
# Intranet Human Resource System for Inspiration Technology Group

by

Mr. Jeerayuth Jiraphaksiri

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



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

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|---|---|
| Project Title | Intranet Human Resource System for Inspiration Technology Group |
| Name | Mr. Jeerayuth Jiraphaksiri |
| Project Advisor | Air Marshal Dr. Chulit Meesajjee |
| Academic Year | November 18, 2001 |

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

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## ABSTRACT

Inspiration Technology Group is the one stop service for computer system. Human Resource Department is responsible to provide the information service of every employee of ten companies in the Inspiration Technology Group. In order to so a lot of processes are required, which have to deal with several departments; therefore, this project is to develop the effective Human Resource system to facilitate the process of Intranet Human Resource System.

The current Human Resource System is based on the manual system. All data is stored on paper. It requires many administrative staffs to maintain the system, and has to face the general problems of manual system.

The proposed Human Resource System will be developed to replace the manual system with Intranet Human Resource System. All data is kept in the database server, Microsoft SQL Server 2000, and is accessed through the web Server, Microsoft Internet Information Server 5.0 on Microsoft Windows 2000 Server. The user interfaces, moreover, are implemented on web browser, Microsoft Internet Explorer. It will reduce the number of administrative staff, solve problems of the manual system and decrease high maintenance costs.

## ACKNOWLEDGEMENTS

Several people have made contributions to this project. The writer would like to acknowledge their efforts and thank them for their contributions.

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# I. INTRODUCTION

## 1.1 Background of the Project

The existing Human Resource System is based on the manual system. As the world is moving towards the Information Technologies, the company has to follow the trend by adapting itself to intranet system, computer system and shared database system. In order to change the system, we shall analyze both the advantages and disadvantages from the manual system to the computer system.

This project on emphasizes the sole of the Human Resource Department because Information is still playing on important roles in every department in the organization. So, the utilization of the Information is very important since the beginning of the selection and recruiting system. But, the manual system causes some problems There fore, we need to analyze the pros and cons of the system before we decide whether to change to a new system or not.

The manual system has the advantages in the privacy of work, less maintenance costs, and less initial investment but the work will be less organized, with higher error rates, redundancy and lack of data sharing.

For the intranet system, the work will be more organized, less redundantly, and support data sharing. The higher initial investment and higher maintenance costs and training costs are the trade-off.

However, we need to study each in more detail. Therefore, this project has to be analyzed. The proposed system of the project is to make use of the current information to support the new computerized system.

## 1.2 Objectives of the Project

The project is to study the proposed Intranet Human Resource System will try to reduce repetitive manual work, operating time and also provide a good filing system. The following need to be accomplished in this project:

(a) To study the existing Human Resource System of the company.

(b) To analyze the current problems of the existing system.

(c) To identify the problems of the existing system.

(d) To identify the business logic requirements.

(e) To design a new system to improve effectiveness and efficiency.

(f) To select the most suitable system.

(g) To design and develop the new system for the Human Resource Department based on the requirements.

## 1.3 Scope of the Project

The scope of the project is based on the functional areas of Human Resource Department. These functional areas are concerned with the collection, filing and retrieving employees' information, Human Resource and generating reports as desired.

Analyzing the existing system, studying current problems and requirements and together with reviewing the existing form and documents identifies all those above functions. The project will cover the following details:

(a) The security process

(b) The timesheet process

(c) The leaving process

(d) The training process

(e) The helpdesk process

(f) The telephone directory process

(g) The back office process

## 1.4 Deliverables

The project deliverables are as follows:

(1) Project Introduction

- (a) Background
- (b) Objectives
- (c) Scope
- (d) Deliverables
- (e) Project Plan

(2) Existing System

- (a) Background of the Organization
- (b) Current Problems and Areas for Improvement
- (c) Existing Computer System

(3) Proposed System

- (a) System Specification
- (b) System Design
- (c) Hardware and Software Requirement
- (d) Security and Control
- (e) Cost/Benefit Analysis

(4) Project Implementation

- (a) Programming the System
- (b) Testing The System
- (c) Conversion
- (d) Training

(5) Conclusions and Recommendations

(a) Conclusions

(b) Recommendations

## 1.5 Project Plan

The project plan of the Intranet Human Resource System is given in the Figure 1.1.

| No. | Task Name | July | | | | August | | | | September | | | | October | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 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 System | | | | | | | | | | | | | | | | |
| 3 | Identify the Existing Problems | | | | | | | | | | | | | | | | |
| 4 | Study the Existing Computer System | | | | | | | | | | | | | | | | |
| 5 | Develop Context Diagram | | | | | | | | | | | | | | | | |
| 6 | Develop Data Flow Diagram | | | | | | | | | | | | | | | | |
| 7 | Cost and Benefit Analysis | | | | | | | | | | | | | | | | |
| | II. Analysis and Design of the Proposed System | | | | | | | | | | | | | | | | |
| 8 | Web Interface Design | | | | | | | | | | | | | | | | |
| 9 | Report Design | | | | | | | | | | | | | | | | |
| 10 | Database Design | | | | | | | | | | | | | | | | |
| 11 | Network Design | | | | | | | | | | | | | | | | |
| 12 | Program Design | | | | | | | | | | | | | | | | |
| | III. Implementation of the Proposed System | | | | | | | | | | | | | | | | |
| 13 | Coding | | | | | | | | | | | | | | | | |
| 14 | Testing | | | | | | | | | | | | | | | | |
| 15 | Hardware Installation | | | | | | | | | | | | | | | | |
| 16 | Software Installation | | | | | | | | | | | | | | | | |
| 17 | Conversion | | | | | | | | | | | | | | | | |

Figure 1.1. Project Plan of Intranet Human Resource System.

# II. THE EXISTING SYSTEM

## 2.1 Background of the Organization

In 1985 Digital Information Associates Co., Ltd. was formed as a distributor and service provider for Prime Computer. Three years later, in1988, the unit was renamed CDG System, and branched out as an independent, turn-key system integrator offering a wide range of services from systems development, project management, and maintenance.

As the computer industry entered the age of unix and open systems, CDG system in 1989 added a new unit to its business the Logic Co., ltd; with the mission of developing local distribution channels.

The future goal of the organization is to achieve the goal of maximum operational efficiency. CDG System has laid down two essential components: vision and operation plans. CDG System aims to realize its vision to be a major profitable participant in the IT market by providing high quality business solutions locally and regionally. The management structure can be viewed in the organization chart on the Figure 2.1.

Foremost in its mission is to be a leader in the IT business, providing its customers with a competitive edge, high quality business solutions and to promote a stimulating and satisfying environment for its staff.

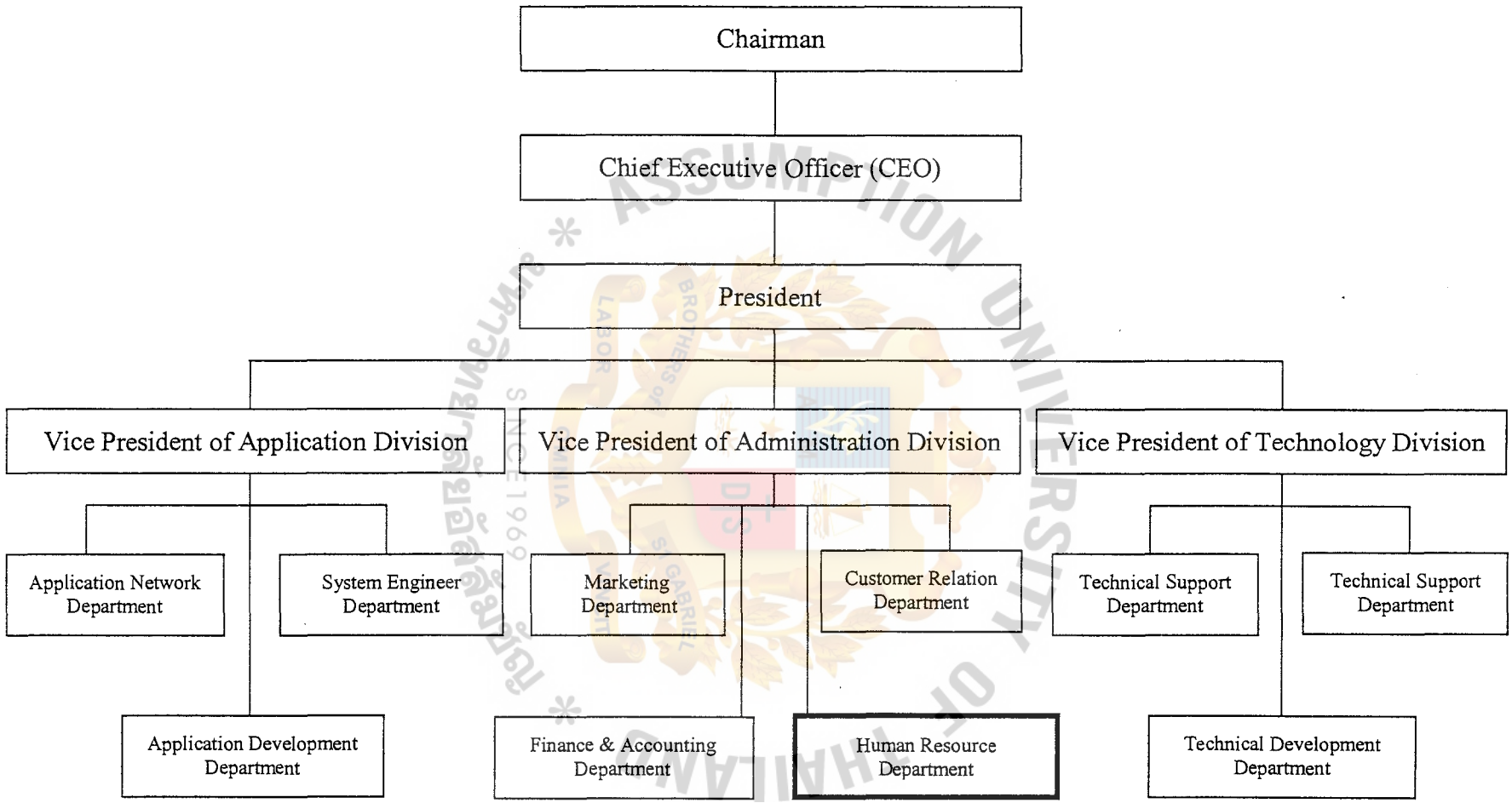



Figure 2.1. The Organization Chart of Inspiration Technology Group.

## 2.2 Existing Business Function

The existing Human Resource system mostly is manual operation. The context diagram and data flow diagram of the existing system is shown in Figures 2.2 and 2.3.

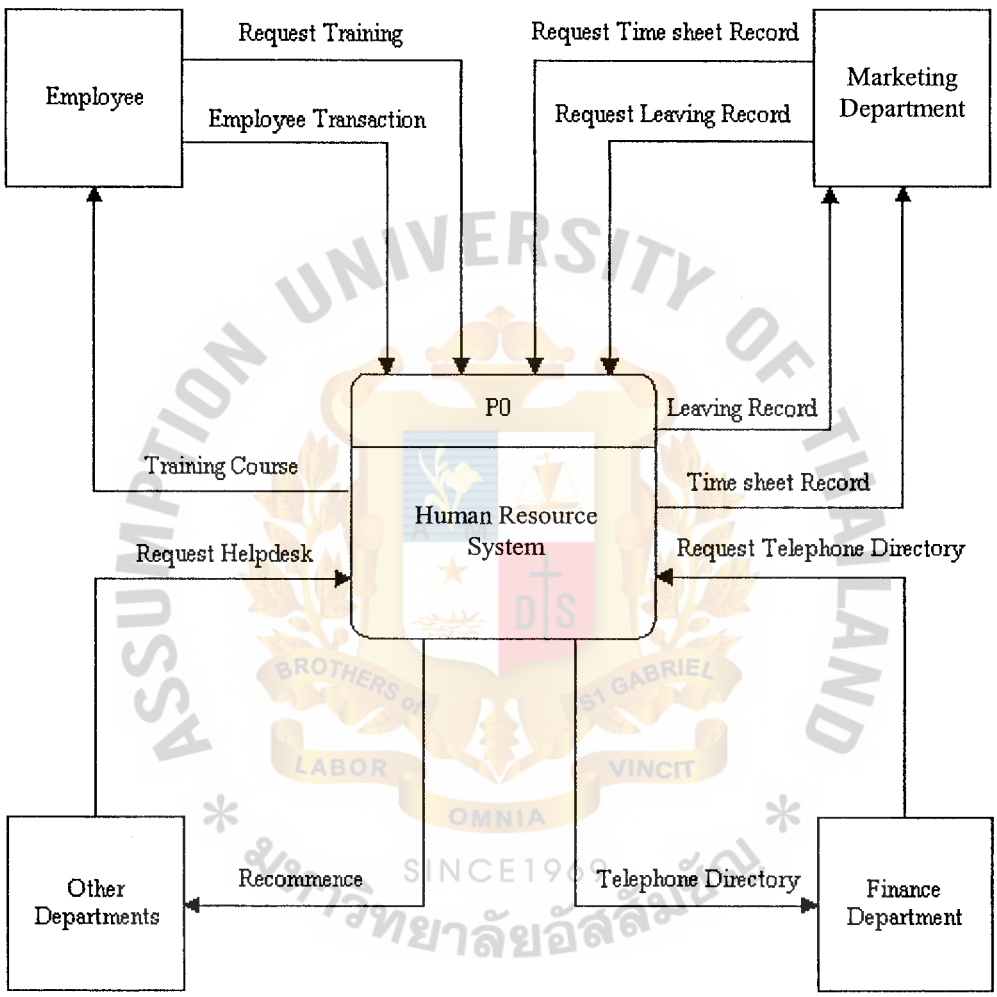



Figure 2.2. Context Diagram of the Existing System.

Figure 2.2 show the existing Human Resource System of Inspiration Technology Group. This system is still a manual system. All the departments in the company must participate in this system.

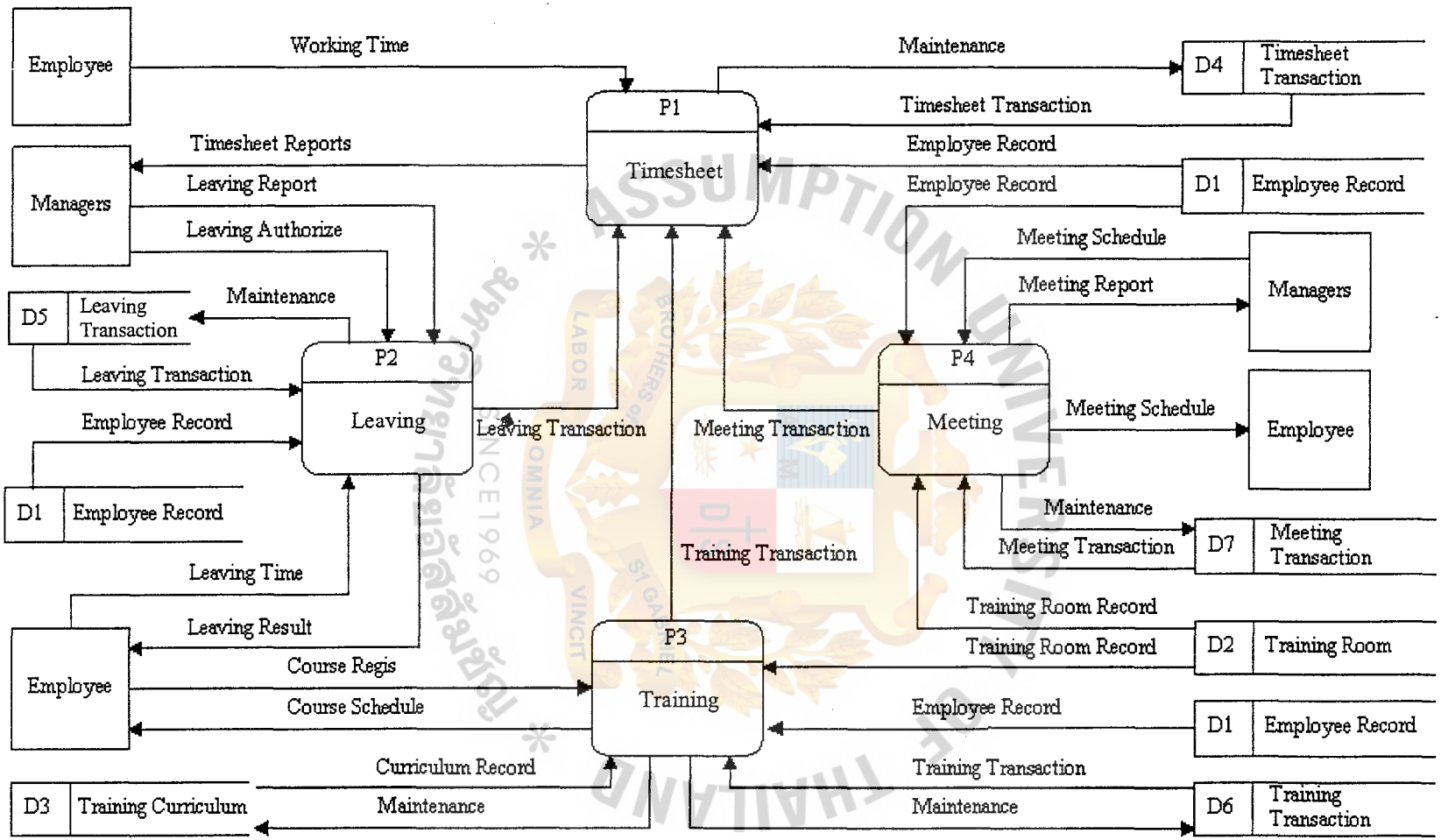



Figure 2.3. Data Flow Diagram of the Existing System.

## 2.3 Current Problems and Areas for Improvement

### 2.3.1 Current Problems

The existing system is the manual system. There are a lot of problems that existed. The problems can be classified as follows:

(a) Too much paper work

Mostly, the information concerning employees is recorded on paper. The large volume of personnel can cause the company to waste space in keeping those papers. The work may be loaded at somebody's department in the process.

