



# Hotel Personnel Information System for East Hotel

by

Mr. Chalernpol Wongmek

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

July, 2001

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Project Title                      Hotel Personnel Information System for East Hotel

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Project Advisor                  Air Marshal Dr. Chulit Meesajjee

Academic Year                  July 28, 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.

Approval Committee:



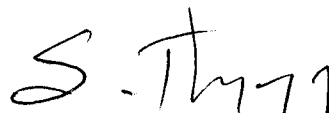
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July 28, 2001

## **ABSTRACT**

This system, Personnel Operational System, is developed from the manual system to be computerized for Personnel Department of East Hotel. The existing system in which processing, handling and filing are done manually causes many mistakes that are associated with manual operations. The new proposed system is developed to eliminate all those problems.

The study is mainly focused on computerization of the Personnel Operation. The existing system is studied and analyzed. The new system is designed to solve and minimize the problems in the existing system and provide accurate and timely information to the top executives for making decisions.

The areas of the proposed system are payrolls processing, filing information such as employees' records, employees' absented records, employee's late records, etc. and generating reports. This project consists of objectives and scope of the project, the company background, the existing business functions, the current problems and areas for improvement, the user requirements for the proposed system include system design, hardware and software requirement, security and control, system cost evaluation and comparison, etc.

## ACKNOWLEDGEMENTS

In preparing this project, the writer would like to express his appreciation to his project advisor, Air Marshal Dr. Chulit Meesajjee, who has contributed suggestions and recommendation to make this project successful.

The writer greatly appreciates the time, experience, and expertise provided by several prominent personnel of East Hotel for their great efforts and contributions.

The writer would also like to thank Assumption University for handling and arranging the Computer Information Systems Program to help the students understand more about computer technology and to apply the studied concept to the working environment today.



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## **I. INTRODUCTION**

### **1.1 Background of the Project**

An information system is composed of processes, data, computers, networks, and technology that help to improve a day-to-day operation and decision-making processes. The information system development has become one of the most popular subjects for many organizations, which are developing their own information systems to enhance their productivity.

In small and medium size hotels, right now there is a very little concern about the information system. However an information system is very important now in developed countries. So why don't we start it right now to have a service differentiation. A manual system may not give good service to customers or may not satisfy the executives to manage but a computerized system can guarantee that.

Personnel management is a core business function for hotels. Most of the work relates to personnel. For example new employees may not know what to do at first. Or even old employees may not work efficiently and effectively without personnel management. And to improve personnel department for a better management, an information system is needed.

To begin the system development for personnel department of the hotel is to analyze the existing system and design a new computerized system.

### **1.2 Objectives of the Project**

The main objective of the project is to design a computerized personnel information system for East Hotel for the executives to have on time reports for decision making and employees to work more efficiently and effectively. Moreover, there are some changes in the process that the old system does not support.

To achieve the objectives, several tasks are to be conducted in this project. The tasks are as follows:

- (1) To analyze the existing personnel system of East Hotel.
- (2) To study the present problems and the requirements of the company's staffs in case of using a computerized system to replace the manual system.
- (3) To identify the required software and hardware products, including a network to support a proposed system.
- (4) To design the GUI-based personnel information system to cover all requirements and preparing for the expansion of the system.
- (5) To implement the completely computerized system of the order processing information system.
- (6) To test the system for the real situation.

### **1.3 Scope of the Project**

The scopes of the project is limited to the system of personnel information system, which starts from, recruiting employees, checking the employees background such as addresses, identification cards, education, etc. Calculate the salary for the employees.

The lists of our scope are as below:

- (1) Maintaining employee's information records.
- (2) Calculate the salary for each employee.
- (3) Recording the employee's absence.
- (4) Displaying some query results on screen.
- (5) Selecting candidates to be employed.

### **1.4 Deliverables**

The deliverables for the project on Personnel Information System for East Hotel are as follows:

- (1) Personnel information system
- (2) Employee database
- (3) Designing user interface
- (4) System objective
- (5) Salary report
- (6) A software package that is sold in the IT market
- (7) Input and Output screen design

#### 1.4.1 Input:

- (1) Employee's background
- (2) Employee's salary rate
- (3) Jobs information for each employee
- (4) Hotel Policy
- (5) Absence requested information

#### 1.4.2 Output

- (1) Updated employees detail
- (2) New employees record
- (3) Salary report
- (4) Employee Report
- (5) Requested personnel report

### 1.5 Project Plan

This project plan of East Hotel Company Limited: Personnel Information System is given in Figure 1.1.

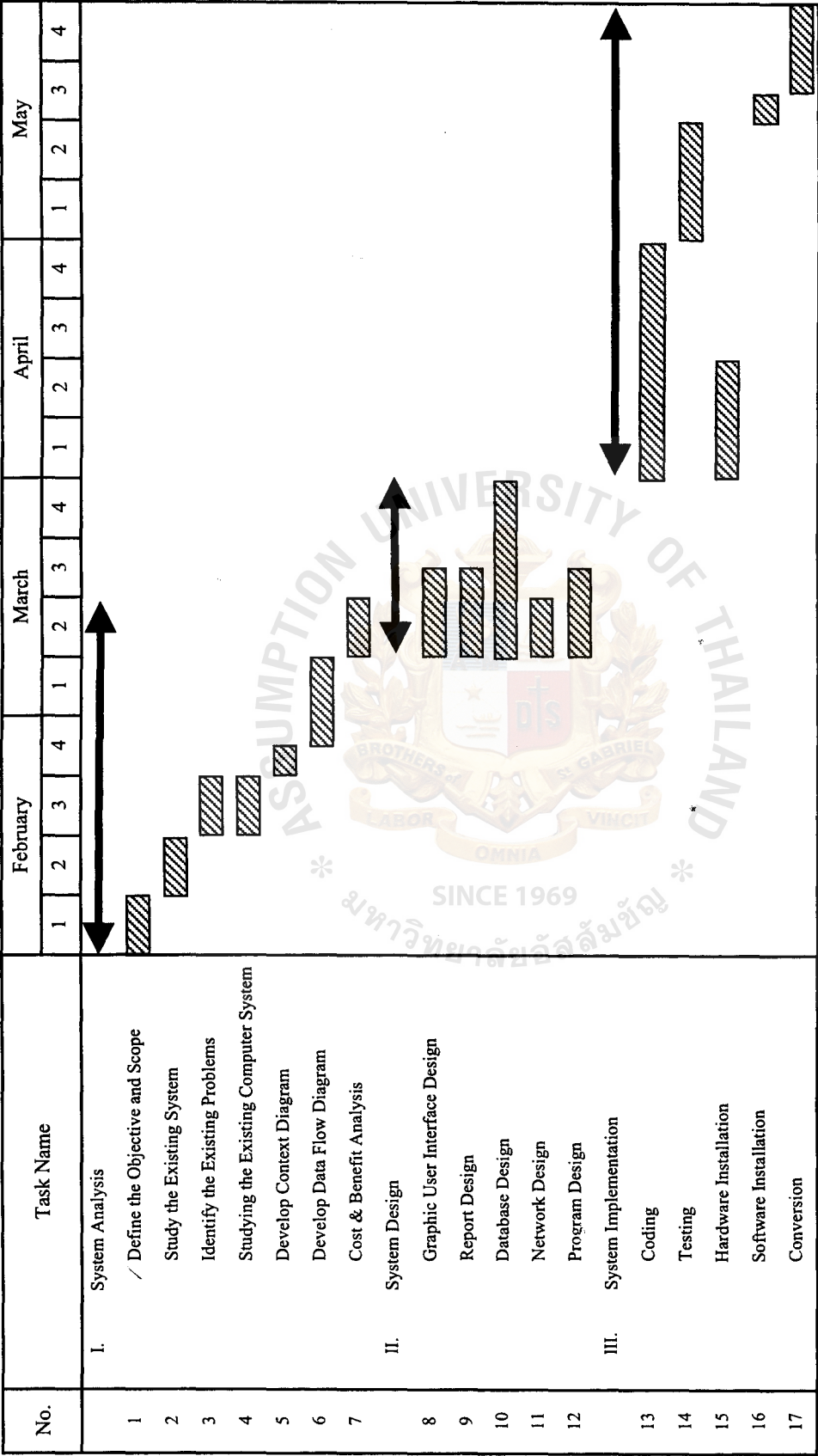


Figure 1.1. Project Plan for Personnel Information System for East Hotel.

## II. THE EXISTING SYSTEM

### 2.1 Background of the Organization

East Hotel Company Limited has been established since 1976. This hotel is located in Chantaburi province. East Hotel has room capacity of 142 rooms, so it is a middle size hotel. The ground floor is hotel lobby, restaurant and coffee shop. In the second, there is a banquet hall that can serve 500 peoples and nightclub. Finally, from the third floor to ninth floor are the hotel rooms. Especially on the fourth floor, there is a big swimming pool. There are special services that are provided for guests are as follows:

- (1) Room service, laundry and ironing service
- (2) Telephone capable of connecting with internal & external telephone through the hotel private switch board
- (3) Safe deposit service

The guests are Thai people and foreigners that come to do business at Chantaburi.

The room rate of East hotel are as follows:

- (1) Twin room rate 550 Baht

#### Room specification

The standard room has air conditioning, television with 12 channels from cable, two single beds, private bath and shower with hot/cold water.

- (2) Suite room rate 825 Baht

#### Room specification

The suite room is bigger in size than standard room. This room has air conditioning, television with 12 channels from cable, refrigerator, two single beds, private bath and shower with hot/cold water.

- (3) VIP room rate 1,300 Baht

Room specification

The VIP room is of size and more private and comfortable. This room has air conditioning, television with 12 channels from cable, two single beds, private bath and shower with hot/cold water.

- (4) VIP Deluxe room rate 1,700 Baht

Room specification

The VIP Deluxe room is a larger size rooms in the hotel, more private and comfortable. This room has air conditioning, television with 12 channels from cable, sofa, two single beds, private bath and shower with hot/cold water.

## 2.2 Organization

There are 7 departments under the Managing Director's control. They are Accounting Department, Marketing Department, Personnel Department, Front office Department, Housekeeping Department, Maintenance Department and F&B Department.

- (1) Front-office Department

This department takes care of all activities about the reservation, check-in and check-out process.

- (2) Marketing Department

Marketing Department takes charge of marketing strategy. Its main responsibilities are making marketing plan of hotel.

(3) Personnel Department

Personnel Department is responsible for manpower management that is concerned with recruiting, keeping employee record, supporting payroll system, providing social welfare, provident fund and life insurance.

(4) Accounting Department

Its major responsibilities of Accounting Department are about controlling and recording all hotel accounting and cash flow of the hotel.

(5) Housekeeping Department

This department is responsible for the cleanliness and completeness of room and all area in the hotel that the room will be made by maid and the others except the room is responsible by cleaner.

(6) Maintenance Department

This department is responsible for fixing all equipment in the hotel both in the room and outside the room.

(7) Food and Beverage Department

This department is responsible for the food and beverage service to the guests both normal service and banquet.

The organization chart will be shown in Figure 2.1.

