawee	DC040	Business Management	10	5,800.00	
00261	Mrs.Suda Sripho	DC032	Business Role	3	1,950.00	
00487	Mr.Nantatip Pakung	EC019	Customer Mind For Management	3	1,800.00	
09442	Mrs.Wannee Pantawee	EC014	Customer Service For Implementation	9	2,500.00	

Figure J.24.   Course Information Report by Trainer.

	Training Information Report				
Auto parts Industry Co .,Ltd.	Course Code			Page : 1	
	From AC001 To MG025			Date : 06/12/2002	

Course Code	Course Name	Duration		Trainer	
		Start	**End**		
AC010	General Account	06/01/2003	10/01/2003	00189	Mr.Eakkachai Phanachai
	Employee				
	000450 Mr.Manitt Teerakull				
	000452 Mr.Teeranit Chattanon				
	000695 Mrs.Pannee Narathep				
DC032	Business Role	22/01/2003	24/01/2002	00261	Mrs.Suda Sripho
	Employee				
	000093 Mr.Phana Pamanaw				
	000140 Mr.Weera Changkit				
	000261 Mrs.Porntip Pewnuan				
	007850 Mrs.Manee Lakdee				

Figure J.25.   Training Information Report by Course Code.

Training Information Report

Auto parts Industry Co,Ltd.

Employee

From 000090 To 000460

Page : 1

Date : 06/12/2002

Employee		Course Code	Course Name	Duration		Trainer	
				Start	End		
000093	Mr.Phana Pamanaw	DC032	Business Role	22/01/2003	24/01/2003	00261	Mrs.Suda Sripho
000140	Mr.Weera Changkit	DC032	Business Role	22/01/2003	24/01/2003	00261	Mrs.Suda Sripho
000189	Mr.Sanya Mahachon	CC075	Maunfacturing Concept	27/01/2003	04/02/2003	00487	Mr.Nantatip Pakung
000261	Mrs.Porntip Pewnuan	DC032	Business Role	22/01/2003	24/01/2002	00261	Mrs.Suda Sripho
000450	Mr.Manitt Teerakull	AC010	General Account	06/01/2003	10/01/2003	00189	Mr.Eakkachai Phanachai
000452	Mr.Teeranit Chattanon	AC010	General Account	06/01/2003	10/01/2003	00189	Mr.Eakkachai Phanachai

Figure J.26.   Training Information Report by Employee ID.

Training Information Report
Trainer
From 00180 To 00261

Auto parts Industry Co,Ltd.

Page : 1

Date : 06/12/2002

Trainer		Course Code	Course Name	Duration		Employee	
				Start	End		
00189	Mr.Eakkachai Phanach	AC010	General Account	06/01/2003	10/01/2003	000450	Mr.Manitt Teerakull
						000452	Mr.Teeranit Chattanon
00212	Mr.Suchart Pantawee	DC040	Business Management	24/02/2003	07/03/2003	000046	Mrs.Phanit Chuchit
00261	Mrs.Suda Sripho	DC032	Business Role	22/01/2003	24/01/2003	000093	Mr.Phana Pamanaw
						000140	Mr.Weera Changkit
						000261	Mrs.Porntip Pewnuan

Figure J.27.   Training Information Report by Trainer.

Pay Slip

Auto parts Industry Co.Ltd

Date 27/12/2002

000045 Mr.Teeranit Chattan(**Department:** Accounting

Salary	Overtime	Bonus	Others	
22,000.00				
			Total	22,000.00
			Total Deduct	204.00
			Net	21796.00

Figure J.28.   Pay Slip.

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Pay Slip Report

Auto parts Industry Co,Ltd			Date Date 27/12/2002					Page 1 Date 28/12/2002		
Employee	**Department**	**Bank**	**Salary**	**Overtime**	**Bonus**	**Others**	**Total**	**Total Dedu**	**Net**
000045 Mr.Teeranit Chattanon	Accounting	Bangkok Bank	22,000.00				22,000.00	204.00	21796.00
000081 Mr.Wuttipong Kawsanit	IT Service	Kungsri Bank	21,500.00	70.00			21,570.00	204	21,366.00
000094 Mr.Weera Somkamkit	IT Service	Bangkok Bank	20,000.00	140			20,140.00	204	19,936.00
000185 Ms.Tida Mongkornthong	Accounting	Bangkok Bank	53,000.00				53,000.00	536.00	52,464.00

Figure J.29.   Pay Slip Report by Date.

หนังสือรับรองการหักภาษี ณ ที่จ่าย ตามมาตรา 50 ทวิแห่งประมวลรัษฎากร			
ผู้มีหน้าที่หักภาษี ณ ที่จ่าย			
เลขที่ประจำตัวผู้เสียภาษีอากร 3101013863			
ชื่อ Auto parts Industry Co, Ltd			
ที่อยู่ 1252 Pattanakarn Rd Suanluang Bangkok 10250			
ผู้ถูกหักภาษี ณ ที่จ่าย			
เลขที่ประจำตัวผู้เสียภาษีอากร 1731983587			
ชื่อ Mr.Teeranit Chattanon			
ที่อยู่ 45 Ladprow 10 Rd. Bangkapi Bangkok 10220			
เงินสมทบเข้ากองทุนประกันสังคมตามกฎหมายว่าด้วยประกันสังคม			
จำนวนเงิน 306.00 บาท			
เลขที่บัญชี(นายจ้าง) 10-00001873			
เงินที่จ่าย	วัน เดือน ปีภาษีที่จ่าย	จำนวนเงินที่จ่าย	จำนวนเงินภาษี
1. เงินเดือน ค่าจ้าง เบี้ยเลี้ยง ฯลฯ	31/12/2002	219,700.00	
2. ค่าธรรมเนียม ค่านายหน้า ฯลฯ			
3. ค่าแห่งลิขสิทธิ์ ฯลฯ			
4. (1) ค่าดอกเบี้ย ฯลฯ			
(2) เงินปันผล เงินส่วนแบ่งของกำไร ฯลฯ			
5. การจ่ายเงินที่ต้องหักภาษี			
ณ ที่จ่ายตามคำสั่งสรรพากร			
6. อื่นๆ (ระบุ)..................			
7.			
รวมเงินที่จ่ายและภาษีที่หักนำส่ง		219,700.00	

ผู้จ่ายเงิน
- ☑ หักภาษี ณ ที่จ่าย
- ☐ ออกภาษีให้ครั้งเดียว
- ☐ ออกภาษีให้ตลอดไป
- ☐ อื่นๆ (ระบุ)

วันเดือนปี ที่ออกหนังสือรับรอง
31 / 12 / 2002

ลงชื่อ_____ ผู้มีหน้าที่หักภาษี ณ ที่จ่าย

Figure J.30.   Pay Slip Form.

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Tax Slip Report			
Auto parts Industry Co .,Ltd.		Employee From 000090 To 000460	Date : 06/12/2002 Page : 1

Employee		Date	Tax Amount
ID.	Name		
000093	Mr.Phana Pamanaw	31/12/2002	25,140.00
000140	Mr.Weera Changkit	31/12/2002	18,900.00
000189	Mr.Sanya Mahachon	31/12/2002	25,600.00
000261	Mrs.Porntip Pewnuan	31/12/2002	14,500.00
000450	Mr.Manitt Teerakull	31/12/2002	10,200.00
000452	Mr.Teeranit Chattanon	31/12/2002	21,679.00
	Summary		116,019.00

Figure J.31.   Tax Slip Report.

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