(b) Take time in finding qualified people to the right project

When the Human Resource Department receives command from other departments to find qualified people to participate in the project, it must take a long time to do that. It causes from improper filing.

(c) Human errors

Human Resource Staffs can make the mistake during recording employees' information or making reports. Poor handwriting can cause a lot of trouble.

(d) Improper workflow

The workflow may be interrupted when some personnel are not available at the time, then, the work may be done inefficiently.

(e) Lack of Data Sharing

Each department keeps its own data. The current system has no tool to relate all these data together. Data in different places will be useless if it is not well organized.

2.3.2 Areas for Improvement

The existing Human Resource System is still a manual system. It is not suitable in updating employee records. When people deal with a great deal of information, there is more chance to make errors.

Furthermore, the speed in processing is quite slow as well. It is very difficult to improve the consistency. Information and reports with errors can cause a lot of damage to the company.

Human Resource Department needs to improve the personnel filing system, which will facilitate employees' performance, evaluation, planning and managing. The new way of filing employees' information should reduce the amount of paperwork in order to reduce the operating cost spent on storing and maintaining data.

Usually, the company has training programs, seminars, or projects several times a year. The filing of such information is still not good. It takes much time in finding some needed information. The filing system of the information should be considered.

New facilities, hardware and software, should be introduced to the Human Resource Department. So, the Human Resource staff and employees must learn to use them effectively. This can reduce the mistakes, which occur from human errors and smoothen the workflow as well. With the new tools, the security control will be better and guaranteed. The chance of losing data in the process will be decreased.

# III. THE PROPOSED SYSTEM

After we have defined the problems, the next step is to design the proposed system. This proposed system will include the inputs, outputs, and the operations including the resources required by the new system. The objectives of the new system is to meet the present and future needs of Human Resource Department as well as sharing the information with other departments.

## 3.1 System Specification

The requirement of this proposed system will be categorized mainly according to the needs of the Human Resource Department. The requirements are as follows:

(a) The system should always keep only the updated information in order to produce accurate reports. It is necessary for the system to be able to provide timely information to the top management for future use.

(b) The system should reduce the volume of the paper work in order to save the storage space and reduce the operating costs in searching them.

(c) There should be new facilities to help and support the workflow in order to reduce human errors and increase the speed of work.

(d) Security must be included in this new system.

(e) The form of report and analysis should be standardized so that every department can easily understand the information.

(f) The network system must be implemented. The computers in every department must be linked.

(g) Some repetitive work must be eliminated so that the data will not be lost in the process.

## 3.2 System Design

From the scope of the project concerning the functional areas of the Human Resource Department, some repetitive tasks have been eliminated and there is an increase in productivity of work. The context diagram of the proposed system is shown in Figure 3.1 and then the details of their processes are shown the data flow diagram in Figure 3.2.

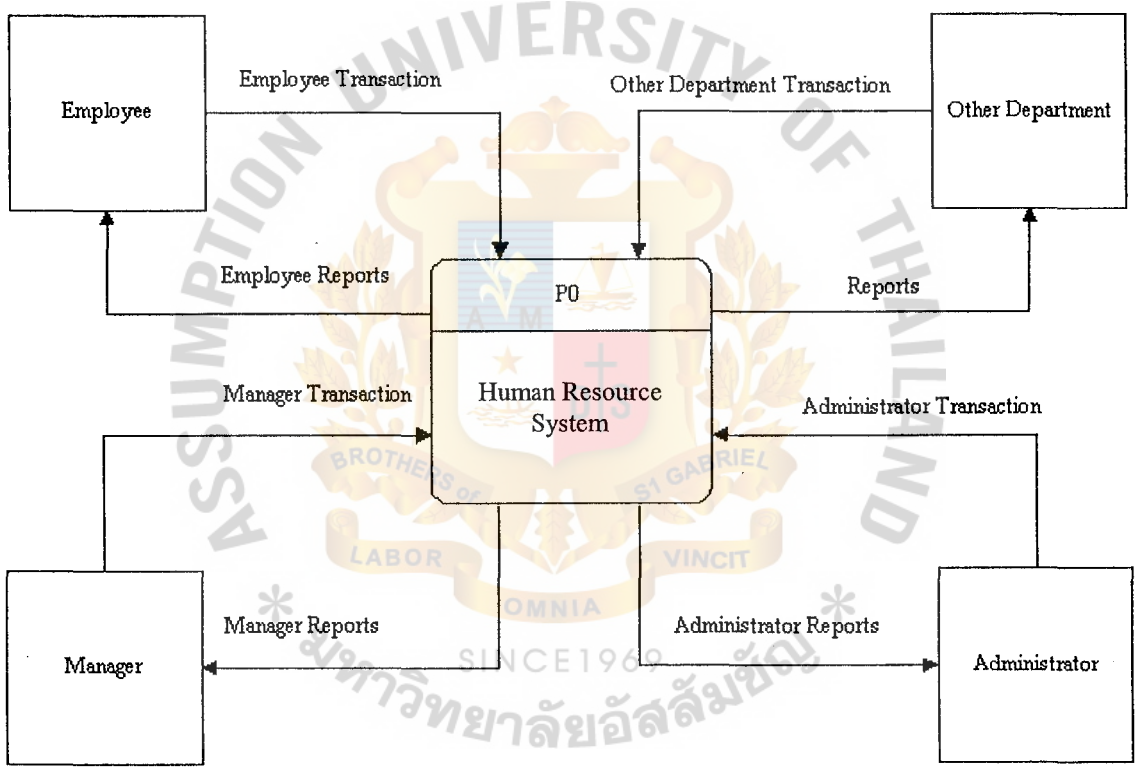



Figure 3.1. Context Diagram of the Proposed system.

Figure 3.1 shows the proposed Intranet Human Resource System of Inspiration Technology Co., ltd. This system is now a computerized system.

The details of the proposed system can be seen in Figure 3.2 The main processes of the new proposed Intranet Human Resource System can be divided in to seven processes.

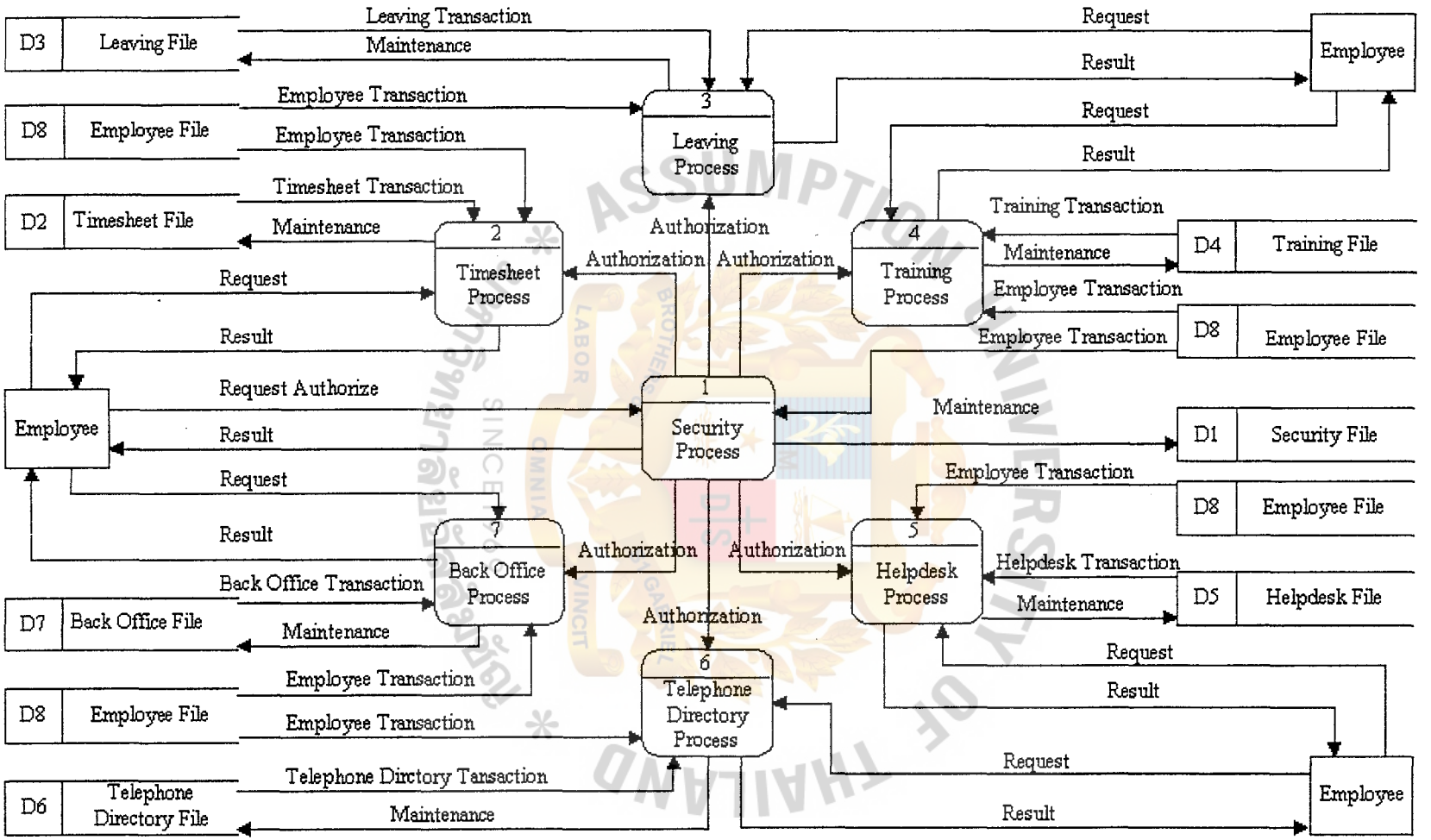



Figure 3.2. Data Flow Diagram of the Proposed System.

### 3.3 Hardware and Software Requirement

The appropriate hardware and software specification will save costs in implementing a new project. The cost of hardware and software has to be calculated because it is an important factor in deciding to change to the new system. We need to know the amount to be paid and payback period. By comparing the costs of existing system and new system, it will help us to make the decision.

Network Architecture

In this project, we focus on the network system. We will change from the stand-alone PC to be a network system in order to use computers more efficiently. As the data is kept in the form of a database, the information can be shared.

The proposed network system is the Local Area Network (LAN). There are several reasons to support this system.

(a) As the connection of the computers is in the office building only, the LAN system is the most suitable solution.

(b) The information (resources) can be shared between workstations, which include hardware, software, or even data, therefore, it reduces some cost.

(c) LAN offers high speed communication between computers, today, the speed of data rates can reach 100 Mbps with gigabyte systems in development.

(d) The error rate is less in network system.

With four workstations and one server, the star topology is the best choice of connection. The server manages the transmission of data and messages between the other clients. By using Ethernet 10 BaseT (UTP medium) and Hub in connection in the star topology, it saves cost. This can connect server, workstations, printers, and scanner together. For LAN adapter or Network Interface Card (NIC), we decided to use 10-100 3com NIC. It can support more than 10 Mbps network. The connection of LAN can be viewed in Figure 3.3, the hardware and software specification, is shown in Tables 3.1-3.6.

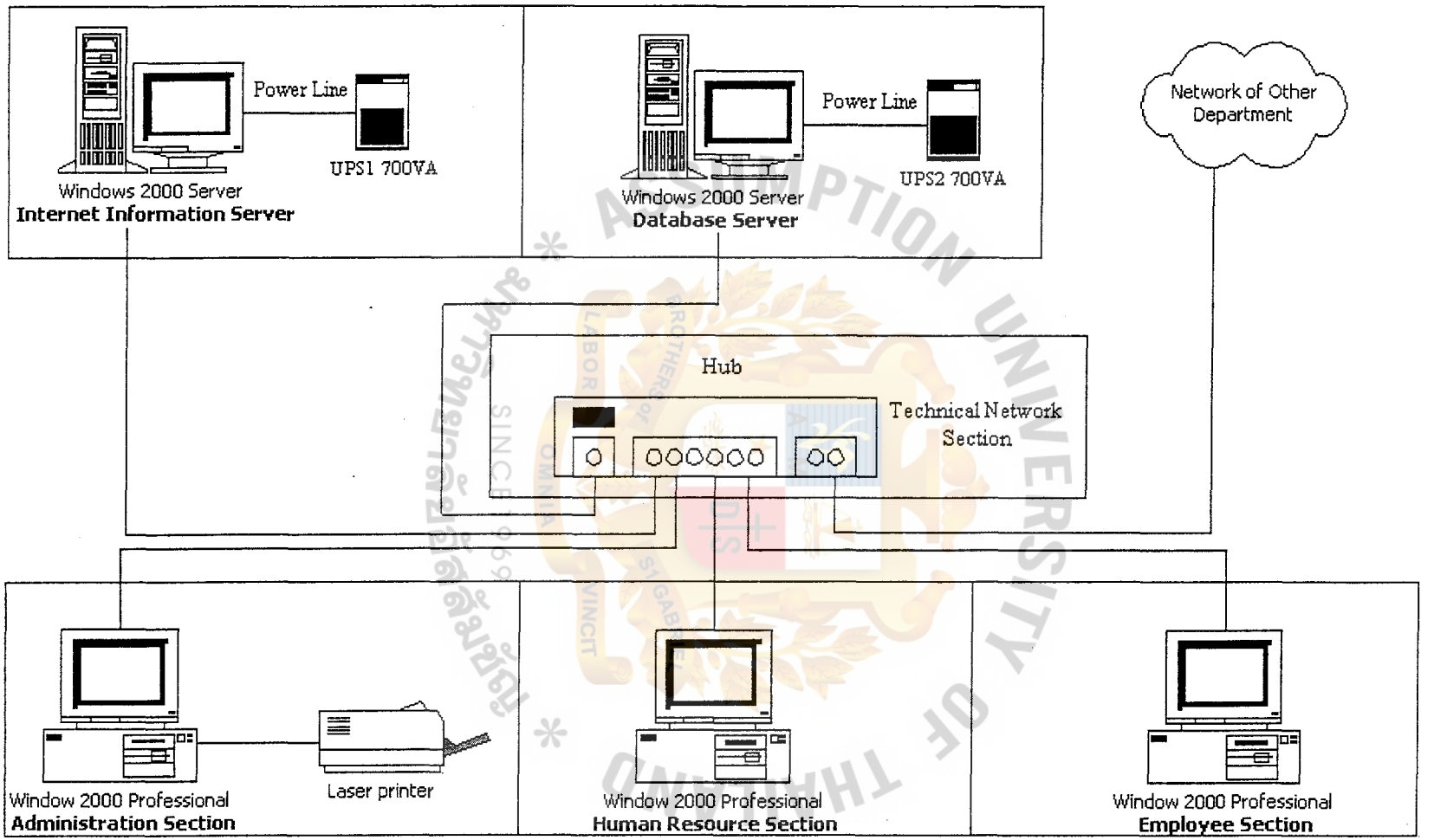



Figure 3.3. The Hardware Configuration of Intranet Human Resource System.

Table 3.1. The Hardware Specification for the Intranet Server.

| Hardware | Specification |
|---|---|
| CPU | Pentium 4 1.8 GHz |
| Main board | ECS P4ITA |
| Memory | RDRAM 512 MB |
| Hard Disk | 40 GB 72000 rpm |
| CD-RW Drive | 16x10x32 |
| Floppy Drive | 1.44 MB |
| Network Adapter | Ethernet 10/100 Mbps |
| Display Adapter | AGP Geforce 2mx 32 MB Card |
| Display Monitor | 17" Digital |
| Sound | AC97 Onboard |
| Case | ATX 300 W. 2 fan |
| Keyboard | 108 Key SUH USB |
| Mouse | Mouse Optical BTC |
| UPS | 700 VA |
| Printer | HP 840 |
| HUB | 8 Port |

Table 3.2. The Software Specification for the Intranet Server.

| Software | Specification |
|---|---|
| Operating System | Microsoft Windows 2000 Server |
| Web Server | Microsoft Internet Information Server 5.0 |
| Application Software | Microsoft Visual InterDev 6.0 |

Table 3.3. The Hardware Specification for the Database Server.

| Hardware | Specification |
|---|---|
| CPU | Pentium 4 1.8 GHz |
| Main board | ECS P4ITA |
| Memory | RDRAM 512 MB |
| Hard Disk | 40 GB 72000 rpm |
| CD-RW Drive | 16x10x32 |
| Floppy Drive | 1.44 MB |
| Network Adapter | Ethernet 10/100 Mbps |
| Display Adapter | AGP Geforce 2mx 32 MB Card |
| Display Monitor | 17" Digital |
| Sound | AC97 Onboard |
| Case | ATX 300 W. 2 fan |
| Keyboard | 108 Key SUH USB |
| Mouse | Mouse Optical BTC |
| UPS | 700 VA |
| Printer | HP 840 |

Table 3.4. The Software Specification for the Database Server.

| Software | Specification |
|---|---|
| Operating System | Microsoft Windows 2000 Server |
| Database | Microsoft SQL 2000 |
| Application Software | Microsoft Office 2000 |

Table 3.5. The Hardware Specification for the Intranet Client.

| Hardware | Specification |
|---|---|
| CPU | Pentium III 1 GHz |
| Main board | ASUS CUV4X-E |
| Memory | SDRAM 256 MB |
| Hard Disk | 20 GB 72000 rpm |
| CD-ROM Drive | 52 X |
| Floppy Drive | 1.44 MB |
| Network Adapter | Ethernet 10/100 Mbps |
| Display Adapter | AGP 32 MB |
| Display Monitor | 15" Digital |
| Sound | Creative Vibra128 |
| Case | ATX 300 W. 2 fan |
| Keyboard | 108 Key SUH USB |
| Mouse | Mouse Scroll |
| UPS | 700 VA |
| Speaker | 200 W |

Table 3.6. The Software Specification for the Intranet Client.

| Software | Specification |
|---|---|
| Operating System | Microsoft Windows 2000 Professional |
| Web Browser | Microsoft Internet Explorer 5.0 |
| Application Software | Microsoft Office 2000 |

## 3.4 Security and Control

As the employee information has to be kept secret, the system has to provide security for that information. It must be protected from unauthorized persons or form intrusion. The security control is one of the most important considerations in designing the proposed system.