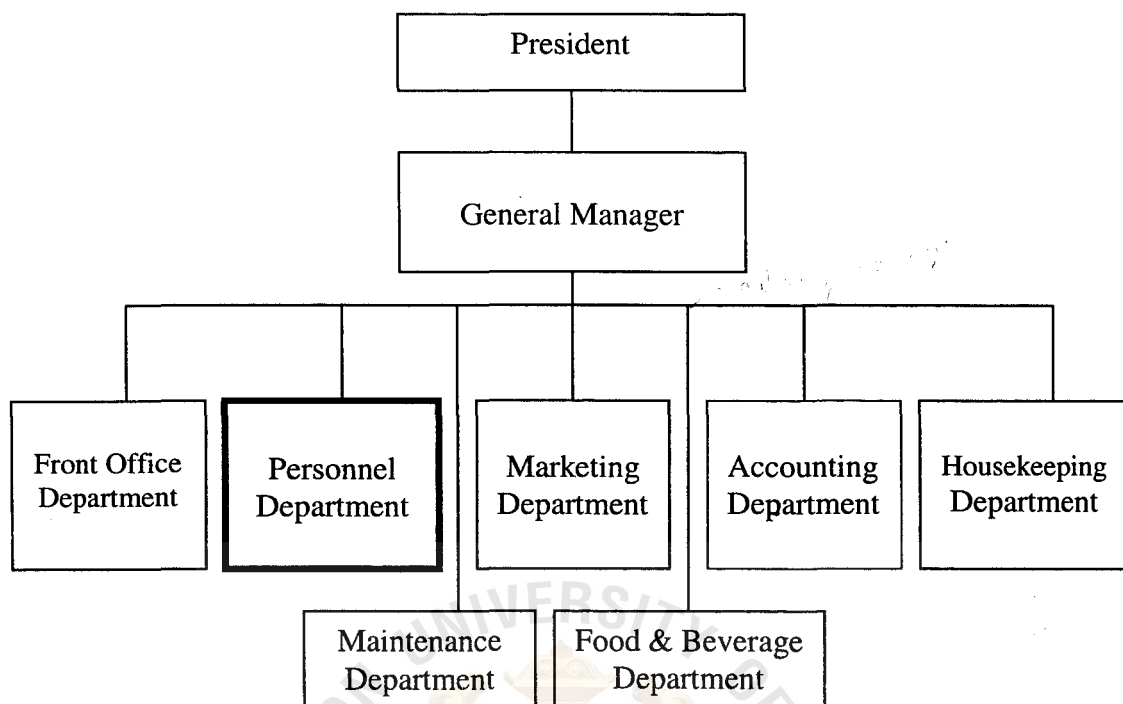


Figure 2.1. Organization Chart.

## 2.3 Current Problems and Areas for Improvements

### Current Problems

After discussion and interview with the personnel involved are completed, the current problems of the existing Personnel Controlling System can be identified as follows:

- (1) Inaccuracy and unavailability of information needed

If timely and accurate information cannot be provided to top management for decision making, then, the decision may be full of mistakes. With the current system, it is very difficult to support all information within the time. Sharing information with several users at the same time is impossible in the current system.

(2) Too much paper work

Most information concerning employees are 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.

(3) Repetitive work

Some work may be done repetitively which creates inaccurate information and some data are lost in the process.

(4) Unsmooth workflow

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

(5) Not enough facility to support workflow

Due to the manual operation, all the work can be done very slowly. It is very difficult and takes more time in filing and searching for the information needed. There is no convenient equipment to increase speed of work.

(6) Lack of security control

The existing system still does not have a good measure to make security control. The information can be damaged and lost easily.

(7) Ineffective personnel

The personnel in the department seem to be sufficient but the productivity is quite low. So, it can cause the operation costs to be higher.

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

When the Personnel 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 is caused from improper filing.

(9) Human errors

Personnel staffs can make mistakes during recording employees' information or making reports. Poor handwriting can make a big trouble.

Areas for Improvements

The existing Personnel Controlling 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.

Personnel 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 to do 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 Personnel Department. So, the personnel staffs must learn to use them effectively. This can reduce the mistakes occurred from human errors and smooth 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.

## **2.4 Existing Personnel Information System**

The area under study of this project covers all functions of the personnel department of the hotel including payroll, management of human resource, recruitment, etc. The personnel department deals with all the information needed for all the employees and training new employees to be able to work in high performance and calculate the salary of employees. The existing business functions of the personnel department are as followed:

- (1) Maintaining the information of employees including create, update, and delete manually.
- (2) Calculate salary of employees manually.
- (3) Keep information of employees in document form.
- (4) Maintaining all information that employees should know.
- (5) Manage human resources by the policy of the hotel.
- (6) Advertise for employment.
- (7) Make decisions for employees who want to be absent.
- (8) Report all necessary information to executive.

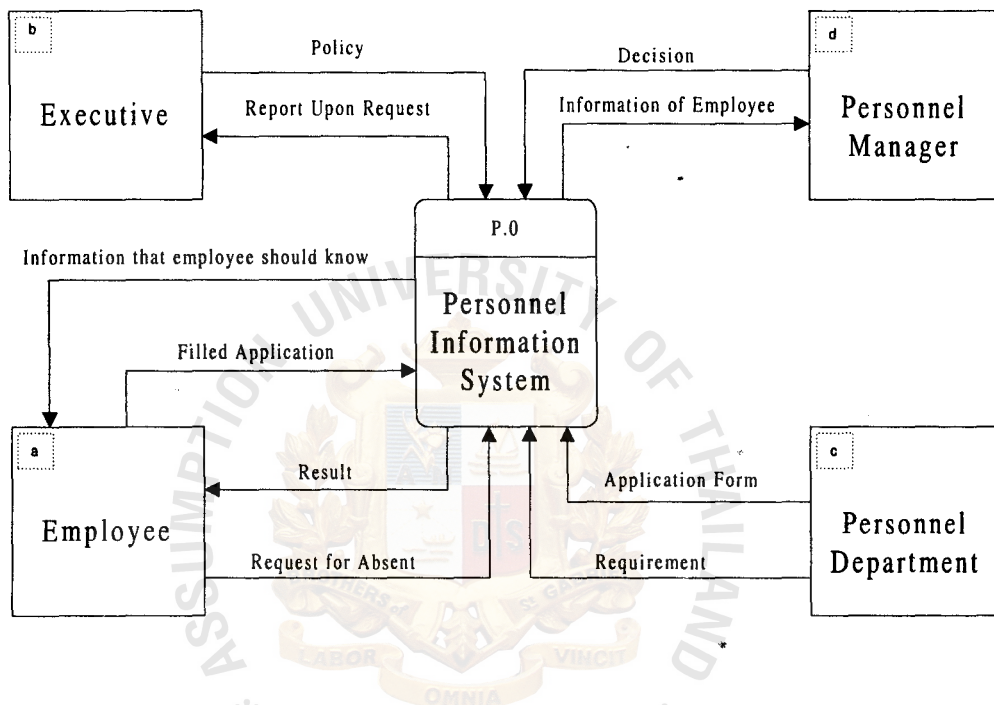


Figure 2.2. Context Diagram of the Existing System.

### **III. THE PROPOSED SYSTEM**

#### **3.1 User Requirements**

The requirement of the proposed system is to change from manual system to a computerized system because of many reasons. First is to reduce the amount of paper. Second is to ease the searching process. Third is to increase the security accessing data from unauthorized persons and etc. Jobs of personnel department are very sensitive so that the requirement from user is a must in order to have a good designed system.

The user requirements can be defined as follows:

- (1) The system can keep the information of each employee from each department.
- (2) The system can search and update the information of each employee easily.
- (3) The system can reduce the amount of paper work.
- (4) The system can store the information of each employee securely and not allow unauthorized persons access to the sensitive data.
- (5) The system can provide more accuracy of information.
- (6) There must be some ways to keep, protect and back up the information and recover it when information is damaged or lost.
- (7) There should be a utility to help and support the inputting process in order to reduce human errors and increase the speed of work.
- (8) The system can calculate the salary of each employee.
- (9) The reports needed by executive can be produced correctly and on time.

### 3.2 System Design

The new project system design is concerning with the area of “Personnel System” of East Hotel. The process is designed to eliminate some repetitive tasks in order to increase productivity and reliability. The context diagram of the proposed system is shown in Figure 3.1 and the details of their processes are shown in Figure 3.2.

Figure 3.1 shows the proposed Personnel System of East Hotel. This system is now a computerized system.



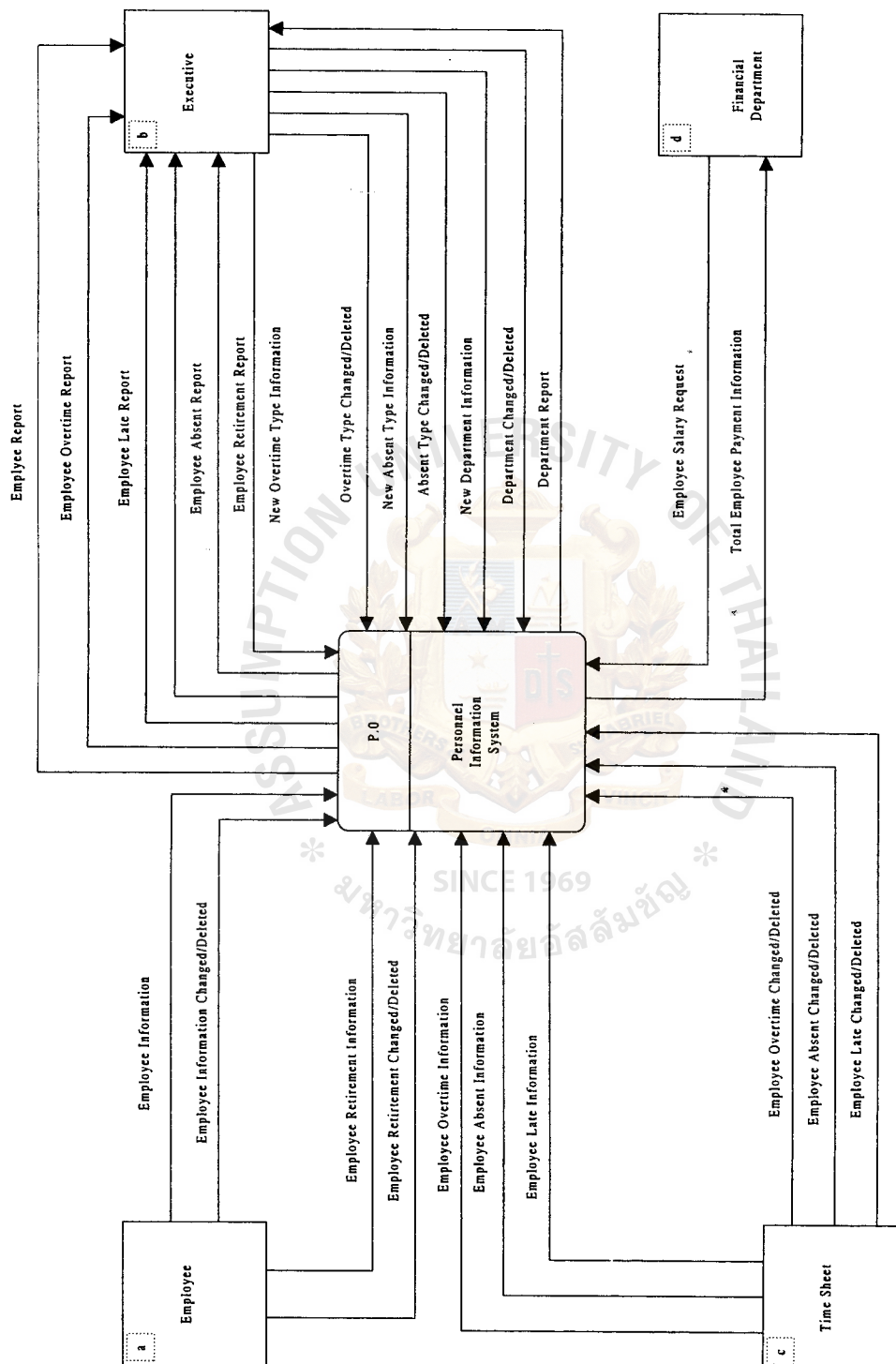


Figure 3.1. Context Diagram of Personnel Information System.