### 3.4.1 Security of Data

This area is concerned with the accessing and sharing of data which includes reading, writing, executing, updating, adding, and deleting of data; the control should include:

(a) Setting the accessing security level for each department to access the company's database.

(b) Using the password to protect unauthorized access.

(c) The software should verify the change in data records.

(d) Back up information at the end of each day.

### 3.4.2 Physical Security of Equipment

The security can also protect and control the physical equipment. The physical equipment can support the flow of day-to-day data. As the data are the assets of the organization, it must be protected and managed.

(a) Using an uninterruptible power supply (UPS) in order to ensure that the computers keep working if the electricity fails.

(b) Using password for accessing each computer.

(c) Keeping track of each printed material. It should have a printer record.

(d) Train only in the area for which they are responsible. Do not teach the entire system.

3.4.3 Protection of the Integrity of System and Data

The protection should include accessing of the system and system failure. Data must always be correct.

(a) The data must be protected by using the backup tools.

(b) The maintenance of the system should be done by authorized persons only.

## 3.5 Cost/Benefit Analysis

3.5.1 Cost Analysis

In order to implement the proposed system, the implementation fixed cost and operating cost are shows in Table 3.7.

3.5.2 Benefit Analysis

The benefits received from this proposed system are perceived as both tangible and intangible benefits.

(a) Tangible Benefits

Tangible benefits are benefits that can be measured or calculated. In this case, the value can be measured in terms of money. After the proposed system is implemented, the company can save costs in hiring staff. The number of personnel staffs can be reduced. The amount of paper works and asset loss can be decreased dramatically. Tangible benefit is reducing cost as shows in Table 3.8.

Table 3.7. Tangible Benefits, Baht.

| Cost Items | | Cost |
|---|---|---|
| Reduction of 2 personnel staff per annual | 2@ 12,000.00 | 288,000.00 |
| Reduction of 1 key operator staff per annual | 1@ 7,000.00 | 84,000.00 |
| Reduction of overtime paid | | 70,000.00 |
| Reduction of typewriter | | 18,000.00 |
| Reduction of paper work | | 100,000.00 |
| Reduction of asset loss | | 300,000.00 |
| Reduction of information error | | 170,000.00 |
| Reduction of communication cost | | 120,000.00 |
| Reduction of part time staffs | | 80,000.00 |
| Total tangible benefits | | 1,230,000.00 |

(b) Intangible Benefits

There are also several intangible benefits that we can obtain from the new computerized system.

Improved employee morale, the employees will be satisfied with the new system due to the fact that it helps them perform work in time and with out mistakes.

Better decision making and planning information, all information generated from computer system contain fewer errors when compared to that of that manual work. Then, the top management receives accurate and timely reports to make their decision and planning.

Better manpower management, all information relate to employees have been recorded into the proposed system, then, it is easy to manage the manpower.

Confidential control; the company has more confidence in a better control of confidentiality of the employee's record within the company's authorization. In general, the new computerized system is worthwhile.

Better company image, the company image will be better when other people know the company's computerized system. In the opinion of others, all the works that is carried out by the computer are always better than being performed by hands.

Payback Analysis

This payback analysis is used to estimate the amount of investment in the proposed system; whether it is worth to invest in it or not.

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

Where P = Payback period

I = Investment or capital expenditure

T = Tax rate (12%)

R = Annual saving realized by investment

The payback period of the proposed system can be calculated as the following:

$I = 371,875$

$R = 145,300 - 30,300$

$= 115,000$

$P = 371,875 / (1- 0.12) 115,000$

$= 2.31$ years

Table 3.10. Five Years Accumulated Existing System Cost, Baht.

| Year | Total Existing System Cost | Accumulated Cost |
|---|---|---|
| 1 | 1,277,500 | 1,277,500 |
| 2 | 1,410,600 | 2,688,100 |
| 3 | 1,550,310 | 4,238,410 |
| 4 | 1,703,891 | 5,942,301 |
| 5 | 1,872,730 | 7,815,031 |
| Total | 7,815,031 | - |

Table 3.11. Five Years Accumulated Computerized Cost, Baht.

| Year | Total Proposed System Cost | Accumulated Cost |
|---|---|---|
| 1 | 1,614,400 | 1,614,400 |
| 2 | 1,186,600 | 2,801,000 |
| 3 | 1,304,860 | 4,105,860 |
| 4 | 1,435,846 | 5,541,706 |
| 5 | 1,579,731 | 7,121,437 |
| Total | 7,121,437 | - |

Table 3.12. The Comparison of the System Costs, Baht.

| Year | Accumulated Existing Cost | Accumulated Proposed Cost |
|---|---|---|
| 1 | 1,277,500 | 1,614,400 |
| 2 | 2,688,100 | 2,801,000 |
| 3 | 4,238,410 | 4,105,860 |
| 4 | 5,942,301 | 5,541,706 |
| 5 | 7,815,031 | 7,121,437 |

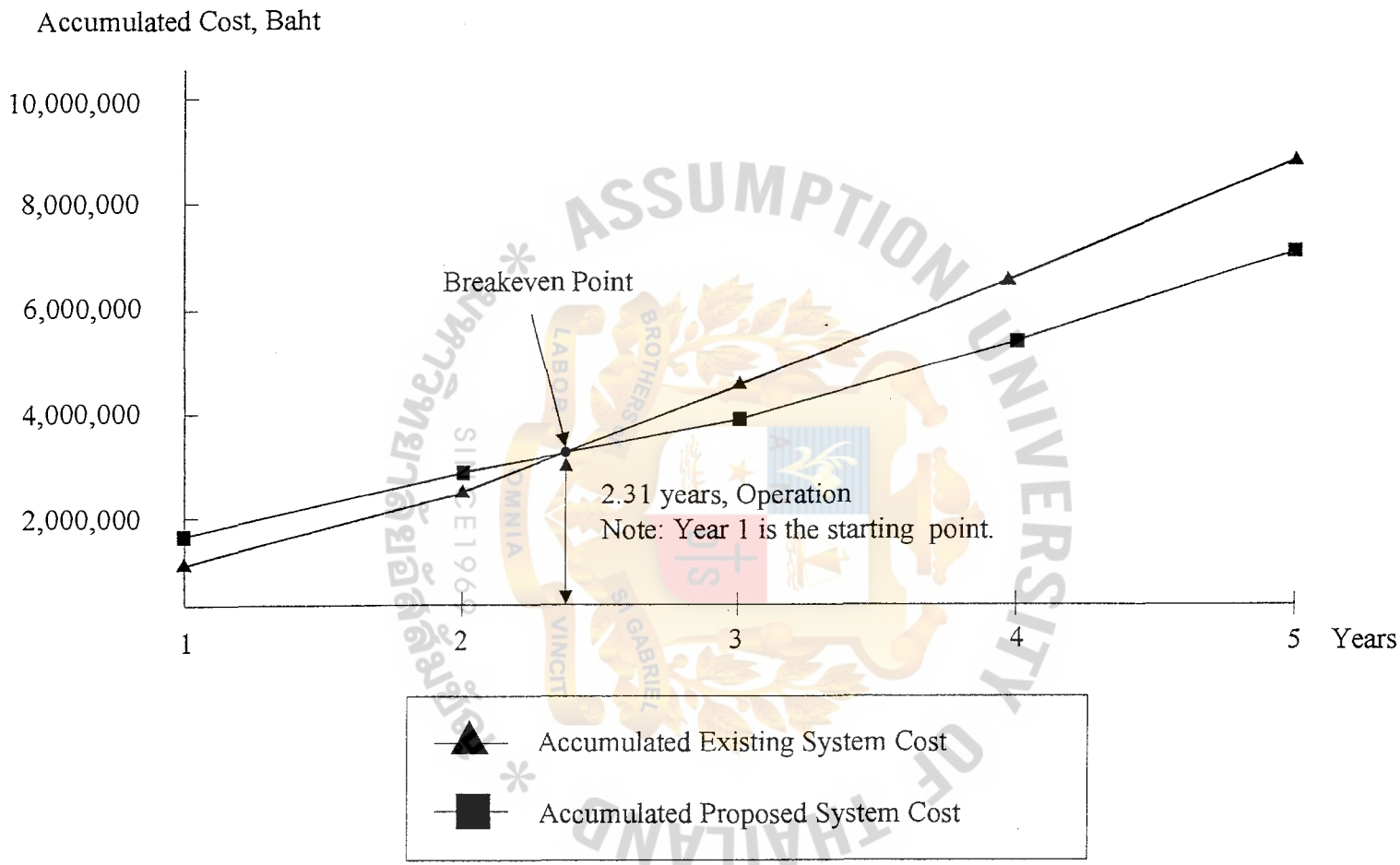



Figure 3.4. Comparison of System Cost.

Table 3.13. Payback Analysis for Proposed System, Baht.

| Cost items | Years | | | | |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| Development Cost | 371,875 | | | | |
| Operation & Maintenance Cost | 0 | 14,801 | 18,495 | 4,904 | 18,325 |
| Discount Factors for 12% | 1.000 | 0.893 | 0.797 | 0.712 | 0.635 |
| Time-Adjusted Costs (Adjusted to Present Value): | 371,875 | 13,218 | 14,741 | 3,492 | 11,637 |
| Cumulative Time –Adjusted Costs Over Lifetime: | 371,875 | 385,093 | 399,834 | 403,326 | 414,963 |
| | | | | | |
| Benefit Derived from Operation of New System: | 0 | 130,000 | 318,008 | 251,533 | 106,211 |
| Discount Factor for 12% | 1.000 | 0.893 | 0.797 | 0.712 | 0.635 |
| Time-Adjusted Benefit (Adjusted to Present Values): | 0 | 116,090 | 253,453 | 179,092 | 67,444 |
| Cumulative Time Adjusted Benefits Over life Time: | 0 | 116,090 | 369,534 | 548,626 | 616,070 |
| Cumulative Lifetime Time-Adjusted Cost+Benefits: | 371,875 | 219,003 | 30,300 | 145300 | 201,107 |

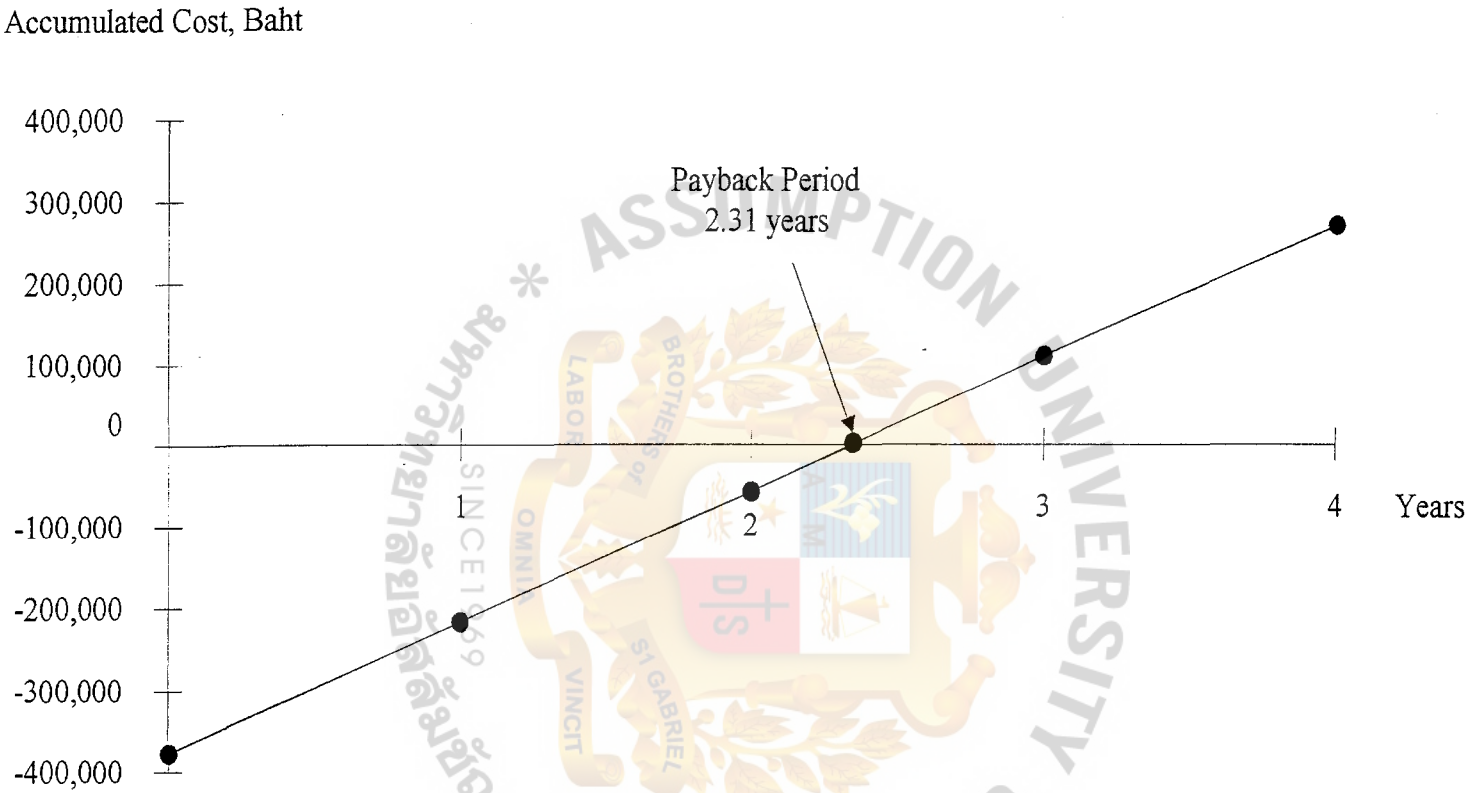



Figure 3.5. Payback Analysis for Proposed System.

Table 3.14. Net Present Value Analysis for Proposed System, Baht.

| Cost Items | Years | | | | | Total |
|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | |
| Development Cost: | 371,875 | | | | | |
| Operation & Maintenance Cost: | 0 | 14,801 | 18,495 | 4,904 | 18,325 | |
| Discount Factor for 12% | 1.000 | 0.893 | 0.797 | 0.712 | 0.635 | |
| Present Value of Life Time Cost: | 371,875 | 13,218 | 14,741 | 3,492 | 11,637 | |
| Total Present Value of Lifetime Cost: | | | | | | 414,963 |
| | | | | | | |
| Benefit Derived from Operation of New System: | 0 | 130,000 | 318,008 | 251,533 | 106,211 | |
| Discount factor for 12% | 1.000 | 0.893 | 0.797 | 0.712 | 0.635 | |
| Present Value of Annual Benefits: | 0 | 116,090 | 253,453 | 179,092 | 67,444 | |
| Total Present Value of Lifetime Benefits: | | | | | | 616,070 |
| Net Present Value of Proposed System: | | | | | | 321,148 |

# IV. PROJECT IMPLEMENTATION

## 4.1 Programming the system

The proposed system is developed by using Visual Interdev 6.0, which provides many facilities that can be applied for the employee requirements. There are tools for developing queries, screen templates and report.

During system implementation, a new designed database will be built and tested, the input and output will be constructed and the new programs will be written by using Visual Interdev 6.0. Programmers must write and test all the programs carefully for which a few months may be required.

## 4.2 Testing the system

After programming, we need to test the whole system. The test is to ensure that all programs are free of errors. There are the steps following to the performed.

(1) Sub system testing

This test is performed on individual modules, whether they are main programs, subroutine, subprogram, blocks or paragraphs. There will be a test on every path through the programs. The test cases are developed to result in executing every instruction in the program, or modules.

(2) Unit system testing

This is a test whereby all the modules that have been coded and stub tested are tested as an integrated unit system.

(3) System testing

This is a test that ensures that application programs written in isolation work properly when they are integrated into the total system.

(4) Special system testing

This can be called peak load testing. This test to determine whether the system can handle the volume of activities that might occur when the system is at the peak of processing its demand.

### 4.3 Conversion

For preparing conversion plan, one strategy, called parallel conversion is used. It means that the old and new systems are operated for some period of time. This is done to ensure that all majors problems in the new system have been solved before the old system is discarded. The final cutover may be gradual, as portions of the new system are deemed adequate.

Due to the existing system of this company is still a manual system, some unexpected problems may occur if we change the existing system into the computerized system immediately. This strategy reduces the high risk of damage occurring during sudden conversion because the existing system and the new proposed system are both executed at the same time.

The following should be included in installation:

(1) Hardware Installation

Install the server, workstations, printers, and ups.

(2) Soft ware Installation

All software should be fully installed on both workstations and servers so that it can support the use of users.

(3) Database Installation

The existing data will be converted into the form of database to support the new system.

(4) The involvement of network specialist will be included in connecting with the new system.

## 4.4 Training

Training is a way to guide users through the new system. In this training, the users will be trained by the programmer who is familiar with this program. The users will be trained in both lecture class and lab class ten days before the actual conversion. It is group training and all the users will know the basic computer knowledge and the overall function of the program. The training also includes the way to handle the problem and make use of data. The user will get another ten days individual training on his specific task after finishing the class of group training. The training will be more detailed on the job itself, handle some specific problems, the way to contact special persons on the network and the security of information.

# V. CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

The existing Human Resource System is studied by analyzing the current problems and user requirements, interviewing staff in Human Resource Department and reviewing the existing form and documents.

The new system is designed and implemented to replace the manual operations in the area of the current system. The manual operations involve high costs and yield lower productivity. The computerized system is expected to improve the efficiency while reducing operation costs. We can make a conclusion concerning the development of the system as follows:

(1) Cost Reduction

Computerization will help reduce work force normally required by the manual operation. The company will need less people to do the jobs because of the use of computers. We can expect a reduction in work force other costs associated with the transaction can be reduced such as the paper expenses.

(2) Save Time

An Intranet can cut down the time, so, consider putting forms on our Intranet. Design forms for frequently requested tasks within our organization; once users know how easily accessible these documents are over the Intranet, they will prefer the faster solution, as a result it will save time.

(3) Better decision making and planning

With computer technology involved, the mistakes from human errors and inaccurate information is decreasing. The top management can use the accurate and timely information in decision making and planning.

Table 5.1. Degree of Achievement of the Proposed System.

| Process | Existing System | Proposed System |
|---|---|---|
| Specify Vacancy Requirement Record | 7 mins. | 4 mins. |
| Transfer Vacancy Requirement Record | 5 mins. | 2 mins. |
| Check Media History Record | 10 mins. | 3 mins. |
| Record Candidate Profile | 15 mins. | 9 mins. |
| Record Passed Candidate Score | 4 mins. | 4 mins. |
| Record Employee Profile | 4 mins. | 3 mins. |
| Search Employee Record | 2 mins. | 1 mins. |
| Record Employee Training History | 5 mins. | 3 mins. |
| Search Employee Training History | 2 mins. | 1 min. |
| Add User (Password Maintenance) | 3 mins. | 1 min. |
| Generate Report | 3 mins. | 1 min. |
| Total | 59 mins. | 32 mins. |

## 5.2 Recommendations

5.2.1 Extranet and Internet is the Local Area Network (LAN) system, which connects the computers only in a limited area. In this project, we do not include the connection to outside companies because of security concerns. However, this system supports the

future connection of extranet and internet which may be added in the future. By this extranet and internet, the useful information can flow among users both within and outside the company.

5.2.2 Bar-Code

For more efficiency, the bar code may be used in the system. In the future, the employees may have their own identification (ID) card with bar code to record their working time. All these information will be transferred to computers and will help to update employee's record, there by reducing human error.

5.2.3 Training Users

The changing of the new system may be a bit difficult for the existing users so, it has to be done step by step with a feedback often every change in procedure. The feedback from users is very important for the improvement of the system; by giving users the knowledge and giving them training, they will have a positive attitude towards the new system.

5.2.4 Periodically Check

Furthermore, there should be periodical checking of the system to protect and also utilize the resources and the problems must be solved by specialists so that it will not occur again.

# APPENDIX A

DATA FLOW DIAGRAMS

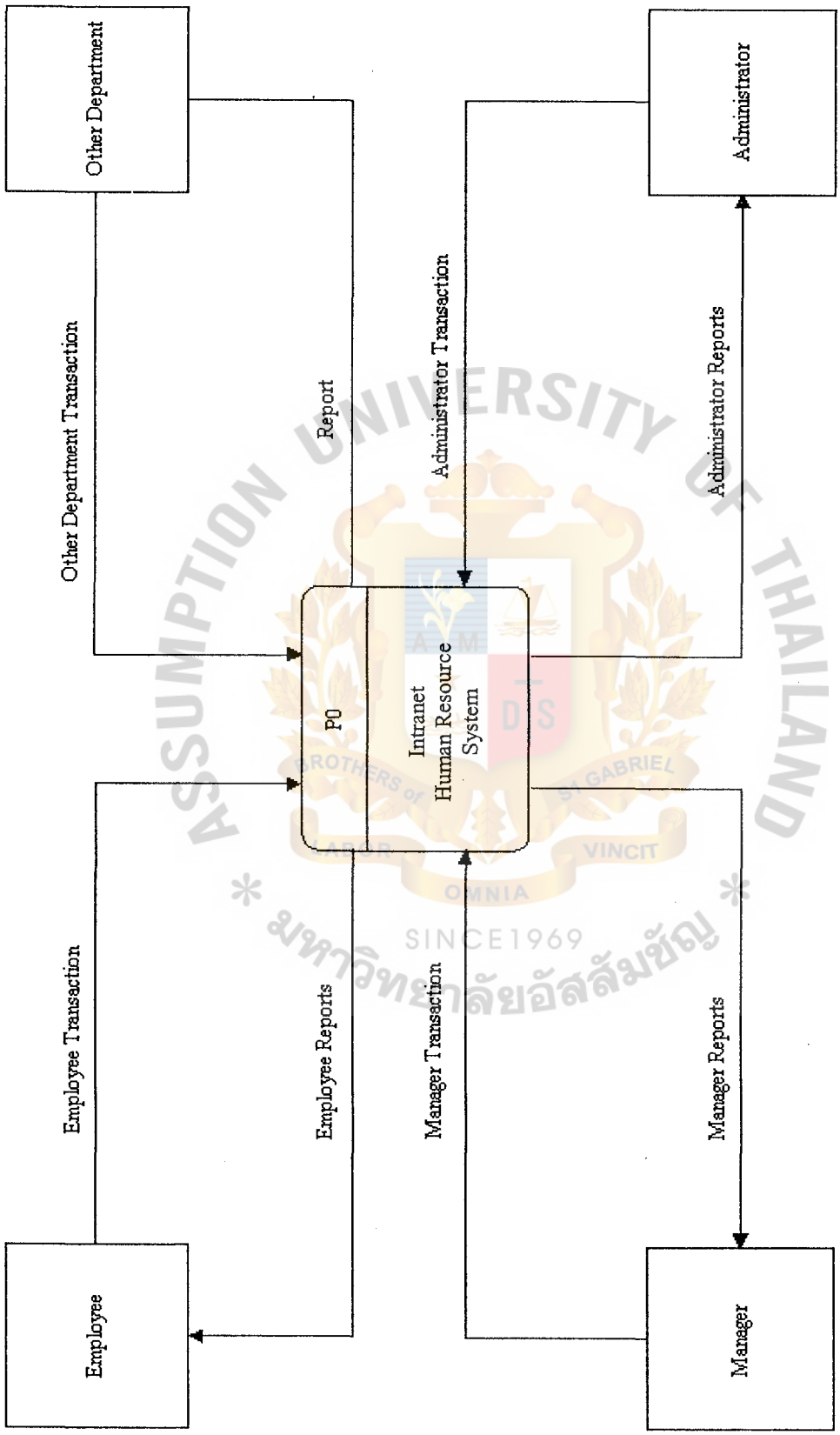



Figure A.1. Context Level Data Flow Diagram of Intranet Human Resource System.

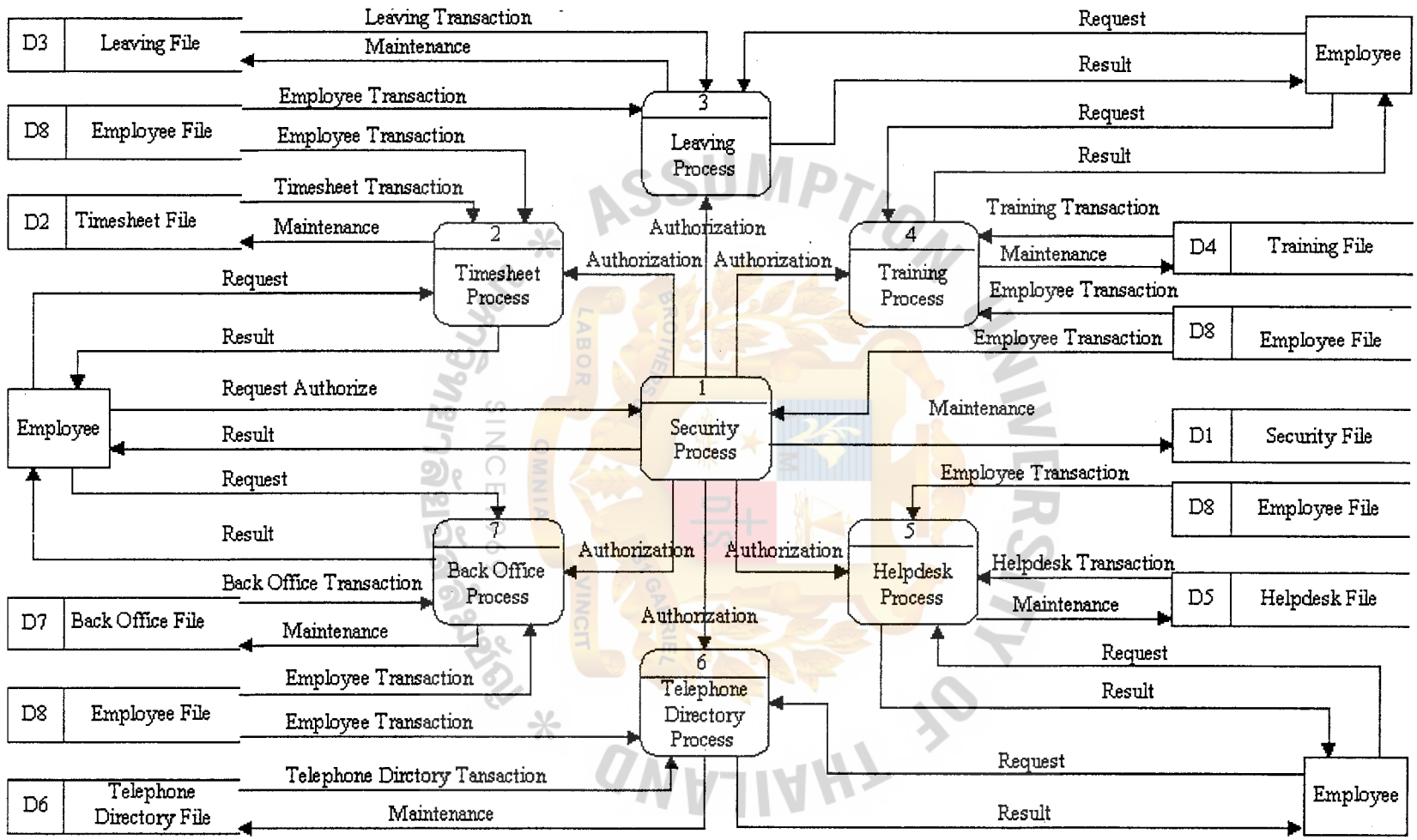



Figure A.2. Level 0 Data Flow Diagram of Intranet Human Resource System.

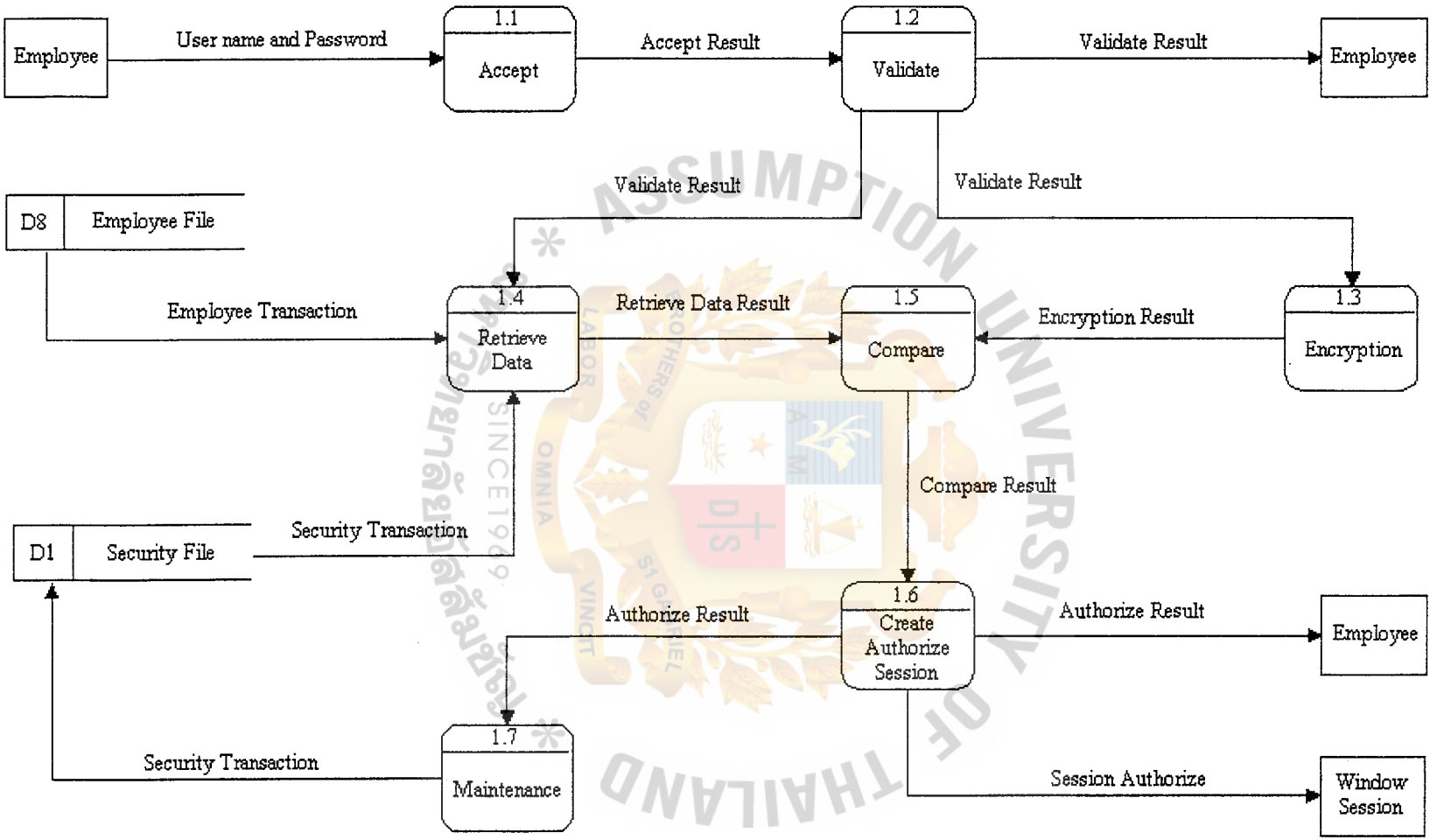



Figure A.3. Level 1 Data Flow Diagram of Security Process of Intranet Human Resource System.

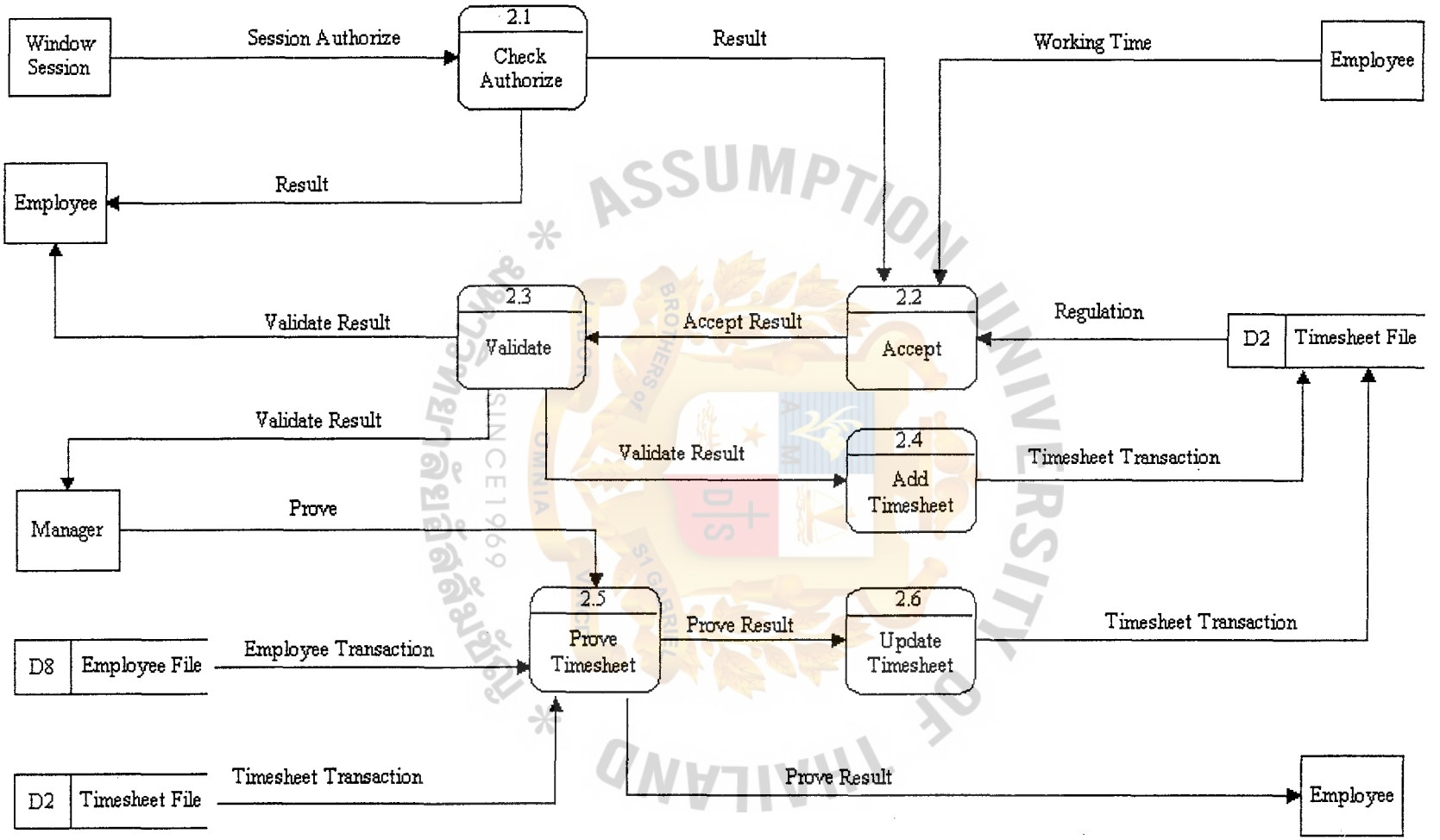



Figure A.4. Level 1 Data Flow Diagram of Timesheet Process of Intranet Human Resource System.