The differences between the existing system and the new proposed system are described as follows:

(1) The number of departments involved manually

The new proposed system has eliminated the number of departments that are involved manually in the system. In the existing system, all departments have to submit the time sheet to the system at the end of the week. This can cause some human errors or mistakes and delay in the process. For the new system, the time recorder is used. Then, the need for time sheets disappears. All the work time of employees in each department can go to the system immediately and correctly.

(2) The need for time sheet

In the existing system, the time sheets are needed for every department for their employees to sign up their work time on time sheets every day. This activity is quite expensive and provides a high chance of cheating. The proposed system eliminates the need for time sheets. All the employees' work time go directly to the system through time recorder.

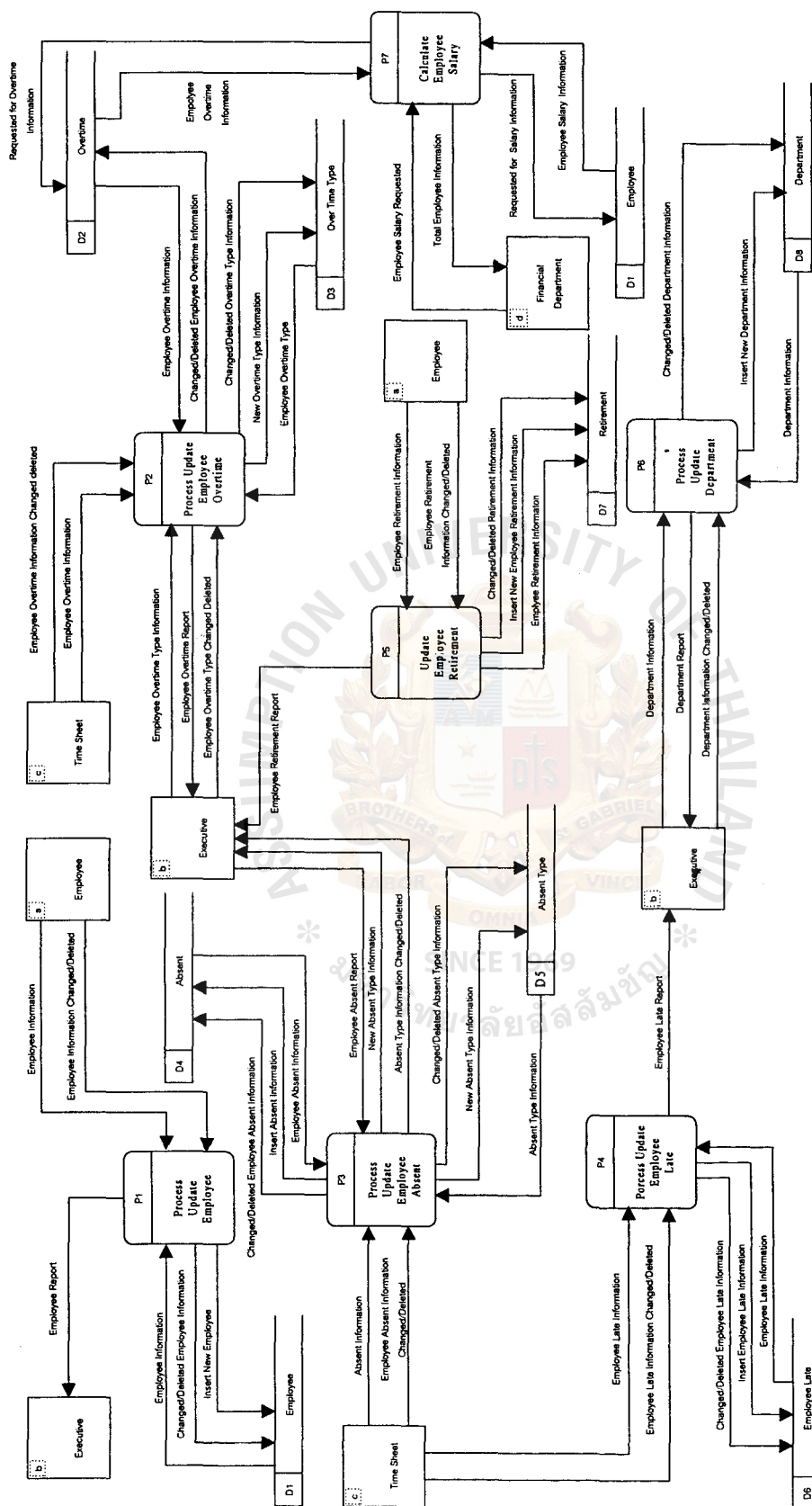
(3) The way reports are produced

The existing system has problems when many departments need the reports at the same time. Due to being a manual system, all the personnel have to write the reports manually; consequently, the reports have rough handwriting, and contain lots of mistake and take a long time. For the proposed system, computers have generated all reports. It is faster and highly accurate to produce.

The details of the new proposed system are shown in Figure 3.2. The main process of the proposed system of “Personnel System” can be divided into seven processes as follows:

- (1) Update employee information
- (2) Update employee overtime work
- (3) Update employee absent
- (4) Update employee late
- (5) Update employee retirement
- (6) Update departmental information
- (7) Calculate employee salary





**Figure 3.2. Data Flow Diagram Level 0 of the Proposed System.**

The data flow diagram for all seven processes can be seen in Figure 3.2. All of those seven processes above will be described as follows:

#### Process 1.0 Update employee information

For this process, there still are three processes that are:

- 1.1 Process create employee information
- 1.2 Process edit employee information
- 1.3 Process generate report of employee information

The data flow diagram for this process can be seen in Figure B.1

The process starts when the hotel hires new employees, the information of employees must be kept in the employee's database by using process 1.1 process create employee information. And if old employees want to change their information we can use process 1.2 process edit employee information to change employee's information in the employee's database. For generating report, the process generate report of employee information, process 1.3, will take the information from employee's database and send to executive.

#### Process 2.0 Update employee overtime

For this process, there still are seven processes that are:

- 2.1 Process create overtime type
- 2.2 Process edit overtime type
- 2.3 Process delete overtime type
- 2.4 Process input overtime information
- 2.5 Process edit overtime information
- 2.6 Process delete overtime information
- 2.7 Process generate report of overtime information

The data flow diagram for this process can be seen in Figure B.2

This process starts first at personnel department must enter information about overtime rate by using process 2.1, process create overtime type, to be inputted in overtime type database. And also personnel department is responsible for editing and deleting overtime type information in overtime type database by using process edit overtime type, process 2.2, and process delete overtime type, process 2.3. And after that when employees have done overtime work, time sheets are needed for inputting overtime information in overtime database by using process input employee overtime information, process 2.4. And if there are some inputting mistakes, employee overtime information can be edited and deleted by using process edit employee overtime information, process 2.5, and process delete employee overtime information, process 2.6. For generating report, the process generate report of employee overtime information, process 2.7, will take the information from employee's database and send to executive.

#### Process 3.0 Update employee absent

For this process, there still are seven processes that are:

- 3.1 Process create absent type
- 3.2 Process edit absent type
- 3.3 Process delete absent type
- 3.4 Process input employee absent
- 3.5 Process edit employee absent
- 3.6 Process delete employee absent
- 3.7 Process generate report of employee absent

The data flow diagram for this process can be seen in Figure B.3

This process starts first at personnel department which must enter information about absence by using process 3.1, process create absence type, to be inputted in

absence type database. And also personnel department is responsible for editing and deleting absence type information in absence type database by using process edit absence type, process 3.2, and process delete absence type, process 3.3. And after that when employees have been absent, time sheets are needed for inputting absence information in absence database by using process input employee absence information, process 3.4. And if there are some inputting mistakes, employee absence information can be edited and deleted by using process edit employee absence information, process 3.5, and process delete employee absence information, process 3.6. For generating report, the process generates report of employee absence information, process 3.7, will take the information from employee absence database and send to executive.

#### Process 4.0 Update employee late

For this process, there still are four processes that are:

- 4.1 Process input employee late information
- 4.2 Process edit employee late information
- 4.3 Process delete employee late information
- 4.4 Process generate report of employee late information

The data flow diagram for this process can be seen in Figure B.4

This process starts when employees are late, time sheets are needed for inputting late information in employee late database by using process input employee late information, process 4.1. And if there are some inputting mistakes, employee late information can be edited and deleted by using process edit employee late information, process 4.2, and process delete employee late information, process 4.3. For generating report, the process generates report of employee late information, process 4.4, will take the information from employee late database and send to executive.

#### Process 5.0 Update employee retirement

For this process, there still are four processes that are:

- 5.1 Process input employee retirement information
- 5.2 Process edit employee retirement information
- 5.3 Process delete employee retirement information
- 5.4 Process generate report of employee retirement information

The data flow diagram for this process can be seen in Figure B.5

The process starts when employees are retired, the employee retirement information must be kept in employee retirement data base by using process input employee retirement, process 5.1. And if there are some inputting mistakes, employee retirement information can be edited and deleted by using process edit employee retirement information, process 5.2, and process delete employee retirement information, process 5.3. For generating report, the process generates report of employee retirement information, process 5.4, will take the information from employee retirement database and send to executive.

#### Process 6.0 Update departmental information

For this process, there still are four processes that are:

- 6.1 Process create departmental information
- 6.2 Process edit departmental information
- 6.3 Process delete departmental information
- 6.4 Process generate report of departmental information

The data flow diagram for this process can be seen in Figure B.6

The process starts when executive wants to create new department, all the information about that department must be inputted into department database by using process create new departmental information, process 6.1. And if executive wants to

edit some information about department, it can also be done by using process edit departmental information, process 6.2. And also if executive wants to delete department, using process delete departmental information, process 6.3, can do it. For generating report, the process generates report of departmental information, process 6.4, will take the information from department database and send to executive.

#### Process 7.0 Calculate employee salary

For this process, there still are two processes that are:

7.1 Process accept request salary information

7.2 Process calculate employee salary

7.3 Process generate report of employee salary

The data flow diagram for this process can be seen in Figure B.7

The process starts at the end of each month, first finance department may request information about employee salary and overtime information from employee database and overtime database by using process accept request salary information, process 7.1. After that all information needed will pass through process calculate salary, process 7.2, for calculating salary and send to finance department. For generating report, the process generates report of employee salary information, process 7.3, will take the information from department database and send to executive.

#### Application Architecture

##### Network Architecture

The company applies Client/Server network architecture using Ethernet's Star Topology. The operating system that the company uses as network OS is Microsoft Windows NT Server. And all the clients OS is Microsoft Windows 98. The network configuration is shown in Figure 3.3.

From Figure 3.3, there is one server connecting with five workstations. The computer server is located in the computer room of Personnel Department. Two computer are in personnel room for personnel staffs. Another one is in personnel manager room. Another one is in executive room.

Moreover, the database server, instead of file server, is installed to store the data so that all database commands will be executed on this database server and returns only the result of the database command processing. The database servers generate much less network traffic.