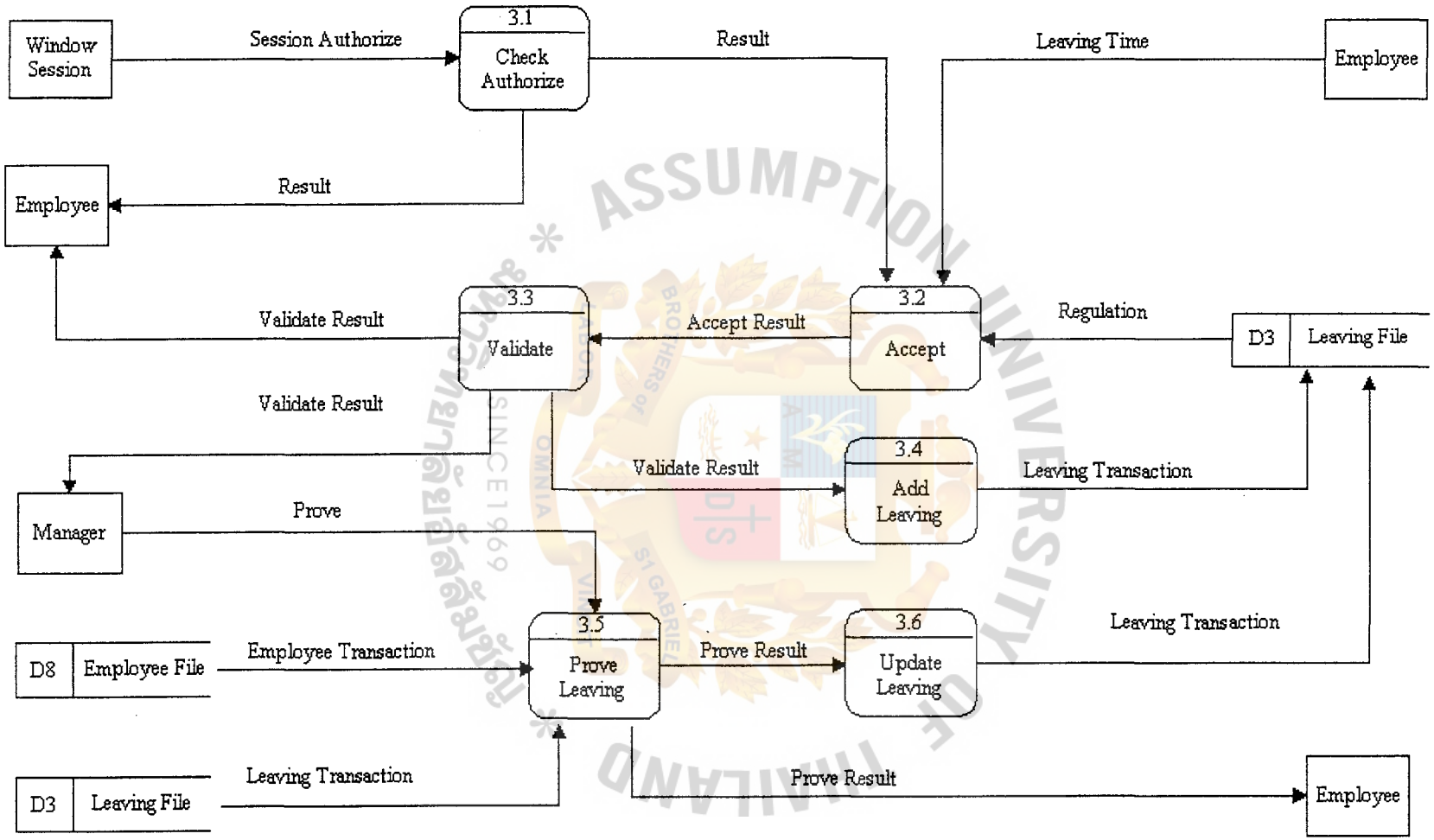



Figure A.5. Level 1 Data Flow Diagram of Leaving Process of Intranet Human Resource System.

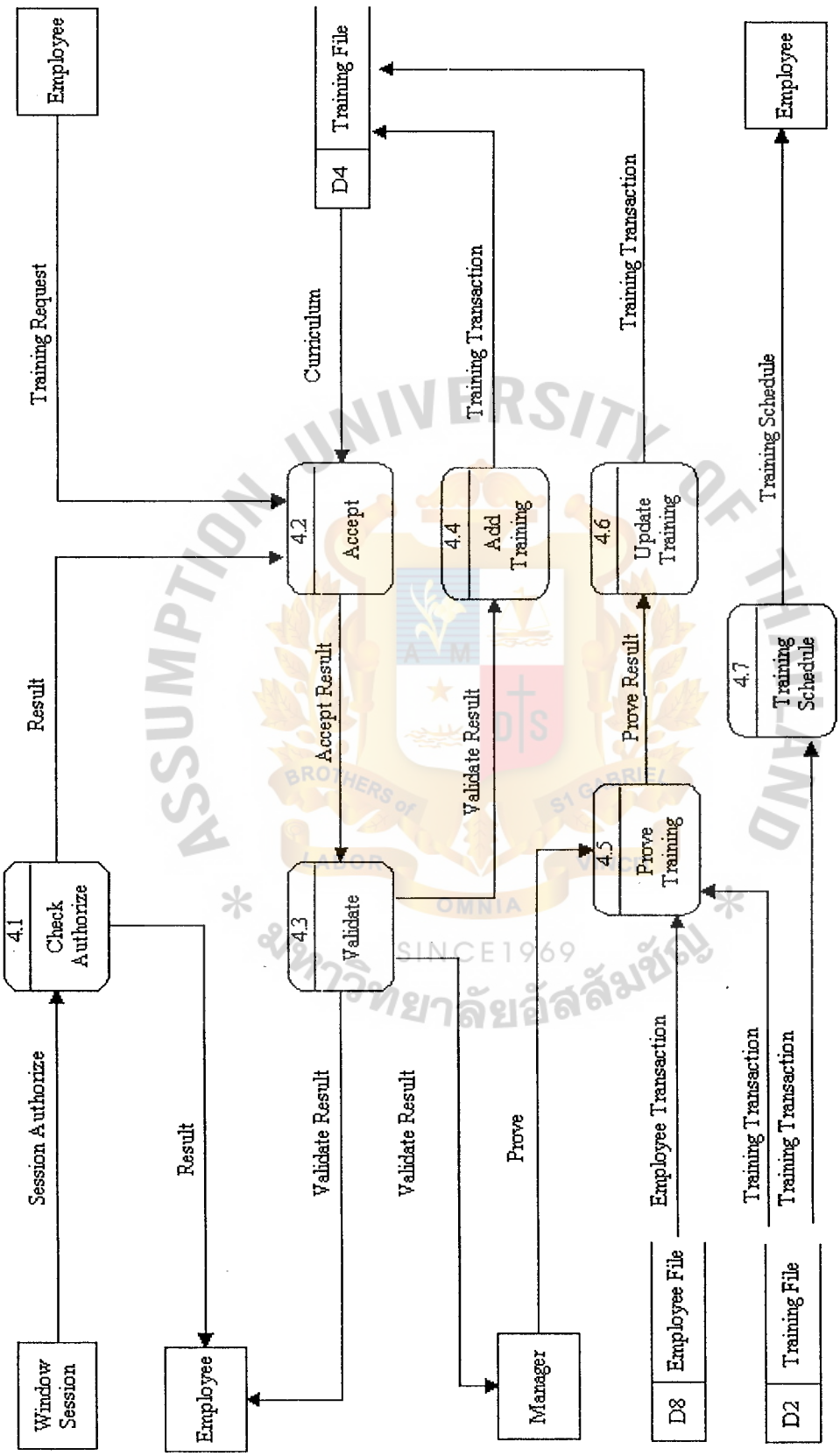



Figure A.6. Level 1 Data Flow Diagram of Training Process of Intranet Human Resource System.

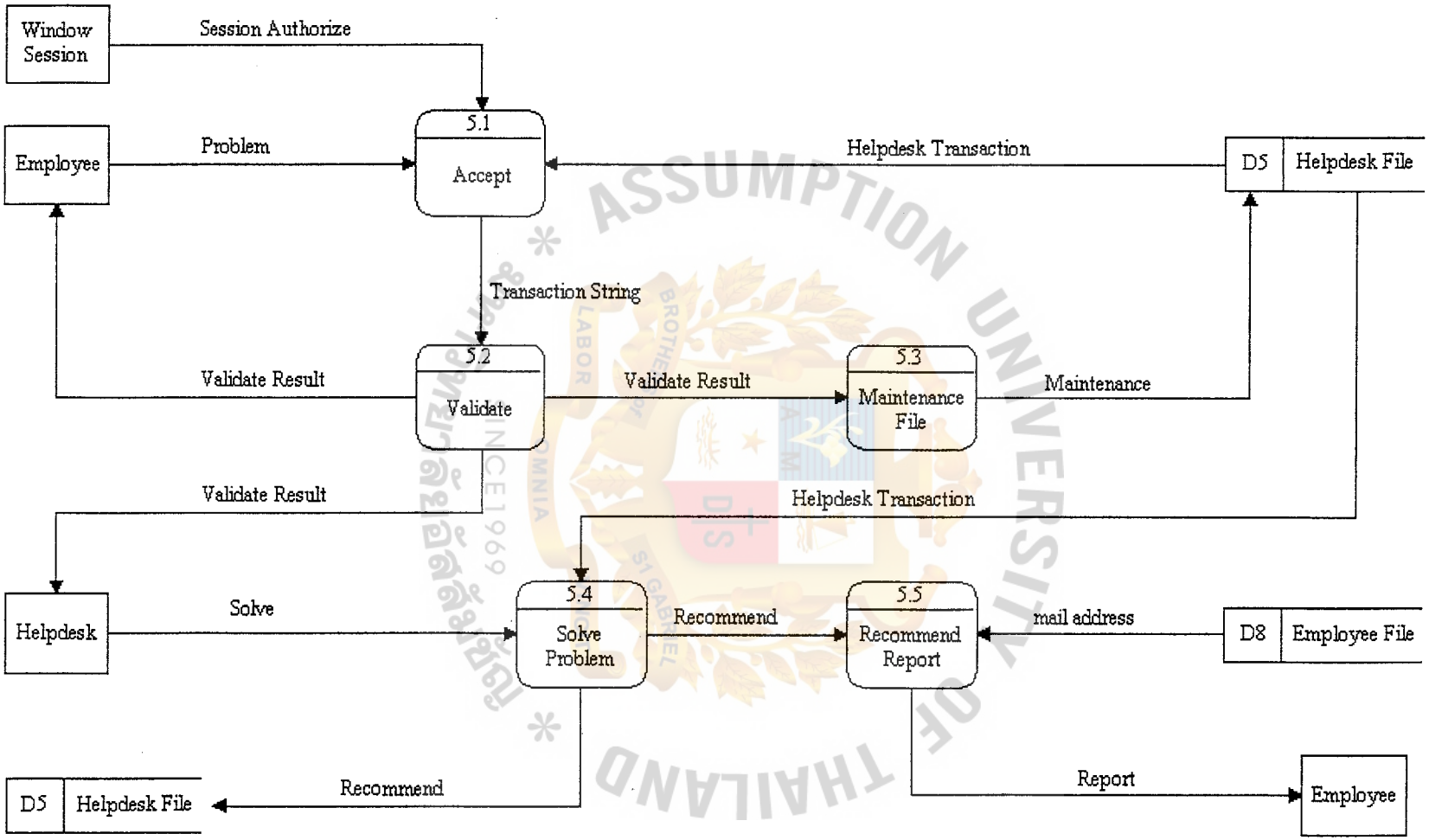



Figure A.7. Level 1 Data Flow Diagram of Helpdesk Process of Intranet Human Resource System.

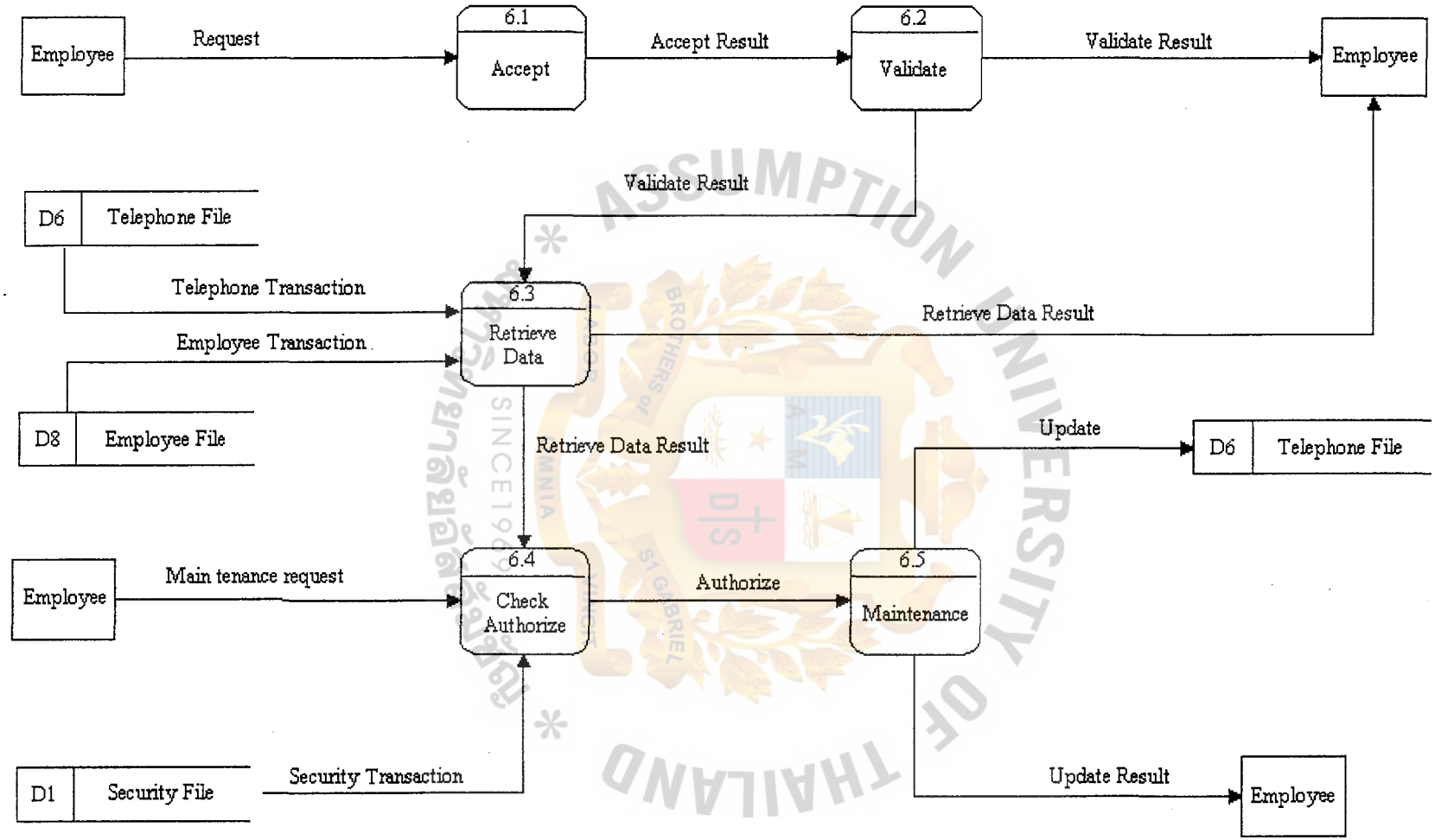



Figure A.8. Level 1 Data Flow Diagram of Telephone Directory of Intranet Human Resource System.

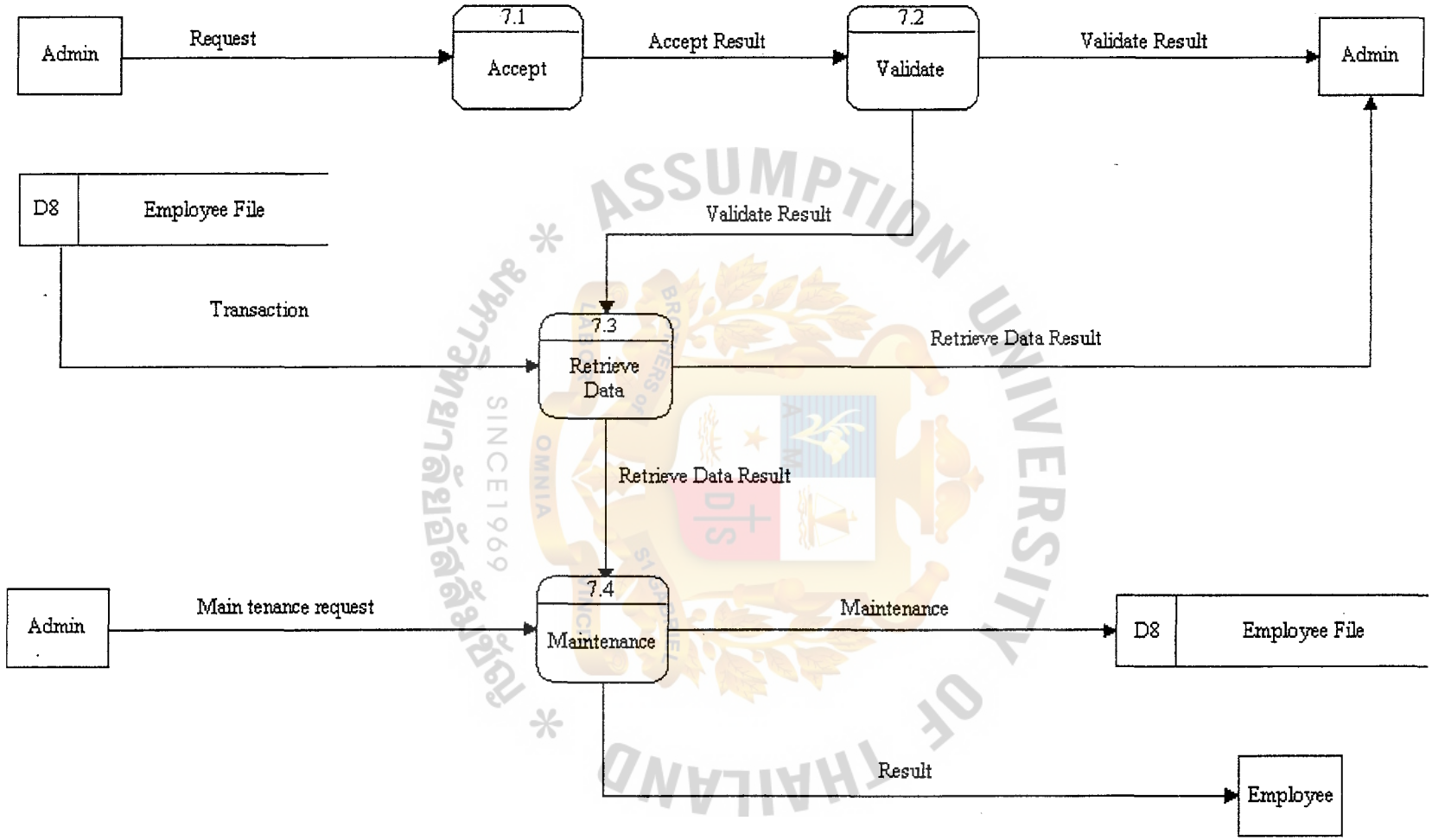



Figure A.9. Level 1 Data Flow Diagram of Back Office Process of Intranet Human Resource System.