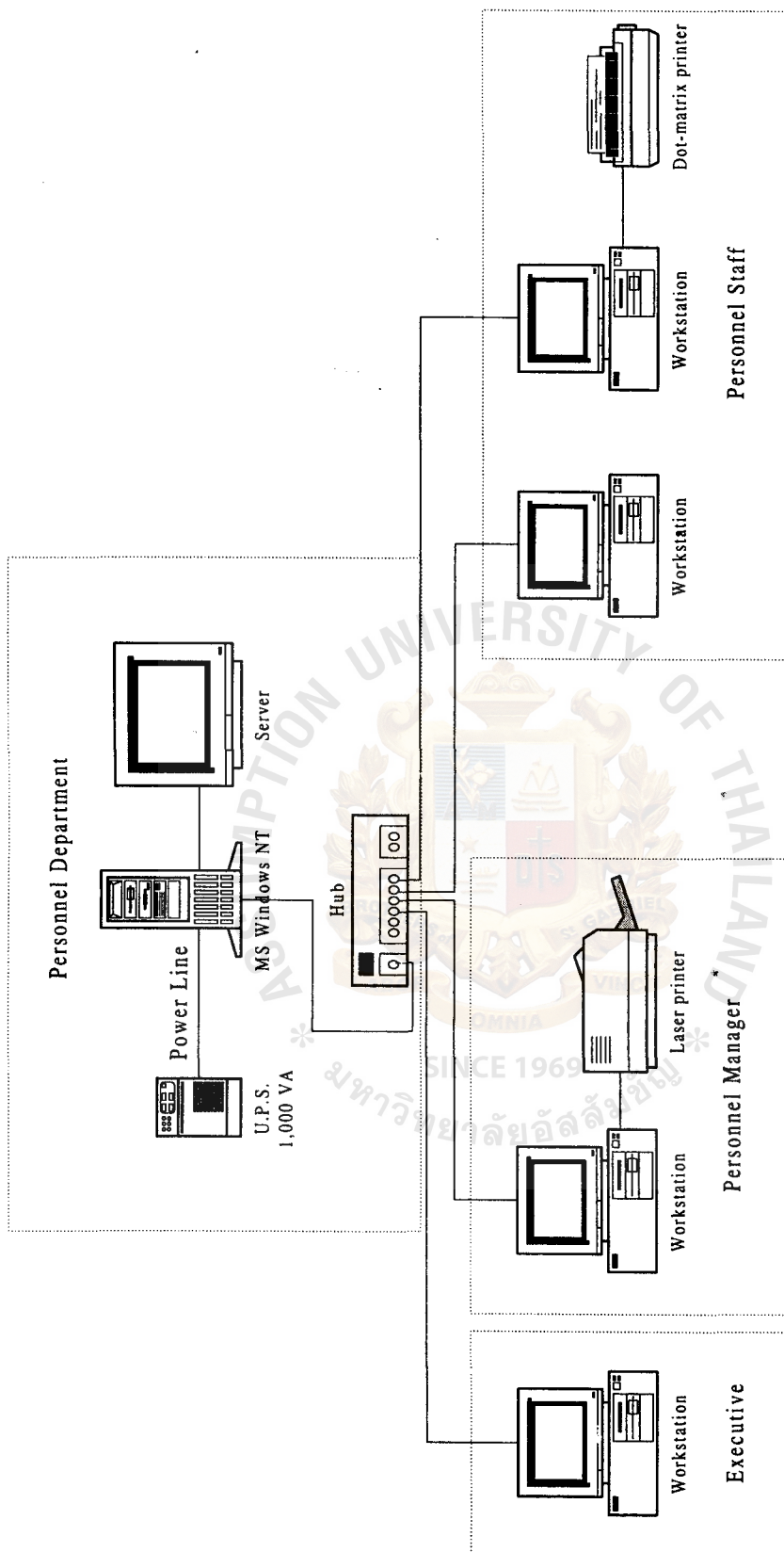


Figure 3.3. Network Configuration.

## Data Architecture

The company uses RDBMS or Relational Database Management System (Microsoft SQL Server) as our database server that can control access to and maintenance of the data stored. The feature of this system is that it can guarantee high security and integrity. The users can backup and recover the data easily.

## Interface Architecture

Now that all the interface of new OS such as Microsoft Windows NT and Microsoft Windows 95 are all GUI or Graphic User Interface, it is easy for the user to communicate with applications in the computer.

Because of the Client/Server technology the interface of the system is on-line processing. It is easier to detect errors and correct those errors than batch processing which require more human interaction.

## Process Architecture

The company chooses SDEs for Two-tier Clients/Server application composed of a client based programming language with built-in SQL connectivity to database server of the company.

### 3.3 Hardware and Software Requirements

#### 3.3.1 Hardware Requirement

- |  |        |
|--|--------|
| (1) Computer for server (already exist in computer department) | 1 Unit |
| (a) Pentium III 800 MHz  |        |
| (b) Memory 128 MB SDRAM  |        |
| (c) Hard Disk 20 GB (UDMA)ATA100                               |        |
| (d) Floppy Disk Drive 1.44 MB                                  |        |
| (e) VGA Card TNT2 16 MB  |        |
| (f) Monitor 15"  |        |

- (g) 50X CD ROM
- (h) Mouse, Keyboard 108 Keys
- (2) Computer for workstation 4 Units
  - (a) Pentium III 600 MHz
  - (b) Memory 64 MB SDRAM
  - (c) Floppy Disk Drive 1.44 MB
  - (d) Hard Disk 20 GB
  - (e) VGA Card TNT2 16 MB
  - (f) Monitor 15"
  - (g) Mouse, Keyboard 108 keys
- (3) Printer 2 Units
  - (a) Epson (Dot Matrix printer)
  - (b) Hewlett Packard (Laser printer)
- (4) Scanner 1 Unit
- (5) Time recording machine for telephone 1 Unit
- (6) Network interface card 5 Units
  - (a) Linksys NC100
- (7) Hub 1 Unit
  - (a) Linksys 24 ports
- (8) UPS, 1,000 VA 1 Unit
- (9) Category 5 UTP cable
- (10) RJ45 Connector 10 Units

### 3.3.2 Software requirements

- (1) Operating System
  - (a) Microsoft Windows NT server 4.0

- (b) Microsoft Windows 98
- (2) System Development Software
  - (a) Visual Basic for Application in Microsoft Office 2000
- (3) Document Preparation Software
  - (a) Visio 5.0 Professional
  - (b) Visible Analysis
- (4) System Software
  - (a) Microsoft Office 2000

### 3.4 Security and Control

Security and control are divided to three types as follows:

- (1) Operational security
- (2) Data security
- (3) User security

#### Operational Security

This type of security protects hardware and software from either intentional or inadvertent threats. At this level of security, three more securities can be classified as follows:

- (1) Password security
  - (a) Before entering system, the users need to login with their usernames and passwords. The usernames can identify the status of the users as to what data they can read, what data they can write or what data they can do both read and write. Unauthorized persons are not allowed to enter into the system. Mostly, the users are the personnel staffs.
  - (b) The users should change their passwords frequently and do not let others know their passwords.

(2) Hardware security

- (a) The computer should be turned off after use.
- (b) Always keep doors locked after use and restrict visitors' access to personnel
- (c) Room.
- (d) UPS are used in order to smooth the system and prevent the damage occurring from electricity problems.

(3) Software security

- (a) Always keep the system programs in a safe place in order to protect from unauthorized access or modification.

Data Security

- (1) Backup data everyday in order to prevent data lost and to make a recovery when data are damaged.
- (2) Restrict access to certain data items such as read only data access.
- (3) Security logs of all changes made to data items.

User Security

- (1) Personnel staffs should be trained about the skill in using some hard ware in order to prevent human errors.
- (2) Inform users to know the danger of computer viruses and the procedures to manage and prevent them.

### 3.5 Cost and Benefit Analysis

East Hotel uses more transaction processing employee information that is of a very high cost in the existing system. So in the new proposed system, we will solve this problem by using a computer system to manage organization, data collection, input data and create report. To compare cost benefits of this proposed system, we need more

resources such as hardware, software, implementation cost, training course for our employees. For long term, we will get higher benefits than the costs.

### 3.5.1 Cost Analysis

The Cost of Hardware and Software:

The cost of new system consists of the development cost and projected annual operating cost.

#### Development Cost

Personnel:		Baht
(1) System Analyst	(1 month)	40,000
(2) System Designer	(1 month)	40,000
(3) Programmer	(1 month)	40,000
(4) Network Specialist	(1 month)	30,000
Total cost of building system		150,000

Hardware and Software:		Baht
(1) Pentium III 800 MHz for server	(1 unit)	50,000
(2) Pentium III 600 MHz for workstation	(4 units)	120,000
(3) Dot Matrix Printer	(1 unit)	20,000
(4) Laser Printer	(1 unit)	30,000
(5) Hub (Linksys 24 ports)	(1 unit)	25,000
(6) Network Interface Card (Linksys NC100)	(5 units)	5,000
(8) UTP Cable		2,000
(9) UPS, 1,000 VA	(1 unit)	16,000
(10) RJ45 Connector	(10 units)	500
(11) Microsoft Windows NT Server	(1 unit)	10,000
(12) Microsoft Windows 98 (Thai Edition)	(4 units)	10,000

		Baht
(13) Microsoft Office 2000 (Thai Edition)	(4 units)	68,000
(14) Microsoft SQL Server 7		30,000
(15) Hardware Installation		20,000
(16) Software Installation and Training		20,000
Total cost of installing the system		426,500
Project Annual Operating Cost (First Year)		Baht
(1) Maintenance Service for Hardware		20,000
(2) Maintenance Service for Software		9,000
(3) Computer Accessories and Supplies		5,000
Total Operating and Maintaining Cost		34,000
Total Cost of the Proposed System		610,500

### 3.5.2 Benefit Analysis

The benefits for new computerize system can be divided into tangible benefits and intangible benefits.

#### Tangible Benefits:

This kind of benefit is measurable advantage in value (Baht). After implementation of the new system for East Hotel, we will get benefits as follows:

- (1) Saving on additional employees (yearly basis). The computerized system reduces the cost of hiring new employees.

Cost saving for 2 additional staffs (14,000/month\*12)

Total cost saving for 2 additional staffs per year = 180,000 Baht

- (2) Reduce bulk of paper 60%

Cost Saving (5,000/month\*12\*.60) = 36,000 Baht

Total Tangible Cost Saving (yearly) 180,000 Baht

### Intangible Benefit:

For the hotel room service system of East Hotel, it will get intangible benefits as follows:

- (1) To provide new customer service; it makes customers more comfortable and high impression of this service.
- (2) To forecast and improve management planning activities.
- (3) High level security of data.
- (4) Increase job satisfaction for employees by eliminating tedious task.
- (5) To get more current and accurate information for operation and management levels for future plans.
- (6) Easy for organization technology expansion plan in the future.

You can see the detail in Table 3.1 The payback period is shown in Figure 3.4.

Table 3.1. Payback Analysis for Proposed System, Baht.

Cost Items	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Development cost:	-556,500	-	-	-	-	-
Operation & maintenance cost: (10% increase)	0	-34,000	-37,400	-41,140	-45,254	-49,779
Discount factor for 12%:	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value):	-556,500	-30,362	-29,808	-29,292	-28,782	-28,225
Cumulative time-adjusted cost over life time:	-556,500	-586,862	-616,670	-645,961	-674,743	-702,968
Benefits derived from operation of new system: (10% increase)	0	216,000	237,600	261,360	287,496	316,246
Discount factors for 12%:	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted benefits (adjusted to present value):	0	192,888	189,367	186,088	182,847	179,311
Cumulative time-adjusted benefit over life time:		192,888	382,255	568,344	751,191	930,502
Cumulative time-adjusted cost-benefits:	-556,500	-393,974	-234,415	-77,618	76,448	227,534

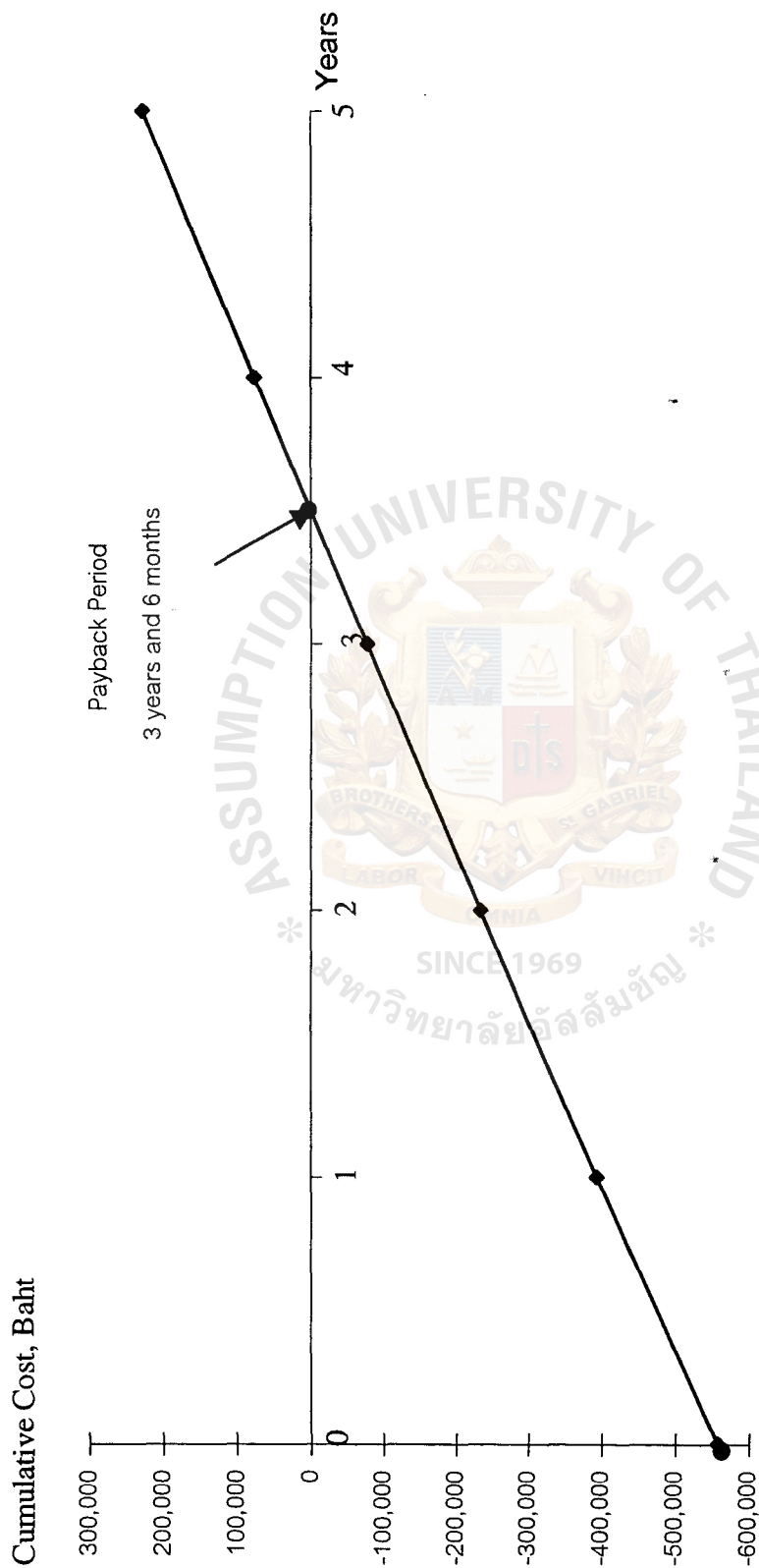


Figure 3.4. Payback Period Graph.

Table 3.2. Cost of Existing System, Baht.

Cost Items	Year 1	Year 2	Year 3	Year 4	Year 5
Personnel:(8% increase)					
1 Manager (12,000/month)	144,000	155,520	167,962	181,399	195,910
4 Officers (7,500/month)	360,000	388,800	419,904	453,496	489,776
Office Equipment:(10% increase)					
Paper	60,000	66,000	72,600	79,860	87,846
Stationery	6,000	6,600	7,260	7,986	8,785
Utility Cost(10% increase)	60,000	66,000	72,600	79,860	87,846
Total	630,000	682,920	740,326	802,601	870,163
Total Cumulative Cost	630,000	1,312,920	2,053,246	2,855,846	3,726,009

Table 3.3. Cost of Proposed System, Baht.

Cost Items	Year 1	Year 2	Year 3	Year 4	Year 5
Personnel:					
1 Manager (12,000/month)8% increase	144,000	155,520	167,962	181,399	195,910
2 Officers (7,500/month)8% increase	180,000	194,400	209,952	226,748	244,888
Implementation Cost	150,000	0	0	0	0
Hardware:					
1 Computer Server	10,000	10,000	10,000	10,000	10,000
4 Workstations	24,000	24,000	24,000	24,000	24,000
2 Printers	10,000	10,000	10,000	10,000	10,000
Other Equipments with UPS, 1000 VA	9,700	9,700	9,700	9,700	9,700
Hardware Installation	20,000	0	0	0	0
Hardware Maintenance(10% increase)	0	20,000	22,000	24,200	26,620
Computer Supplies(10% increase)	4,000	4,400	4,840	5,324	5,856
Software:					
Software	23,600	23,600	23,600	23,600	23,600
Software Installation & Training	20,000	0	0	0	0
Software Maintenance(10% increase)	0	9,000	9,900	10,890	11,979
Office Equipment:					
Paper (reduce60%) and (10% increase every year)	24,000	26,400	29,040	31,944	35,138
Stationery (10% increase)	6,000	6,600	7,260	7,986	8,785
Utility Cost increase 30% from existing and 10% every year	78,000	85,800	94,380	103,818	114,200
Total	703,300	579,420	622,634	669,609	720,677
Total Cumulative Cost	703,300	1,282,720	1,905,354	2,574,962	3,295,639

Table 3.4. The Comparison of the Cumulative Cost between Proposed System and Existing System, Baht.

Year	Existing System Cost	Proposed System Cost
1	630,000	703,300
2	1,312,920	1,282,720
3	2,053,246	1,905,354
4	2,855,846	2,574,962
5	3,726,009	3,295,639

The cost of the existing system is shown in Table 3.2 and the cost of the proposed system is given in Table 3.3. Using break-even analysis, which is shown in Table 3.4 and Figure 3.5., it will express that within two years the cost of the new system would reach the trade-off point and therefore the proposed system will become more economical to operate than the existing system.

#### Return on Investment (ROI) Analysis

This ROI analysis shows a percentage rate that measures the relationship between the amount of business obtained back from an investment and the amount invested. The ROI for this project is calculated as follows:

$$\text{ROI} = \frac{(\text{Estimated lifetime benefits} - \text{Estimated lifetime costs})}{\text{Estimated lifetime costs}}$$

$$\text{Estimated lifetime benefits} = 930,502$$

$$\text{Estimated lifetime costs} = 720,968$$

$$\begin{aligned} \text{Therefore, ROI} &= (930,502 - 720,968) / 720,968 \\ &= 0.316 \times 100 = 32\% \end{aligned}$$

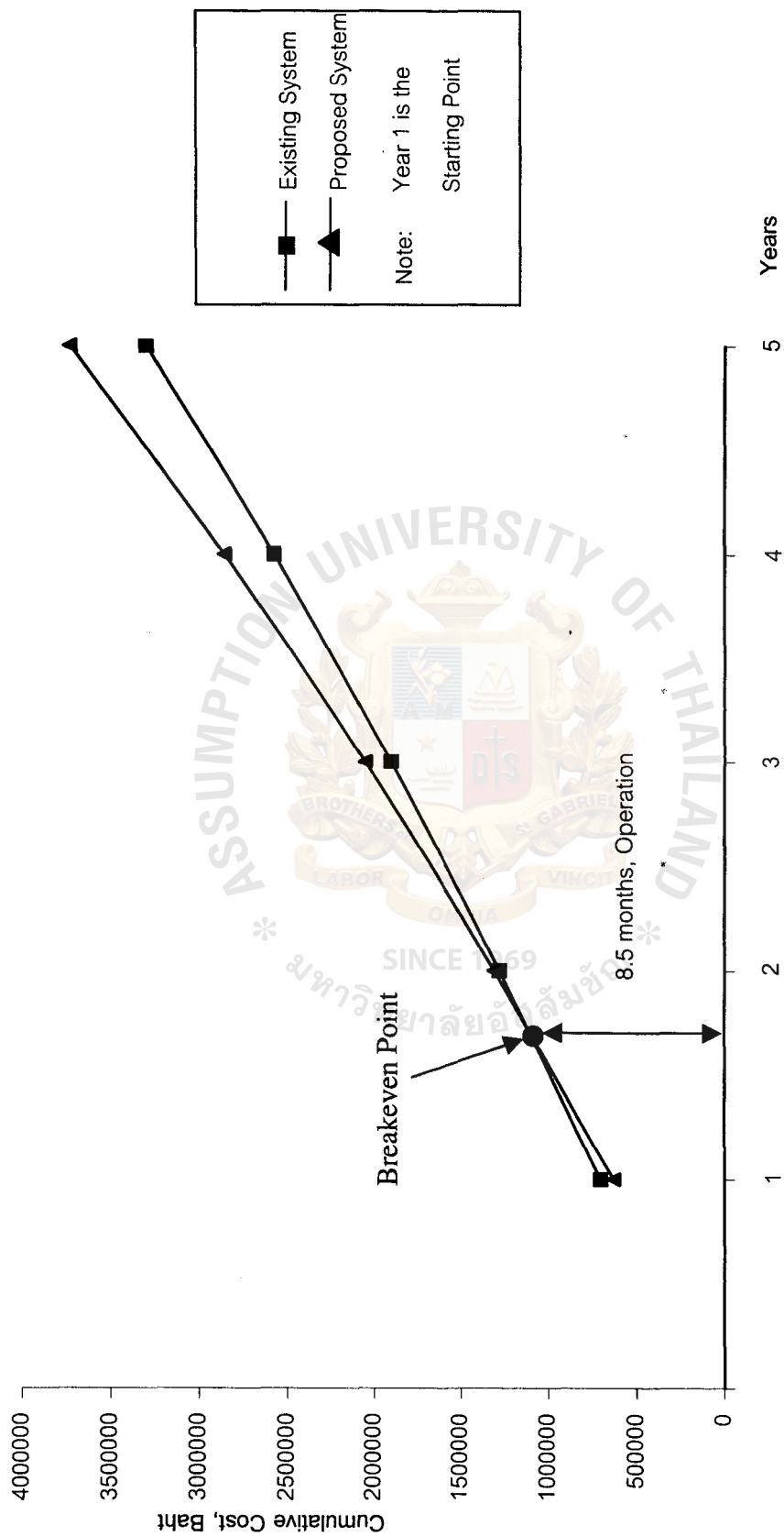


Figure 3.5. Cost Comparison between Existing System and Proposed System.

## **IV. PROJECT IMPLEMENTATION**

### **4.1 Programming the System**

The new proposed system is developed by using Microsoft Visual Basic for Application in Microsoft Access, which provides many facilities and is easy to use and can be applied for the requirement of users. There are tools for developing queries, screen templates and reports.

During system implementation, a new database designed will be built and tested, the input and output are constructed and the new programs will be written by using Microsoft Visual Basic for Application in Microsoft Access. Programmers must write and test all the programs carefully in which a few months may be required for these activities

The system can be divided into parts as follows:

#### **Employee**

Employee Record: It deals with the information of employees. The system provides three main functions.