# APPENDIX B

PROCESS SPECIFICATION

## PROCESS SPECIFICATION

The context diagram of Intranet Human Resource System in Figure A.1 defines the scope and boundary of the system and project. It shows the system's interfaces with its environment.

The data flow diagram of Intranet Human Resource System in Figure A.2 shows all process of the system, this diagram will be illustrated in detail as the following:

Diagram no.1 in Figure A.3 illustrates the activities of security process.

Diagram no.2 in Figure A.4 illustrates the activities of timesheet process.

Diagram no.3 in Figure A.5 illustrates the activities of leaving process.

Diagram no.4 in Figure A.6 illustrates the activities of training process.

Diagram no.5 in Figure A.7 illustrates the activities of helpdesk process.

Diagram no.6 in Figure A.8 illustrates the activities of telephone process.

Diagram no.7 in Figure A.9 illustrates the activities of back office process.

Diagram no.1 Security process

| | |
|---|---|
| Process no | : 1.1 |
| Process name | : Accept logon |
| Description | : Accept username and password from employee |
| Input | : 1. Employee user name |
| | : 2. Employee password |
| Output | : 1. String of user name for validate |
| | : 2. String of password for validate |
| Procedure | : 1. Window on load cursor focus at user name textbox field |
| | : 2. Key code is entering focus at password textbox field |
| | : 3. Capture string form user name textbox field in to argument1 |
| | : 4. Capture string from password textbox field in to argument2 |
| Process no | : 1.2 |
| Process name | : Validate logon |
| Description | : Validate String from accept logon |
| Input | : 1. Argument1 from accept logon |
| | : 2. Argument2 from accept logon |
| Output | : 1. Validate result message to employee |
| | : 2. Validate result flag to encryption process |
| | : 3. Validate result flag to retrieve data process |
| Procedure | : 1. Validate null value for argument1 |
| | : 2. Validate null value for argument2 |
| | : 3. Show message validate result to employee |
| | : 4. Set flag validate result |

Diagram no.1 Security process

Process no : 1.3

Process name : Encryption logon

Description : Encryption String by component

Input : 1. Validate result flag from validate process

Output : 1. Encryption result to compare process

Procedure : 1. Check validate result flag

: 2. Set argument2 to encryption component

: 3. Set output from encryption component to argument3

Process no : 1.4

Process name : Retrieve data

Description : Retrieve employee password

Input : 1. Validate result from validate process

: 2. Employee password from employee file

Output : 1. Retrieve data result to compare process

: 2. String of password

Procedure : 1. Create connection object

: 2. Get password string from employee file

: 3. Set password to argument4

Diagram no.1 Security process

Process no : 1.5

Process name : Compare data

Description : Compare retrieve data result and encryption result

Input : 1. Retrieve data result from retrieve data process

: 2. Encryption result from encryption process

Output : 1. Compare result to create authorize session

Procedure : 1. Set argument3 to compare function

: 2. Set argument4 to compare function

: 3. Set output from compare function to argument5

Process no : 1.6

Process name : Create authorize session

Description : Create authorize windows session

Input : 1. Compare result from compare process

Output : 1. Authorize result message to employee

: 2. Session authorize to windows session

: 3. Authorize result to maintenance process

Procedure : 1. Get value from argument5

: 2. Create authorize session for user window

: 3. Send message authorize result to employee

: 4. Set authorize result to argument7

Diagram no.1 Security process

Process no : 1.7

Process name : Maintenance security file

Description : Maintenance security file for history report

Input : 1. Authorize result from create authorize session process

Output : 1. Security transaction is write to security file

Procedure : 1. Create connection object

: 2. Open data file

: 3. Insert security transaction to security file

Diagram no.2 Timesheet process

| | |
|---|---|
| Process no | : 2.1 |
| Process name | : Check authorize timesheet |
| Description | : Check window session authorize |
| Input | : 1. Session authorize from window session |
| Output | : 1. Check authorize result to accept process |
| Procedure | : 1. Session on load check authorize session |
| | : 2. Send authorize message to employee |
| | : 3. Send authorize result to accept process |
| Process no | : 2.2 |
| Process name | : Accept authorize timesheet |
| Description | : Accept data from process, employee, and file |
| Input | : 1. Check authorize result |
| | : 2. Working time from employee |
| | : 3. Regulation from timesheet file |
| Output | : 1. Accept result to validate process |
| Procedure | : 1. Accept working time from employee |
| | : 2. Accept Result from check authorize process |
| | : 3. Accept regulation form timesheet file |
| | : 4. Send accept result to validate process |

Diagram no.2 Timesheet process

Process no : 2.3

Process name : Validate authorize timesheet

Description : Validate data and regulation

Input : 1. Accept result from accept process

Output : 1. Validate result message to employee

: 2. Validate result message to manager

: 3. Validate result to add timesheet process

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to employee

: 4. Set flag validate result

Process no : 2.4

Process name : Add timesheet

Description : Add timesheet record to timesheet file

Input : 1. Validate result from validate process

Output : 1. Timesheet record to timesheet file

Procedure : 1. Get validate result from validate process

: 2. Create object connection

: 3. Create set object connection

: 4. Insert timesheet record to timesheet file

Diagram no.2 Timesheet process

Process no : 2.5

Process name : Prove timesheet

Description : Manager prove timesheet transaction

Input : 1. Manager prove

: 2. Employee transaction from employee file

: 3. Timesheet transaction from timesheet file

Output : 1. Prove result to update timesheet process

: 2. Prove result message to employee

Procedure : 1. Get manager prove result

: 2. Get employee transaction and timesheet transaction

: 3. Update timesheet

: 4. Create result message and send to employee

Process no : 2.6

Process name : Update timesheet

Description : Update timesheet file after manager prove

Input : 1. Prove result from prove timesheet process

Output : 1. Timesheet transaction to timesheet file

Procedure : 1. Get prove result

: 2. Create object connection

: 3. Create connection string

: 4. Insert timesheet transaction

Diagram no.3 Leaving process

| | |
|---|---|
| Process no | : 3.1 |
| Process name | : Check authorize leaving |
| Description | : Check authorize window session |
| Input | : 1. Authorize session from window session |
| Output | : 1. Check result to accept process |
| Procedure | : 1. Session on load check authorize session |
| | : 2. Send authorize message to employee |
| | : 3. Send authorize result to accept process |
| Process no | : 3.2 |
| Process name | : Accept authorize leaving |
| Description | : Accept data from process, employee, and file |
| Input | : 1. Check authorize result |
| | : 2. Working time from employee |
| | : 3. Regulation from timesheet file |
| Output | : 1. Accept result to validate process |
| Procedure | : 1. Get check authorize result |
| | : 2. Get working time |
| | : 3. Get regulation timesheet |
| | : 4. Get validate process result |

Diagram no.3 Leaving process

Process no : 3.3

Process name : Validate leaving

Description : Validate data and regulation

Input : 1. Accept result from accept process

Output : 1. Validate result message to employee

: 2. Validate result message to manager

: 3. Validate result to add leaving process

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to employee

: 4. Set flag validate result

Process no : 3.4

Process name : Add leaving

Description : Add leaving record to leaving file

Input : 1. Validate result from validate process

Output : 1. Leaving record to timesheet file

Procedure : 1. Get validate result

: 2. Create object connection

: 3. Create connection string

: 4. Insert leaving record

Diagram no.3 Leaving process

Process no : 3.5

Process name : Prove leaving

Description : Manager prove leaving transaction

Input : 1. Manager prove

: 2. Employee transaction from employee file

: 3. leaving transaction from leaving file

Output : 1. Prove result to update leaving process

: 2. Prove result message to employee

Procedure : 1. Get manager prove

: 2. Get employee transaction and leaving transaction

: 3. Send prove result to update process

: 4. Create message result to employee

Process no : 3.6

Process name : Update leaving

Description : Update leaving file after manager prove

Input : 1. Prove result from prove leaving process

Output : 1. Leaving transaction to leaving file

Procedure : 1. Get prove result

: 2. Create object connection

: 3. Create connection string

: 4. Insert leaving transaction

Diagram no.4 Training process

Process no : 4.1

Process name : Check authorize training

Description : Check window session authorize

Input : 1. Session authorize from window session

Output : 1. Check authorize result to accept process

Procedure : 1. Session on load check authorize session

: 2. Send authorize message to employee

: 3. Send authorize result to accept process

Process no : 4.2

Process name : Accept training

Description : Accept data from process, employee, and file

Input : 1. Check authorize result

: 2. Working time from employee

: 3. Curriculum from training file

Output : 1. Accept result to validate process

Procedure : 1. Get check authorize result

: 2. Get working time

: 3. Get curriculum

: 4. Send result to validate process

Diagram no.4 Training process

Process no : 4.3

Process name : Validate training

Description : Validate data and curriculum

Input : 1. Accept result from accept process

Output : 1. Validate result message to employee

: 2. Validate result message to manager

: 3. Validate result to add training process

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to employee

: 4. Set flag validate result

Process no : 4.4

Process name : Add training

Description : Add training record to training file

Input : 1. Validate result from validate process

Output : 1. Training record to training file

Procedure : 1. Get validate result

: 2. Create object connection

: 3. Create connection string

: 4. Inset training record

Diagram no.4 Training process

Process no : 4.5

Process name : Prove training

Description : Manager prove training transaction

Input : 1. Manager prove

: 2. Employee transaction from employee file

: 3. Training transaction from training file

Output : 1. Prove result to update training process

: 2. Prove result message to employee

Procedure : 1. Get manager prove

: 2. Get employee transaction and training transaction

: 3. Send result to update process

: 4. Create message result to employee

Process no : 4.6

Process name : Update training

Description : Update training file after manager prove

Input : 1. Prove result from prove training process

Output : 1. Training transaction to training file

Procedure : 1. Get result from training process

: 2. Create object connection

: 3. Create connection string

: 4. Insert training file

Diagram no.4 Training process

Process no : 4.7

Process name : Training schedule

Description : Create training schedule for employee

Input : 1. Training transaction from training file

Output : 1. Training schedule for employee

Procedure : 1. Get training transaction

: 2. Create object connection

: 3. Create connection string

: 4. Generate report send to employee

Diagram no.5 Helpdesk process

Process no : 5.1

Process name : Accept problem

Description : Accept problem for solve

Input : 1. Session authorize

: 2. Problem message

: 3. Helpdesk transaction

Output : 1. Accept transaction string

Procedure : 1. Session on load check authorize session

: 2. Send authorize message to employee

: 3. Send authorize result to accept process

Process no : 5.2

Process name : Validate problem

Description : Validate session authorize and problem

Input : 1. Transaction string from accept process

Output : 1. Validate result message to employee

: 2. Validate result string to maintenance file process

: 3. Validate result problem to helpdesk

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to employee

: 4. Set flag validate result

Diagram no.5 Helpdesk process

Process no : 5.3

Process name : Maintenance helpdesk file

Description : Maintenance helpdesk file

Input : 1. Validate result problem from validate process

Output : 1. Problem transaction

Procedure : 1. Get validate result problem

: 2. Create object connection

: 3. Create connection string

: 4. Insert problem transaction

Process no : 5.4

Process name : Solve problem

Description : Helpdesk to solve problem

Input : 1. Helpdesk solve problem

: 2. Problem from Helpdesk file

Output : 1. Recommend transaction to helpdesk file

: 2. Recommend transaction to recommend report process

Procedure : 1. Get helpdesk solve problem

: 2. Get problem from helpdesk file

: 3. Send recommend transaction to helpdesk file

: 4. Send recommend transaction to report process

Diagram no.5 Helpdesk process

Process no : 5.5

Process name : Recommend report

Description : Create recommend report

Input : 1. Recommend transaction from solve problem process

: 2. Mail address from employee file

Output : 1. Recommend report

Procedure : 1. Get recommend transaction

: 2. Create object connection

: 3. Create connection string

: 4. Get e-mail address and send to employee

Diagram no.6 Telephone directory process

Process no : 6.1

Process name : Accept request

Description : Accept request telephone condition

Input : 1. Request string

Output : 1. Accept string result to validate process

Procedure : 1. Capture string from textbox1

: 2. Capture string from textbox2

: 3. Capture string from textbox3

: 4. Send capture string to validate process

Process no : 6.2

Process name : Validate request

Description : Validate request string

Input : 1. Accept request string from accept process

Output : 1. Validate result string to employee

: 2. Validate result string to retrieve data process

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to employee

: 4. Set flag validate result

Diagram no.6 Telephone directory process

Process no : 6.3

Process name : Retrieve data telephone

Description : Retrieve telephone record

Input : 1. Request condition

: 2. Employee transaction

: 3. Telephone transaction

Output : 1. Retrieve data result to check authorize process

Procedure : 1. Get request condition

: 2. Get employee transaction

: 3. Get telephone transaction

: 4. Send transaction to check process

Process no : 6.4

Process name : Check authorize

Description : Check employee authorize

Input : 1. Employee maintenance request

: 2. Retrieve data result

: 3. Security transaction

Output : 1. Authorize request

Procedure : 1. Session on load check authorize session

: 2. Send authorize message to employee

: 3. Send authorize result to accept process

Diagram no.6 Telephone directory process

Process no : 6.5

Process name : Maintenance telephone directory file

Description : Maintenance telephone record

Input : 1. Authorize from check authorize process

Output : 1. Telephone transaction update to telephone file

: 2. Update result message to employee

Procedure : 1. Get authorize check

: 2. Create object connection

: 3. Create connection string

: 4. Update telephone file and send message to employee

Diagram no.7 Back office process

Process no : 7.1

Process name : Accept request

Description : Accept admin request

Input : 1. String of request

: 2. Condition of request

Output : 1. String and condition of request

Procedure : 1. Get string of request

: 2. Get condition of request

: 3. Capture textbox

: 4. Send capture to validate process

Process no : 7.2

Process name : Validate admin

Description : Validate data

Input : 1. Accept result from accept process

Output : 1. Validate result message to admin

: 2. Validate result message to retrieve data process

Procedure : 1. Validate null value for argument1

: 2. Validate null value for argument2

: 3. Show message validate result to admin

: 4. Set flag validate result

Diagram no.7 Back office process

Process no : 7.3

Process name : Retrieve data

Description : Retrieve data from database

Input : 1. Transaction from database

: 2. Validate result from validate process

Output : 1. Retrieve result message to admin

: 2. Retrieve result to maintenance process

Procedure : 1. Get transaction from database

: 2. Get validate result from validate process

: 3. Retrieve result message

: 4. Retrieve result to maintenance process

Process no : 7.4

Process name : Maintenance file

Description : Maintenance database

Input : 1. Maintenance request from admin

: 2. Retrieve data result from retrieve data process

Output : 1. Maintenance transaction to database

: 2. Result message to employee

Procedure : 1. Get maintenance request

: 2. Get retrieve data

: 3. Update data result

: 4. Send message to employee

# APPENDIX C

ENTITY RELATIONSHIP DIAGRAM

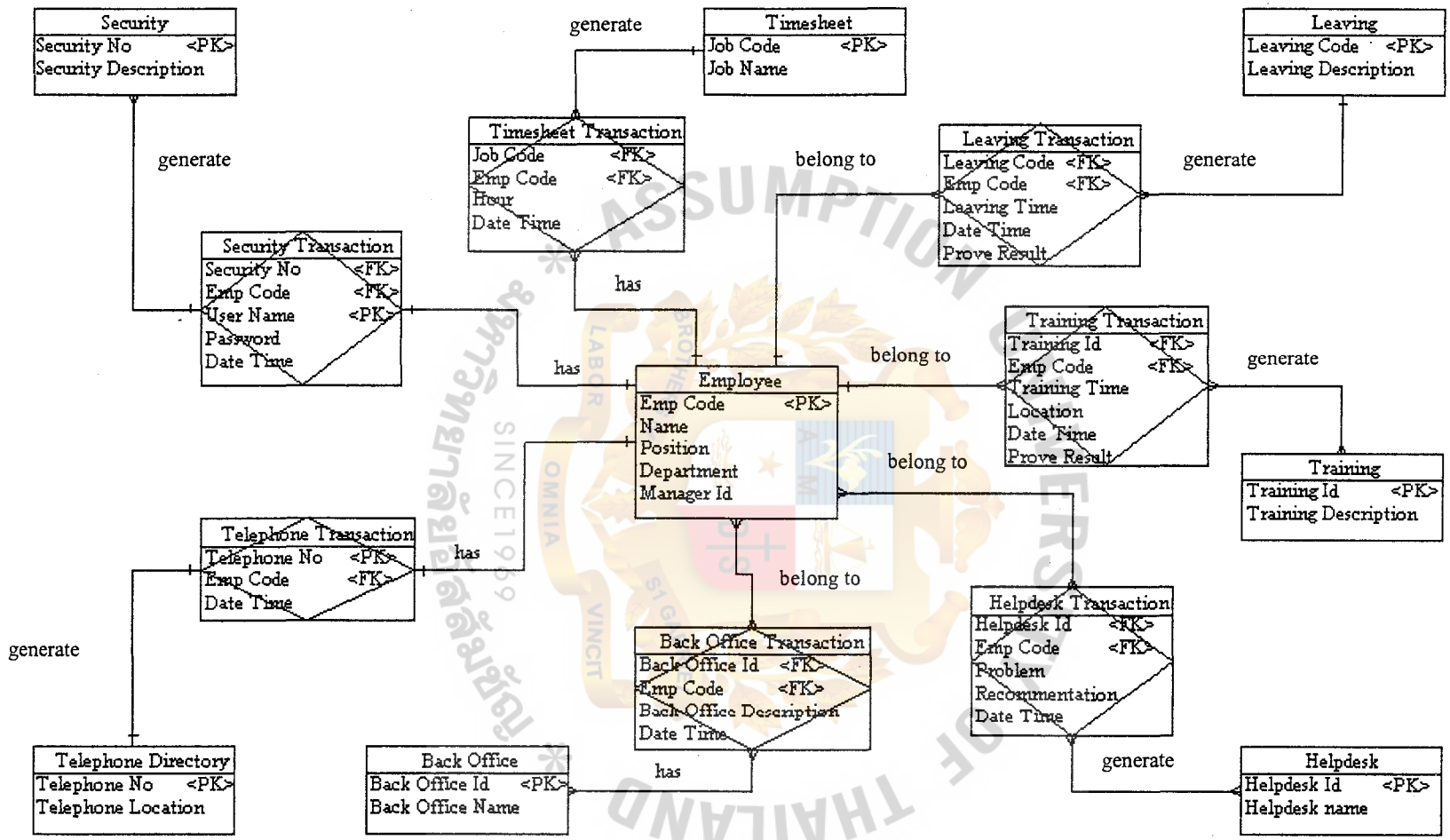



Figure C.1. Entity Relationship Diagram of Intranet Human Resource System.