- (1) Data entry: It is used for recording information of employees. The source of information comes from employees.
- (2) Data correction: It is used for editing the employees' information when employees want to change their information.
- (3) Data inquiry: It is used for checking some information of employees such as salary.

#### **Employee Overtime**

Employee Overtime Record: It deals with the information of employee overtime. The system provides three main functions.

- (1) Data entry: It is used for recording employees overtime information when employees have done overtime work. The source of information comes from time sheet.
- (2) Data Correction: It is used for editing employees overtime information when there was an inputting error.
- (3) Data inquiry: It is used for checking how many hours employees have done overtime work.

Employee Overtime Type Record: It deals with the information of employee overtime type. The system provides three main functions.

- (1) Data entry: It is used for recording information employee overtime type. The source of information comes from personnel manager.
- (2) Data correction: It is used for modifying employees overtime type information when personnel manager wants to have some change.
- (3) Data inquiry: It is use for checking how many overtime types there are.

#### Employee Absent

Employee Absence Record: It deals with the information of employee absence. The system provides three main functions.

- (1) Data entry: It is used for recording employees absent information when employees have been absent from work. The source of information comes from time sheet.
- (2) Data Correction: It is used for editing employees absence information when there was an inputting error.
- (3) Data inquiry: It is used for checking how many days employees have been absent from work.

Employee Absence Type Record: It deals with the information of employee absence type. The system provides three main functions.

- (1) Data entry: It is used for recording information about employee absence type. The source of information comes from personnel manager.
- (2) Data correction: It is used for modifying employees absence type information when personnel manager wants to have some change.
- (3) Data inquiry: It is use for checking how many absence types there are.

#### Employee Late

Employee Late Record: It deals with the information of late employee. The system provides three main functions.

- (1) Data entry: It is used for recording late employees' information when employees have done late work. The source of information comes from time sheet.
- (2) Data Correction: It is used for editing late employees' information when there was an inputting error.
- (3) Data inquiry: It is used for checking how many day employees have been late in work.

#### Employee Retirement

Employee Retirement Record: It deals with the information of employee retirement. The system provides three main functions.

- (1) Data entry: It is used for recording employees' retirement information when employees have been retired.
- (2) Data Correction: It is used for editing employees' retirement information when there was an inputting error.
- (3) Data inquiry: It is used for checking reasons that employee has been retired.

## Department

Department Record: It deals with the information about department. This system provides three main functions.

- (1) Data entry: It is used for recording when a new department has been established. The source of information comes from executive.
- (2) Data correction: It is used for modifying information about department.
- (3) Data inquiry: It is used for searching information about department.

## Calculate Salary

Employee Record: It deals with information of employees. The system provides three main functions.

- (1) Data entry: It is used for recording information of employees. The source of information comes from employees.
- (2) Data correction: It is used for editing the employees' information when employees want to change their information.
- (3) Data inquiry: It is used for checking some information of employees such as salary.

Employee Overtime Record: It deals with the information of employee overtime.

The system provides three main functions.

- (1) Data entry: It is used for recording employees overtime information when employees have done overtime work. The source of information comes from time sheet.
- (2) Data Correction: It is used for editing employees overtime information when there was an inputting error.
- (3) Data inquiry: It is used for checking how many hours employees have done overtime work.

## Report

This part will produce the reports depending on the user requirements.

### 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 steps of the test as follows:

(1) Sub testing

This test is performed on individual modules, whether they are main program, subroutine, block or paragraph. 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 module.

(2) Unit testing

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

(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 is to determine whether the system can handle the volume of activities that might occur when the system is at the peak of its processing demand.

### 4.3 Installing the System

After all programs in the systems have been tested and passed as a whole, the next phase is to convert the old system to the new system. The new system will be installed for the test version and the system starts to be tested.

There are three activities needed to be done in converting to the new system.

- (1) To prepare the conversion plan
- (2) To make training plan
- (3) To install database

#### Conversion Plan

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 in the new system have been solved before the old system is discarded. The final cut over may be gradual, as portion of the new system 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 a 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.

In fact, this strategy is time-consuming, costly and required more additional personnel. The benefits and results of the complete system after completing the changeover is much more than from those using the old system. The estimated time for completing the conversion plan is about one month.

In order to ensure that a new proposed system can perform its entire works successfully, the system analysts may perform the checklist with business end users. The form looks like the form in Figure 4.1.

<u>Administrative Data</u>		
Application/Module: _____		
Date/Time of test: _____		
User in charge: _____		
Staff in charge: _____		
<u>Technical Data</u>		
Resource Needed	Location	Availability
1. Test transaction	_____	_____
2. Master files/database	_____	_____
3. Operator instruction	_____	_____
4. Special media/forms	_____	_____
5. Acceptance criteria	_____	_____
6. Input support personnel	_____	_____
7. Output support personnel	_____	_____
8. Backup recovery plan	_____	_____
9. Security plan	_____	_____
10. Error message actions	_____	_____

Figure 4.1. System Checklist Form.

Training Plan

For making a training plan, an appropriate training program is set for the end users. The objective of the training program is to make the users readily familiar with the new system before taking real action in order to prevent some mistakes that might occur at that time. The training course will finish within one week.

Installing Database

For installing database, due to the fact that the old system is a manual system, there are no data to be converted from the existing system. We need people to key in the data. The details of this activity are as follows:

- (1) Two personnel staffs work all entering data
- (2) 10 days spent on keying all data
- (3) Printing reports for checking errors

After installing the new system, we have to test the whole system to ensure having a complete system. The new system is tested by users using simulated data over some period of time in simulated environment and after that the real data are used In live environment testing. They are used in live environment testing. There are two levels of testing as follows:

(1) Verification testing:

(2) Validation testing:

Verification testing:

- (1) After personnel staff key in the data, the real data will be backed up at one place and another copy is in the new system. The system will run in a simulated environment using simulated data. The test will look for errors and omission regarding user requirements. This test is done in one week.

Validation testing:

- (1) At this time, the new system runs in a live environment using real data. The test looks one week. During this test, a number of items are tested which are:
  - (a) System performance: Throughput and response time is tested.
  - (b) Peak workload processing performance: Workload at peak time is tested. Hardware and software functions are tested.
  - (c) Methods and procedure test: Users check their understanding.
  - (d) Backup and recovery testing: A data loss disaster is simulated and we test the time required in recovering from that disaster.

## **V. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusions**

The existing Personnel Information System is studied by analyzing the current problems and user requirements, interviewing staffs in Personnel Department and reviewing the existing form and documents.

In order to meet the users' requirement which usually emphasize on reducing processing time and needing accurate information, it is difficult to get all work done by the existing system. The study of the existing system has portrayed the weakness and areas for improvement.

The new system is designed and implemented to replace the manual operations in the area of the Personnel Department. The manual operations take high cost and yield unsatisfactory 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-benefits analysis

It is expected to take about 1.5 years for the benefit to overtake the costs. After that, all benefits gained from the system will totally be the surplus for the company. The lifetime of the system is estimated to be longer than 5 years.

(2) Cost reduction

Computerization will help reduce work force normally required by the manual operation. The company will need fewer people to do the jobs because of the use of computer. We can expect a 20% deduction in work

force. Other costs associated with transaction can be reduced such as the paper expense.

(3) Employees satisfaction

There are other benefits derived from the system other than the benefits that can be measured in terms of money. The employees are satisfied with the new system and this increases the productivity of employees.

(4) Better decision making and planning

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

Degree of Achievement of the Proposed System

Table 5.1. The Degree of Achievement of the Proposed System.

Process	Existing System	Propsoed System
Process Update Employee	30 mins	10 mins.
Process Update Employee Overtime	20 mins	10 mins.
Process Update Employee Absent	20 mins	10 mins.
Process Update Employee Late	20 mins	10 mins.
Process Update Employee Retirement	25 mins	15 mins.
Process Update Department	40 mins.	20 mins.
Process Calculate Employee Salary	1 hr.	30 mins.
Total	3 hrs. 35 mins	1 hr. 45 mins

### Process Update Employee Information

In the existing system, to check for employee information, personnel officer had to find out by manual looking at the book which kept the employee information in order to insert, edit or delete the employee information. But In the proposed system, personnel officer just looks at the monitor and insert, edit or delete the employee information, which require less time.

### Process Update Employee Overtime

In the existing system, to check for employee overtime information, personnel officer had to find out by manual looking at the book which kept the employee overtime information in order to insert, edit, delete or calculate the overtime payment for employees. But In the proposed system, personnel officer just looks at the monitor and update the information of employee overtime, which require less time.

### Process Update Employee Absent

In the existing system, to check for employee absence information, personnel officer had to find out by manual looking at the book which kept the employee absence information in order to insert, edit or delete the employee absence information. But In the proposed system, personnel officer just looks at the monitor and insert, edit or delete the employee absence information, which require less time.

### Process Update Employee Late

In the existing system, to check for employee late information, personnel officer had to find out by manual looking at the book which kept the employee late information in order to insert, edit or delete the employee late information. But In the proposed system, personnel officer just looks at the monitor and insert, edit or delete the employee late information, which require less time.

#### Process Update Employee Retirement

In the existing system, to check for employee retirement information, personnel officer had to find out by manual looking at the book which kept the employee retirement information in order to insert, edit or delete the employee retirement information. But In the proposed system, personnel officer just looks at the monitor and insert, edit or delete the employee retirement information, which require less time.

#### Process Update Department

In the existing system, to check for department information, personnel officer had to find out by manual looking at the book which kept the department information in order to insert, edit or delete the department information. But In the proposed system, personnel officer just looks at the monitor and insert, edit or delete the department information, which require less time.

#### Process Calculate Employee Salary

In the existing system, to check for employee salary information, personnel officer had to find out by manual looking at the book which kept the employee salary and overtime information in order to calculate employee payment information. But In the proposed system, personnel officer just looks at the monitor and let the computer do to rest of the job, which require less time.

Table 5.1 shows the time performance on each process of the proposed system compared with the existing system. It shows that each process of the proposed system performs less time than each process of the existing system, which has to operate many work steps in manual system. So, it can be concluded that the proposed system is more efficient and effective than the existing system.

## 5.2 Recommendations

The Personnel Information System is developed under Microsoft Visual Basic for Application in Microsoft Access. Even though this new system has been designed and developed for handling current business user requirements in the Personnel Department, we expect that the new computerized system can satisfy the business requirements at least for the next 5 years (estimated from expected business growth).

Some information cannot be automated and shared. When other departments want to know some information, the reports must be printed out from the Personnel Department. Then, further development should take place and become on-line and link to other departments as well.

Presently, the proposed system has been developed and can serve the workload of the company. In the future, if the users need a fully computerized system in every department, this system cannot serve the workload. It is recommended to upgrade the system or buy another CPU for faster processing.

The company should have a plan for future system upgrade or even developing new system. During the period that the current system is workable, the company should train its employees to become analysts or at least computer-educated. These people will become the persons who know both business requirements and technical solutions.

The application architecture of this system is not suitable for a big system, such a system that covers large geographical areas or the system that handles high transaction rates. In order to cover more large geographical areas, the system should be redesigned.

The company should employ a full-time staff who takes care of the system and holds the responsibility of help-desk. The system will become a core of the business. It requires considerable attention.

The company should train the user to know some basic knowledge about computer and software development. In the future, if there are any small problems with the system, the users can solve them by themselves in order to save time and cost.