# APPENDIX D

DATABASE DESIGN

Table D.1. Security Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Security_no | Character | 5 | Primary key |
| Security_des | Character | 50 | Attribute |

Table D.2. Security Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Security_no | Character | 5 | Primary key |
| Emp_code | Character | 5 | Primary key |
| User_name | Character | 8 | Attribute |
| Password | Character | 8 | Attribute |
| Date_time | Date | | Attribute |

Table D.3. Timesheet Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Job_code | Character | 10 | Primary key |
| Job_name | Character | 50 | Attribute |

Table D.4. Timesheet Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Job_code | Character | 10 | Primary key |
| Emp_code | Character | 5 | Primary key |
| Hour | Number | 2 | Attribute |
| Date_time | Date | | Attribute |

Table D.5. Leaving Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Leaving_code | Character | 5 | Primary key |
| Leaving_des | Character | 50 | Attribute |

Table D.6. Leaving Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Leaving_code | Character | 5 | Primary key |
| Emp_code | Character | 5 | Attribute |
| Leaving_time | Date | | Attribute |
| Date_time | Date | | Attribute |
| Prove_result | Character | 20 | Attribute |

Table D.7. Training Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Training_id | Character | 10 | |
| Training_des | Character | 50 | Attribute |

Table D.8. Training Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Training_id | Character | 10 | Primary key |
| Emp_code | Character | 5 | Primary key |
| Training_time | Date | | Attribute |
| Location | Character | 20 | Attribute |
| Date_time | Date | | Attribute |
| Prove_result | Character | 5 | Attribute |

Table D.9. Helpdesk Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Helpdesk_id | Character | 5 | Primary key |
| Helpdesk_name | Character | 50 | Attribute |

Table D.10. Helpdesk Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Helpdesk_id | Character | 5 | Primary key |
| Emp_code | Character | 5 | Primary key |
| Problem | Memo | | Attribute |
| Recommendation | Memo | | Attribute |
| Date_time | Date | | Attribute |

Table D.11. Telephone Directory Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Telephone_no | Character | 4 | Primary key |
| Telephone_location | Character | 20 | Attribute |

Table D.12. Telephone Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Telephone_no | Character | 4 | Primary key |
| Emp_code | Character | 5 | Primary key |
| Date_time | Date | | Attribute |

Table D.13. Back Office Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Back_office_id | Character | 5 | Primary key |
| Back_office_name | Character | 50 | Attribute |

Table D.14. Back Office Transaction Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Back_office_id | Character | 5 | Primary key |
| Emp_code | Character | 5 | Primary key |
| Back_office_des | Character | 50 | Attribute |
| Date_time | Date | | Attribute |

Table D.15. Employee Table.

| Field Name | Field Type | Field Size | Field Key |
|---|---|---|---|
| Emp_code | Character | 5 | Primary key |
| Emp_name | Character | 50 | Attribute |
| Position | Character | 20 | Attribute |
| Department | Character | 20 | Attribute |
| E_mail | Character | 30 | Attribute |
| Manager_id | Character | 5 | Attribute |

# APPENDIX E

DATA DICTIONARY

Table E.1. Data Dictionary of Intranet Human Resource System.

| Field Name | Description |
|---|---|
| Back_office_des | The attribute in back office table which identifies the back office description record |
| Back_office_id | The attribute in back office table which identifies the back office id record |
| Back_office_name | The attribute in back office table which identifies the back office name record |
| Date_time | The attribute in back office table which identifies the back office date time record |
| Department | The attribute in employee table which identifies the employee department description record |
| E_mail | The attribute in employee table which identifies the e mail address description record |
| Emp_name | The attribute in employee table which identifies the employee name description record |
| Emp_id | The attribute in employee table which identifies the employee id record |
| Helpdesk_id | The attribute in helpdesk table which identifies the helpdesk id record |
| Helpdesk_name | The attribute in helpdesk table which identifies the helpdesk name description record |
| Hour | The attribute in timesheet table which identifies the total hour to jobs description record |
| Job_code | The attribute in timesheet table which identifies the job code description record |
| Job_name | The attribute in timesheet table which identifies the job name description record |
| Leaving_code | The attribute in leaving table which identifies the leaving code description record |
| Leaving_des | The attribute in leaving table which identifies the leaving description record |
| Leaving_time | The attribute in leaving table which identifies the leaving time description record |
| Location | The attribute in training table which identifies the location for training room |
| Manager_id | The attribute in employee table which identifies the manager id of employee record |
| Password | The attribute in security table which identifies the encode password record |
| Position | The attribute in employee table which identifies the position of employee record |
| Problem | The attribute in helpdesk table which identifies the problem description record |
| Prove_result | The attribute in training table which identifies the prove result description record |

Table E.2. Data Dictionary of Intranet Human Resource System (Continued).

| Field Name | Description |
|---|---|
| Recommendation | The attribute in helpdesk table which identifies the recommendation description record |
| Security_des | The attribute in security table which identifies the security description record |
| Security_no | The attribute in security table which identifies the security number record |
| Telephone_no | The attribute in telephone table which identifies the telephone extension number record |
| Training_des | The attribute in training table which identifies the training course description record |
| Training_id | The attribute in training table which identifies the training description record |
| User_name | The attribute in security table which identifies the user name description record |

# APPENDIX F

INTERFACE DESIGN


Figure F.1. Menu Screen.

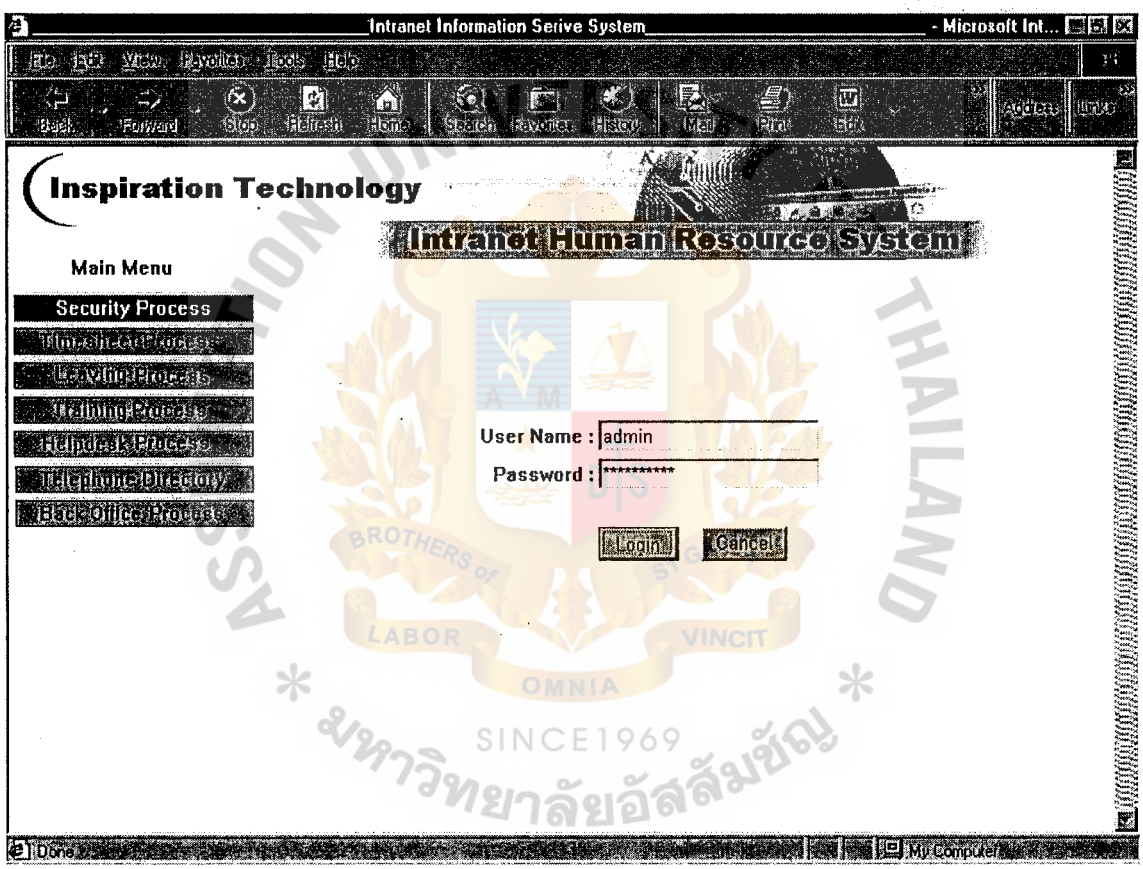



Figure F.2. Security Screen.

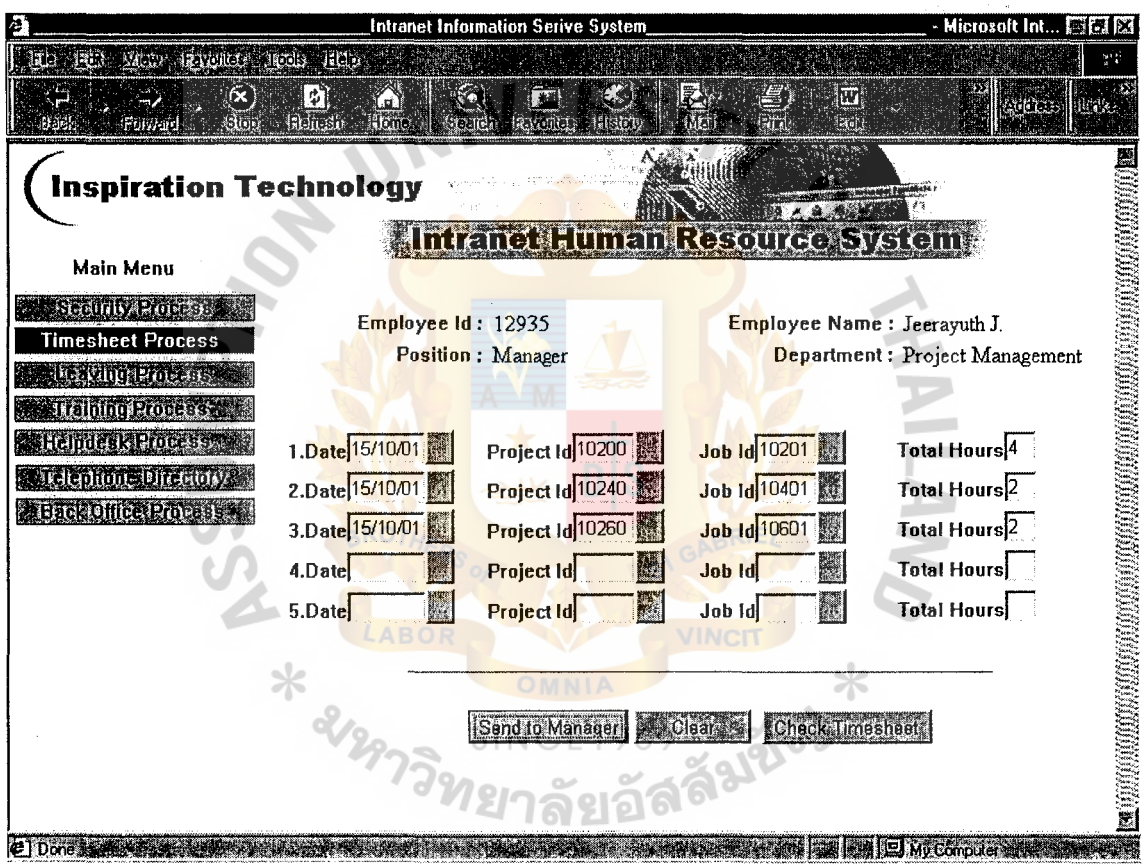



Figure F.3. Timesheet Screen.

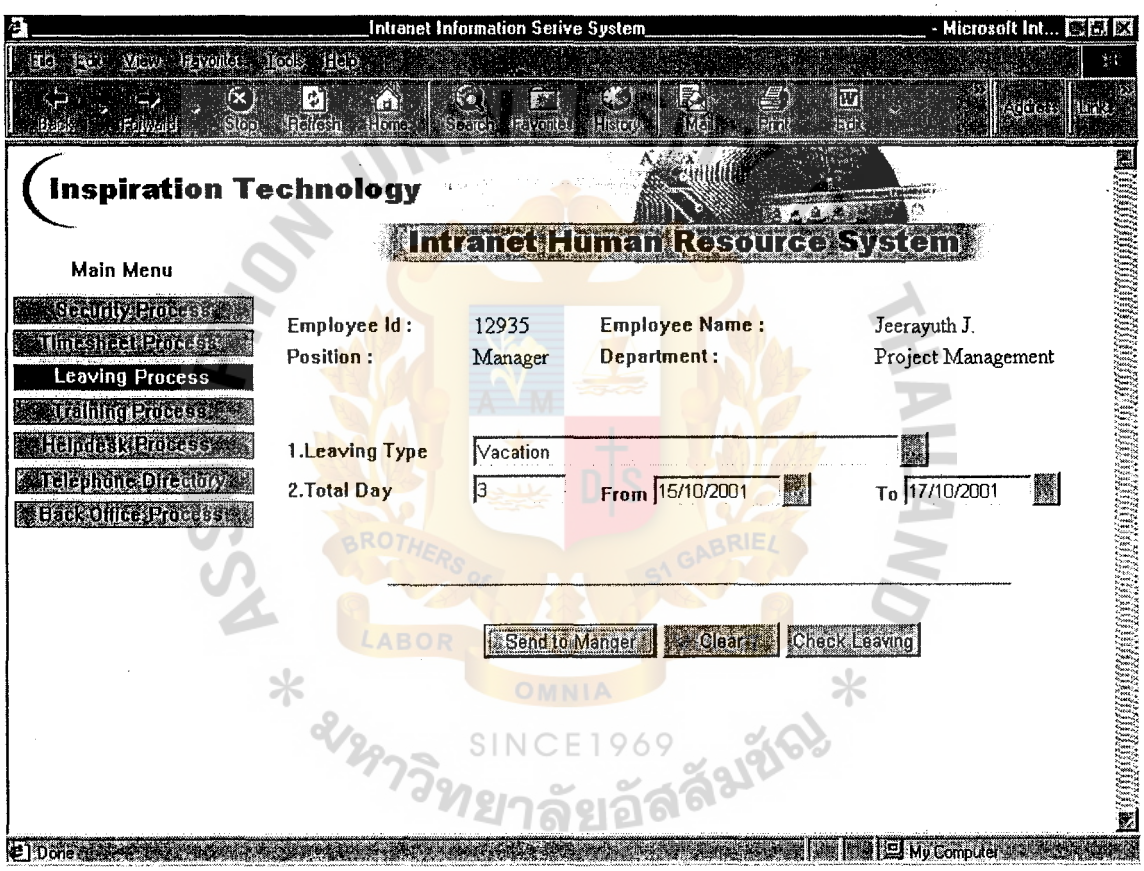



Figure F.4. Leaving Screen.