**APPENDIX A**  
**CONTEXT DIAGRAM**

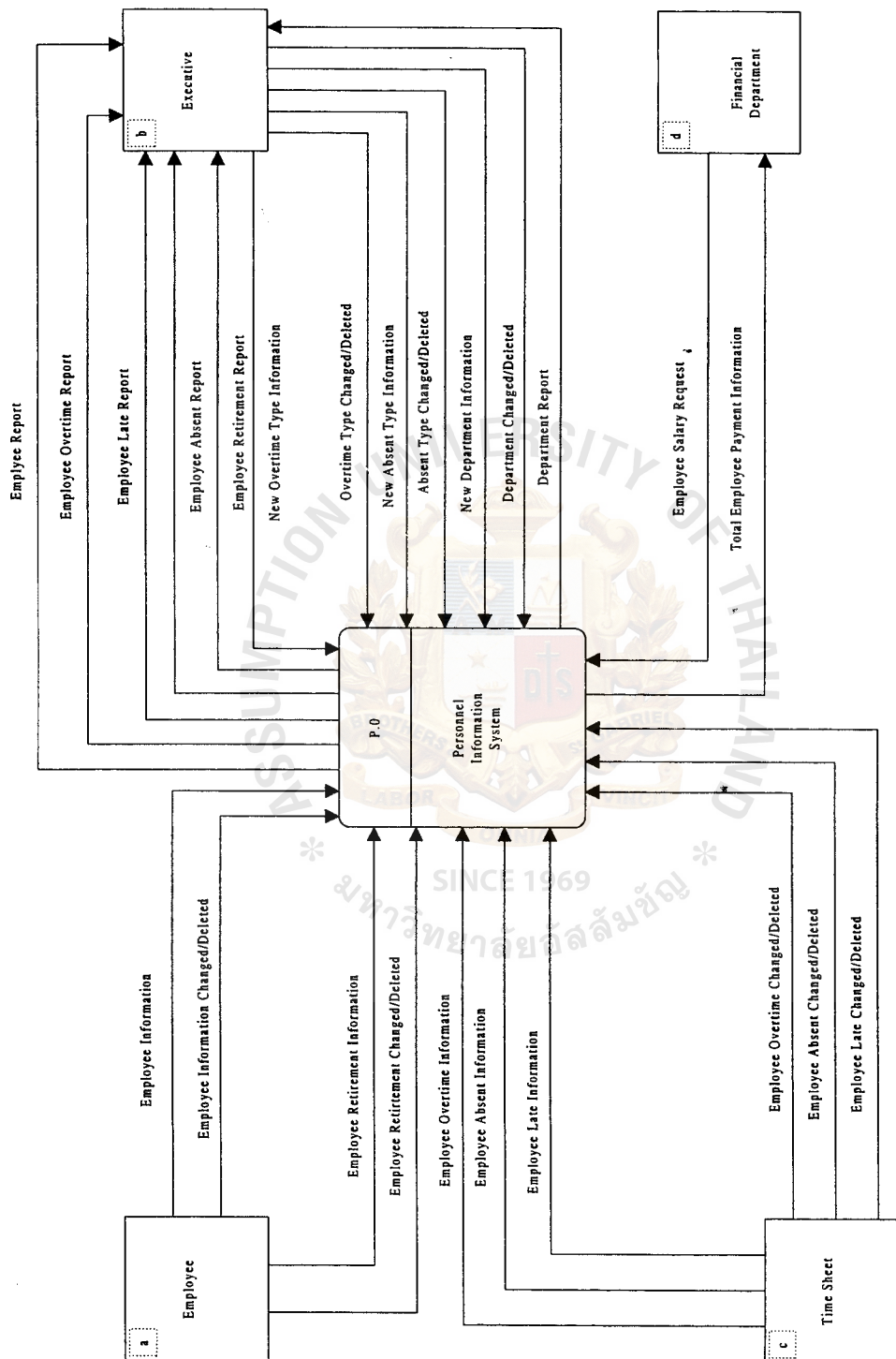


Figure A.1. Context Diagram of Personnel Information System.





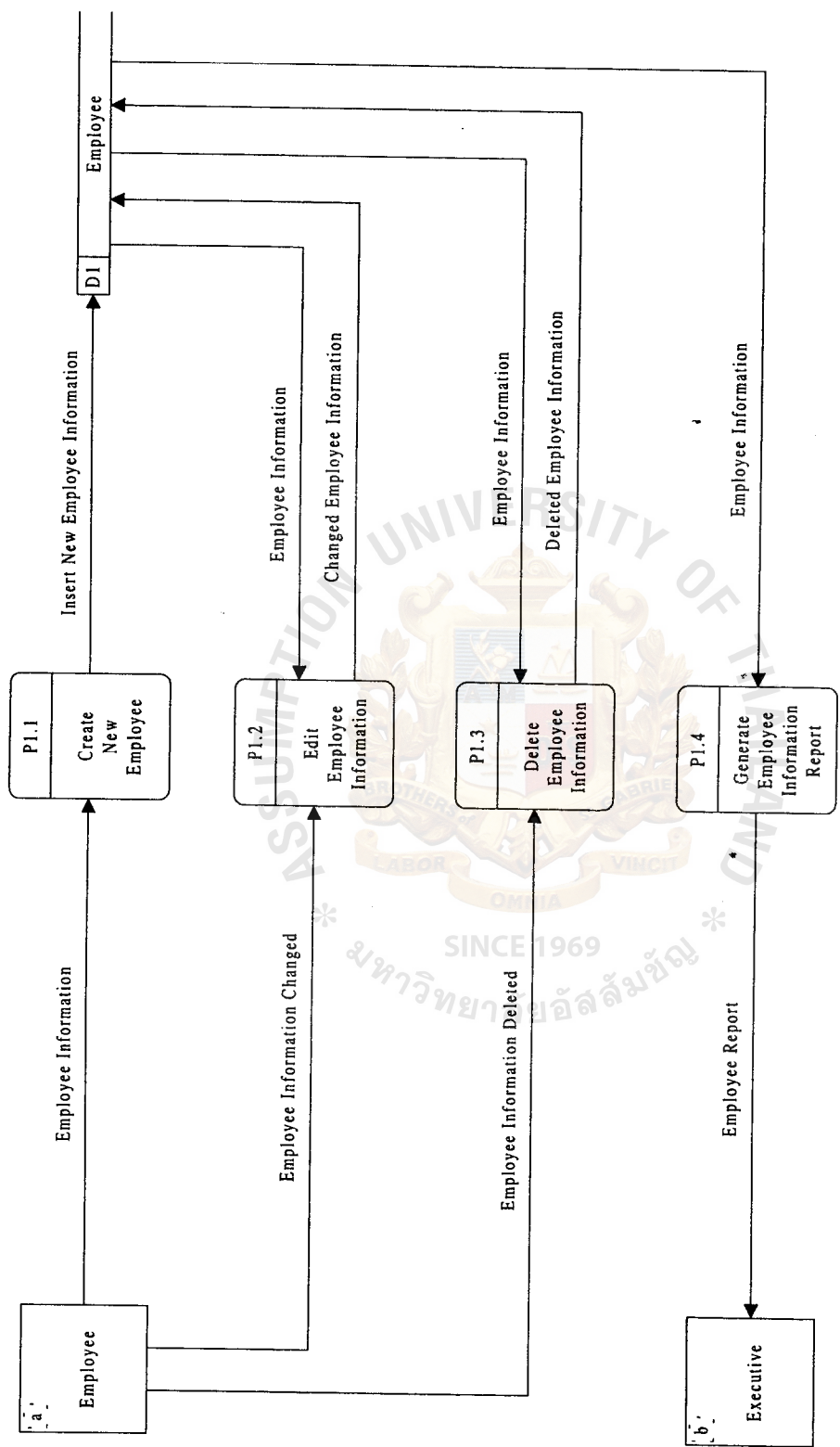


Figure B.2. Data Flow Diagram Level 0 of the Proposed System.

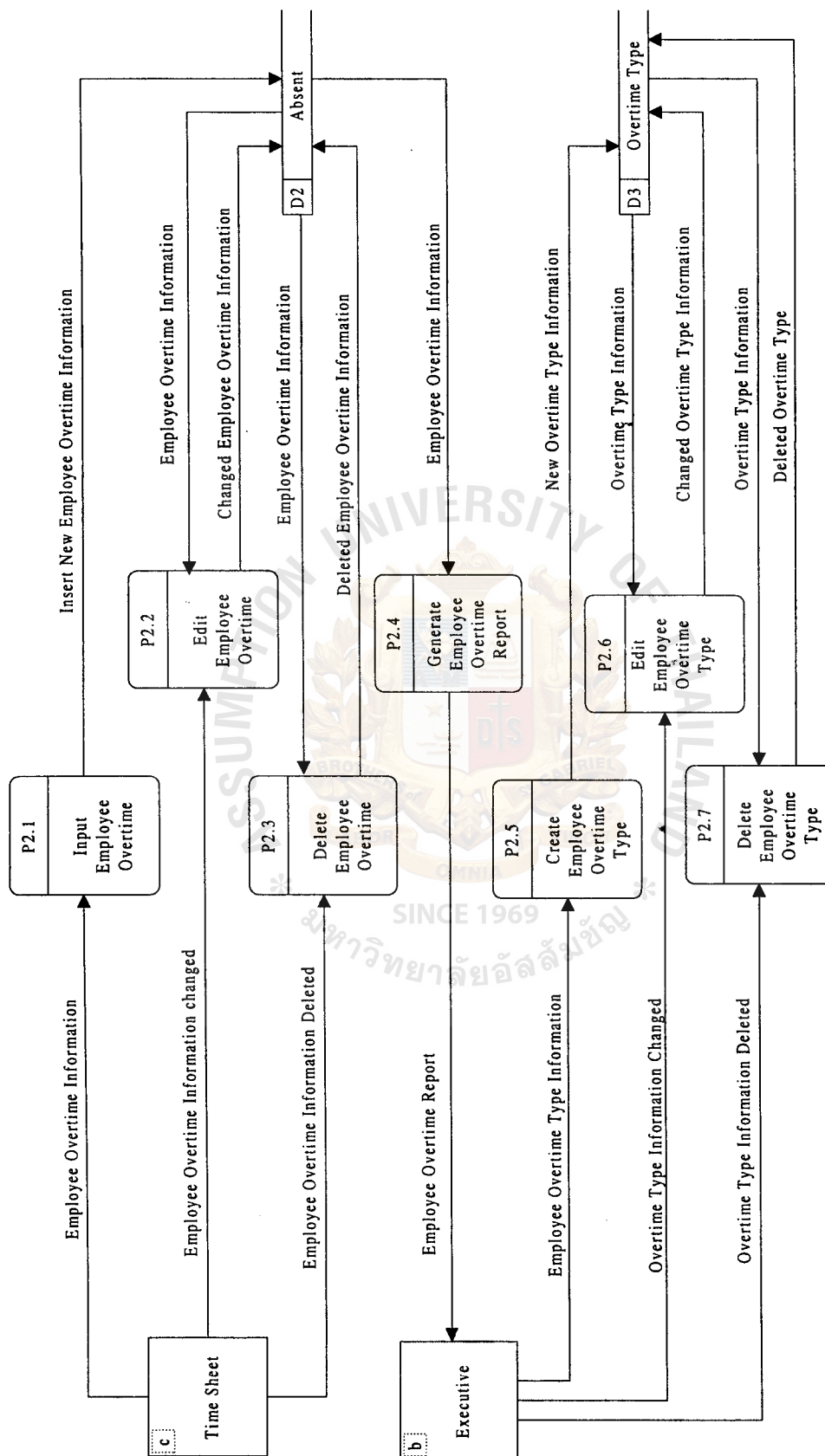


Figure B.3. Data Flow Diagram Level 0 of the Proposed System.