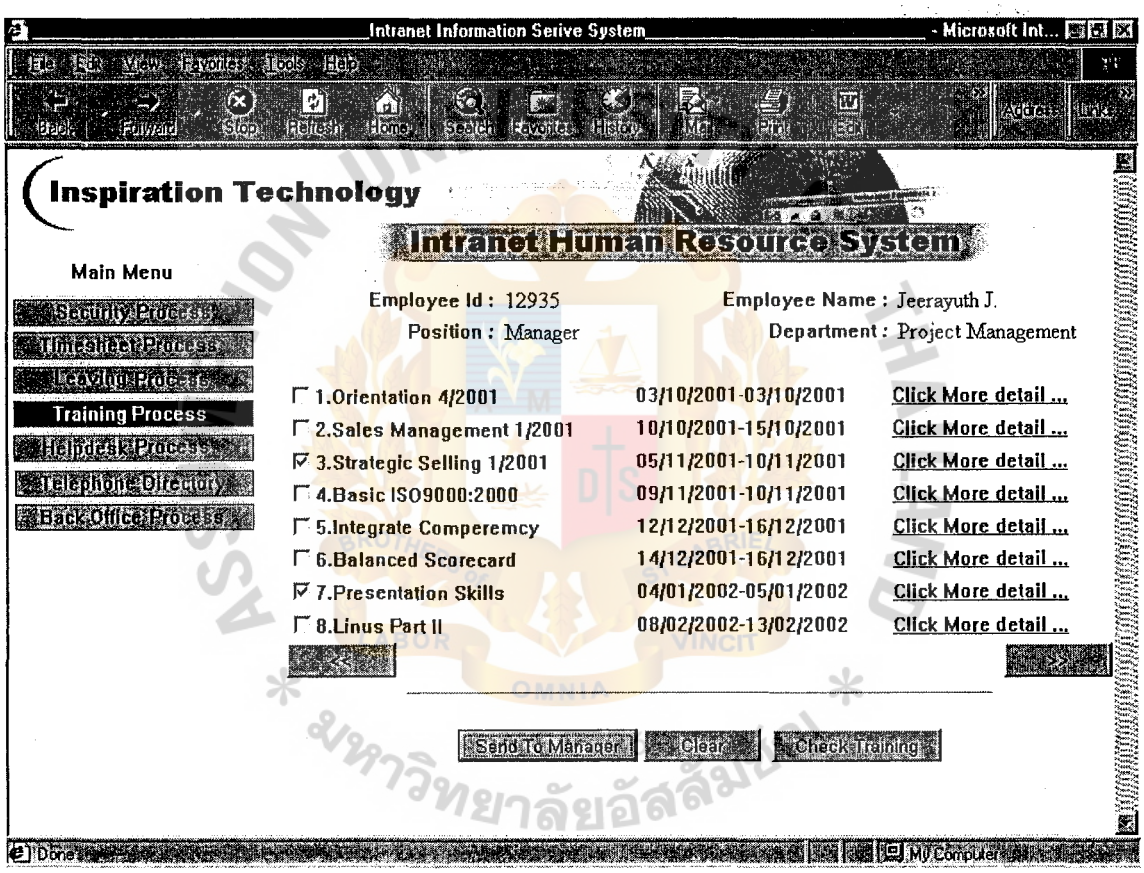



Figure F.5. Training Screen.

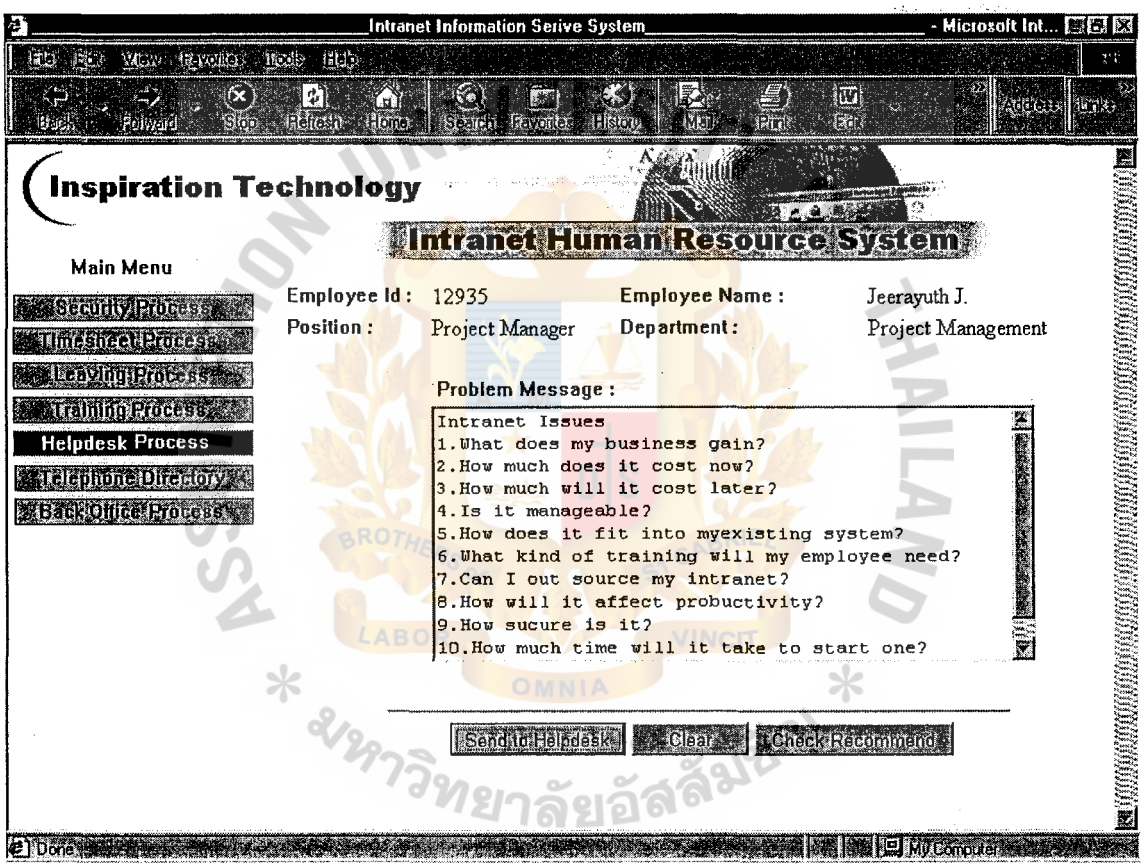



Figure F.6. Helpdesk Screen.

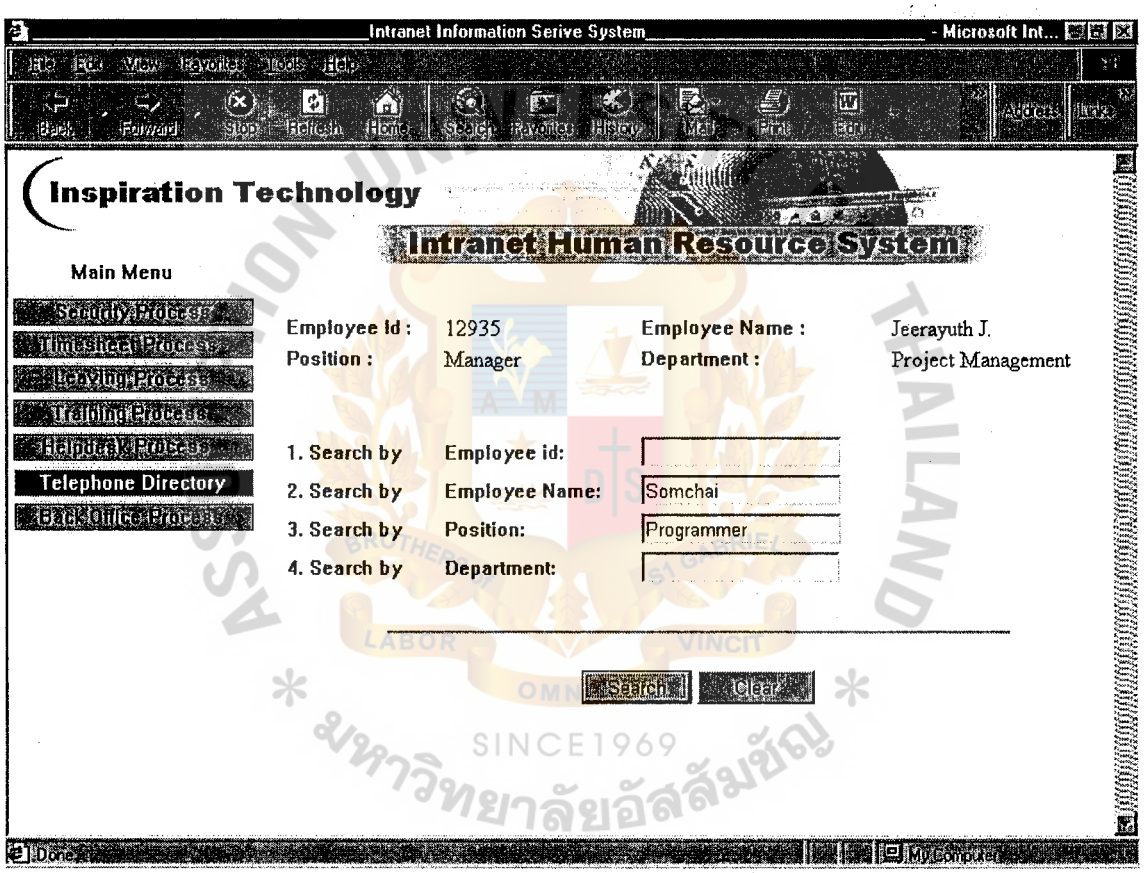



Figure F.7. Telephone Directory Screen.

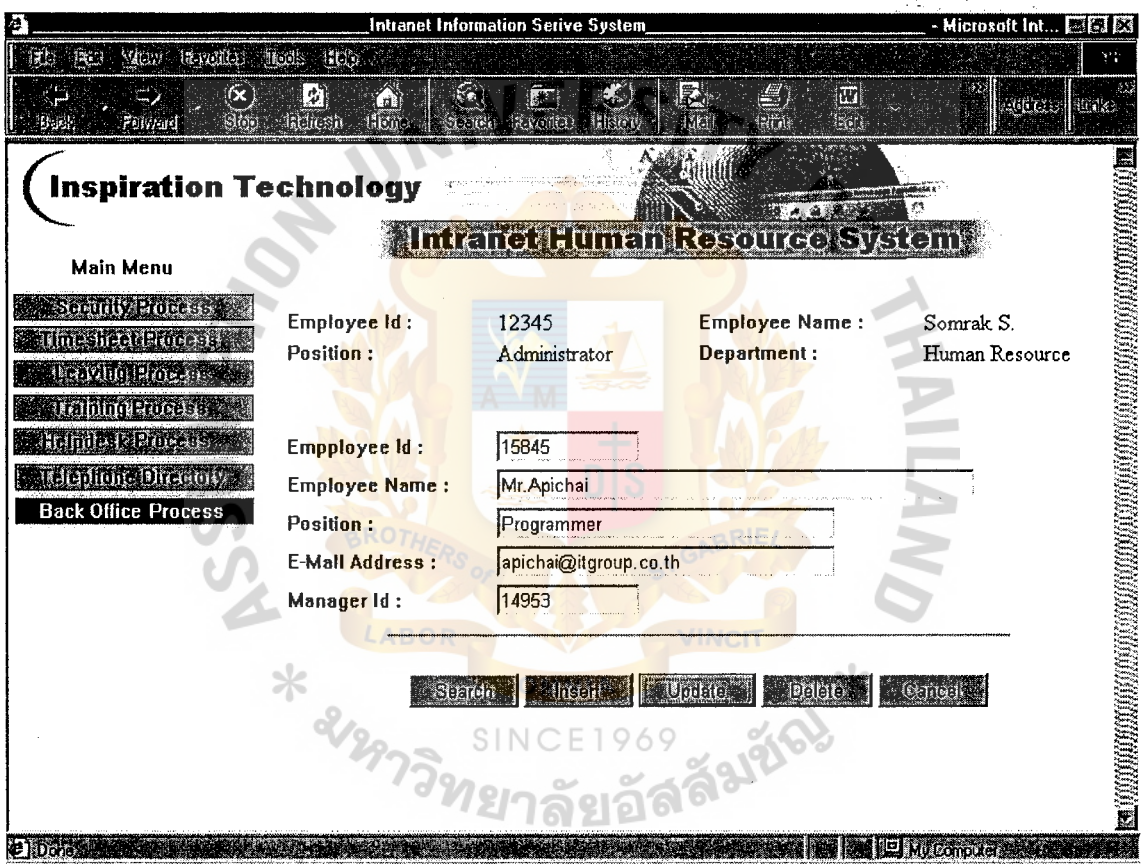
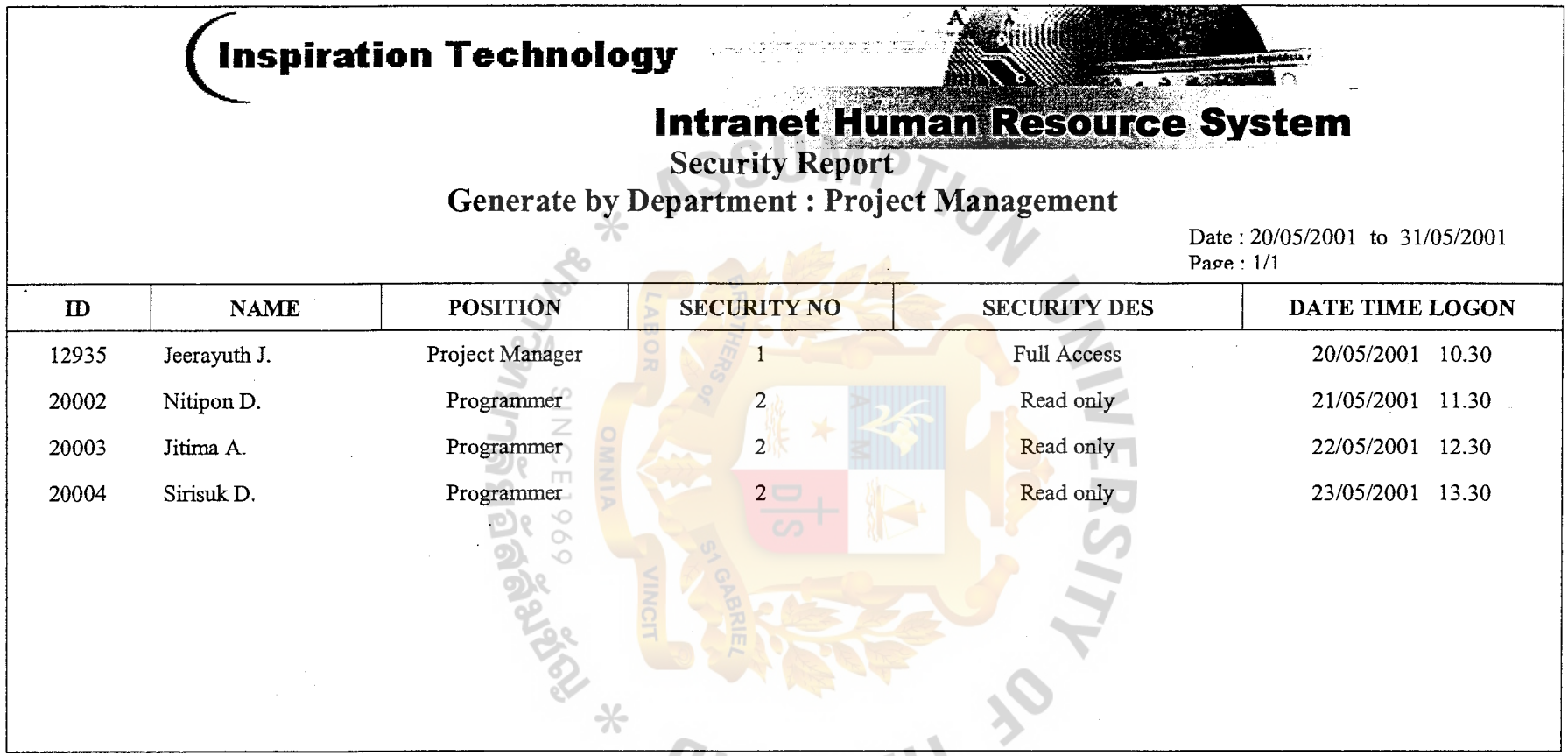



Figure F.8. Back Office Screen.

# APPENDIX G

REPORT DESIGN




| ID | NAME | POSITION | SECURITY NO | SECURITY DES | DATE TIME LOGON |
|---|---|---|---|---|---|
| 12935 | Jeerayuth J. | Project Manager | 1 | Full Access | 20/05/2001 10.30 |
| 20002 | Nitipon D. | Programmer | 2 | Read only | 21/05/2001 11.30 |
| 20003 | Jitima A. | Programmer | 2 | Read only | 22/05/2001 12.30 |
| 20004 | Sirisuk D. | Programmer | 2 | Read only | 23/05/2001 13.30 |

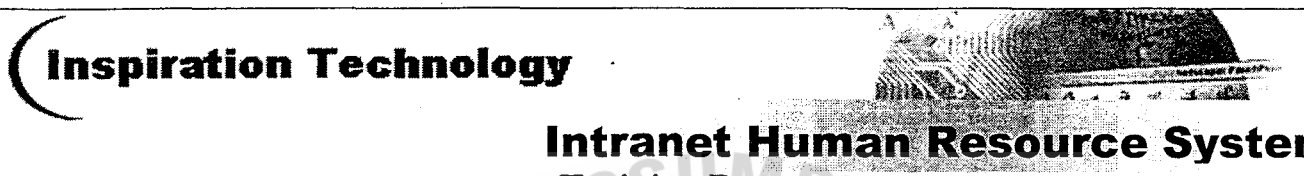
Figure G.1. Security Report Generated by Department.


**Leaving Day Report**
**Generate by Department : Project Management**

Date : 01/02/2001 to 30/06/2001
Page : 1/1

| ID | NAME | POSITION | LATE DAY | SICK LEAVE | ABSENT SEAVE | VACATION LEAVE |
|---|---|---|---|---|---|---|
| 20001 | Suhart S. | Programmer | 6 | 3 | 2 | 5 |
| 20002 | Nitipon D. | Programmer | 4 | 4 | 2 | 3 |
| 20003 | Jitima A. | Programmer | 3 | 1 | 2 | 3 |
| 20004 | Sirisuk D. | Programmer | 1 | 3 | 4 | 3 |

Figure G.2. Leaving Day Report Generated by Department.




**Intranet Human Resource System**

**Training Report**

**Generate by Department : Project Management**

Date : 01/02/2001 10.30
Page : 1/1

| DATE | COURSE ID | COURSE NAME | TRAINER ID | EMPLOYEE ID | NAME | POSITION |
|---|---|---|---|---|---|---|
| 10/02/2001 | 00001 | Basic Web Application | 12500 | 20001 | Suhart S. | Programmer |
| | | | | 20002 | Nitipon D. | Programmer |
| | | | | 20003 | Jitima A. | Programmer |
| | | | | 20004 | Sirisuk D. | Programmer |
| 15/02/2001 | 00002 | Advance Web Application | 12501 | 20001 | Suhart S. | Programmer |
| | | | | 20002 | Nitipon D. | Programmer |
| | | | | 20003 | Jitima A. | Programmer |
| | | | | 20004 | Sirisuk D. | Programmer |

Figure G.3. Training Report Generated by Department.

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