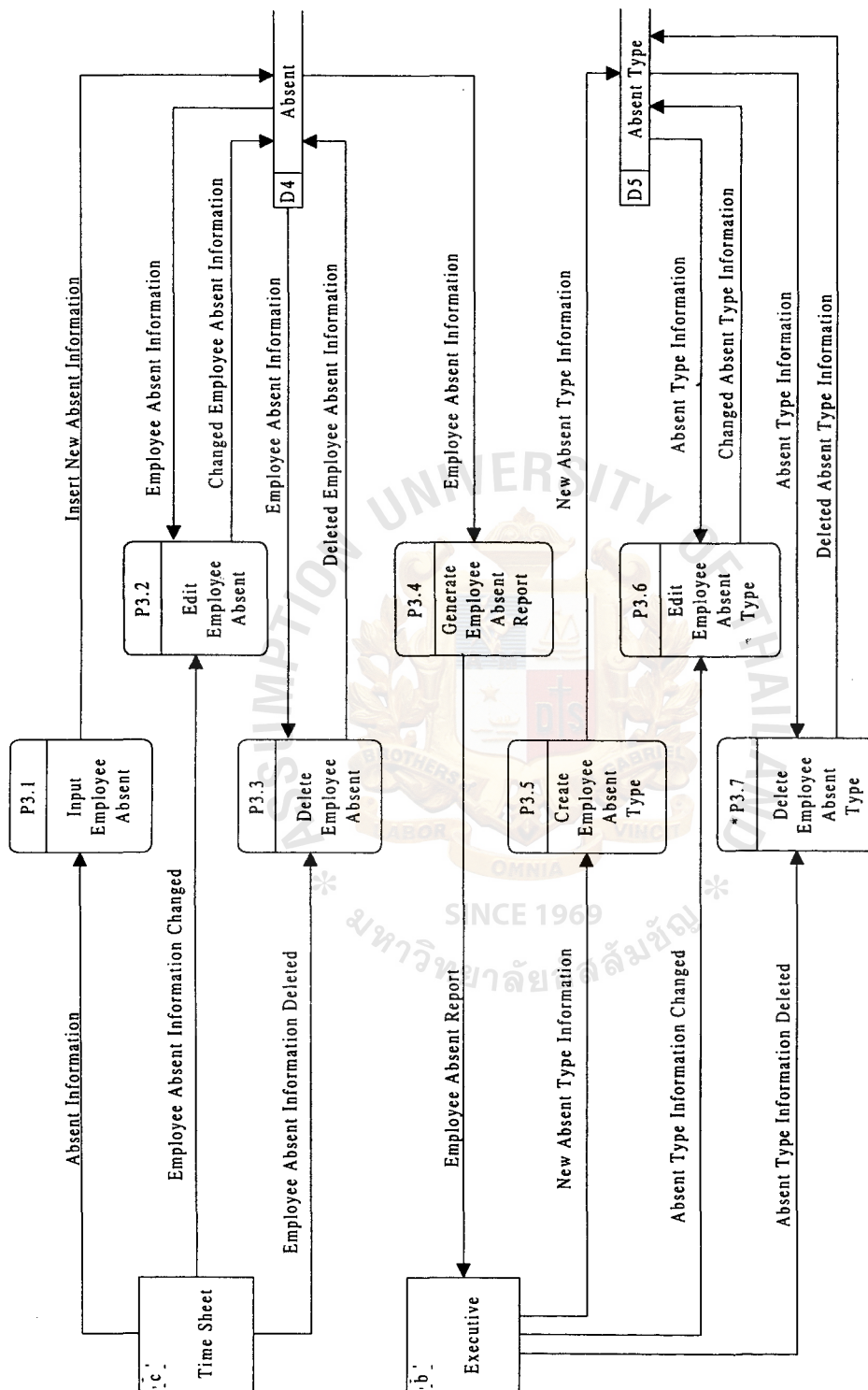


Figure B.4. Data Flow Diagram Level 0 of the Proposed System.

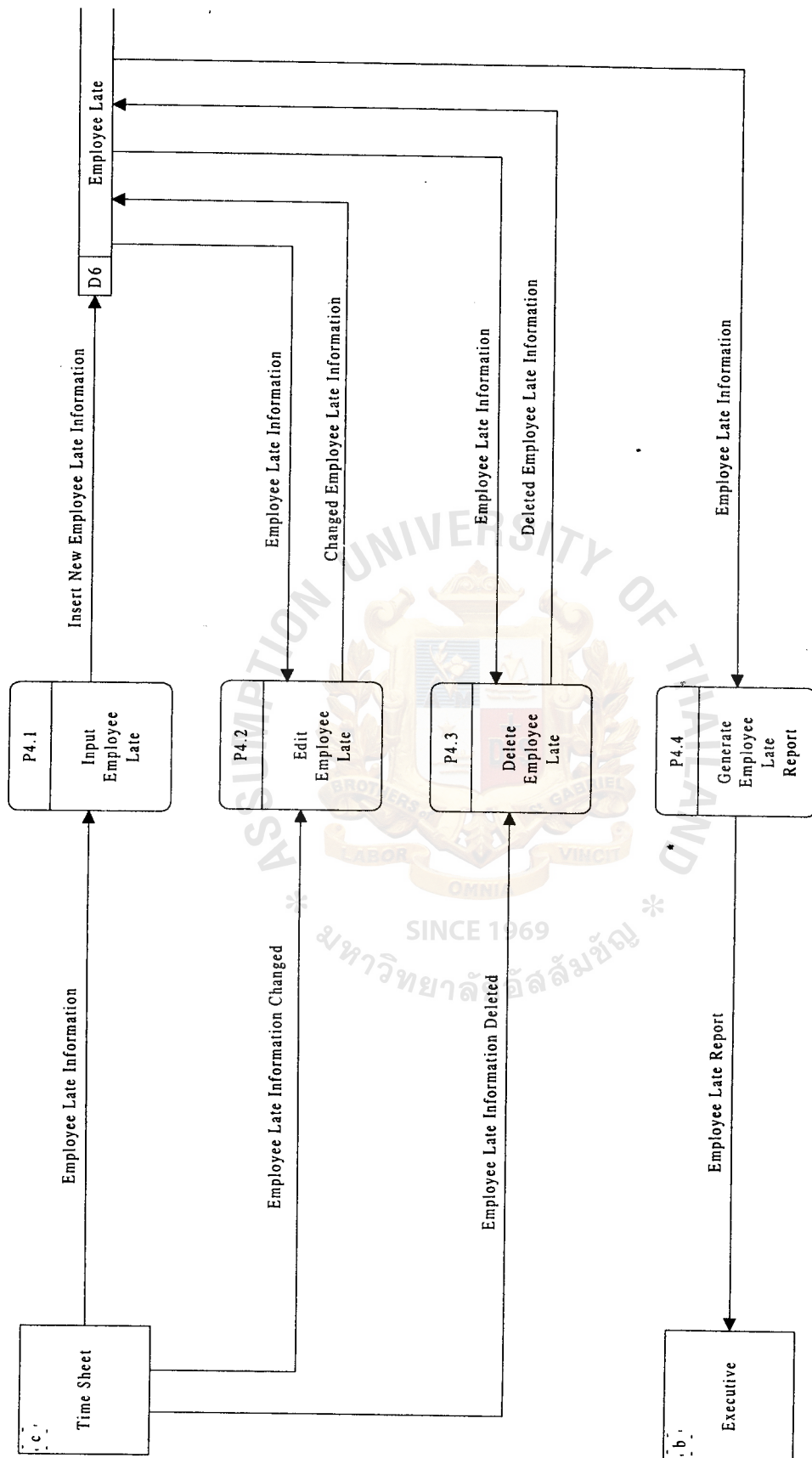


Figure B.5. Data Flow Diagram Level 0 of the Proposed System.

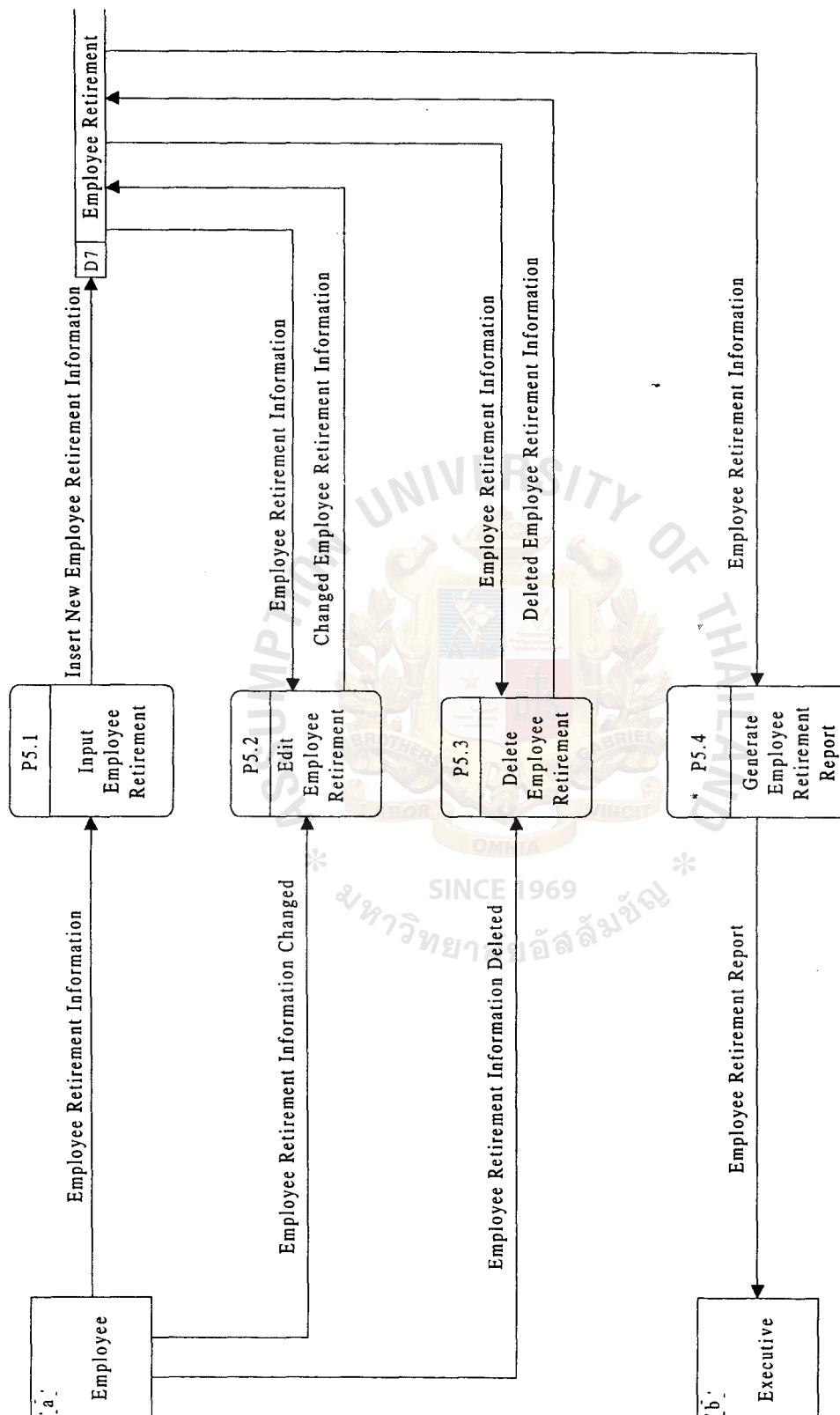


Figure B.6. Data Flow Diagram Level 0 of the Proposed System.

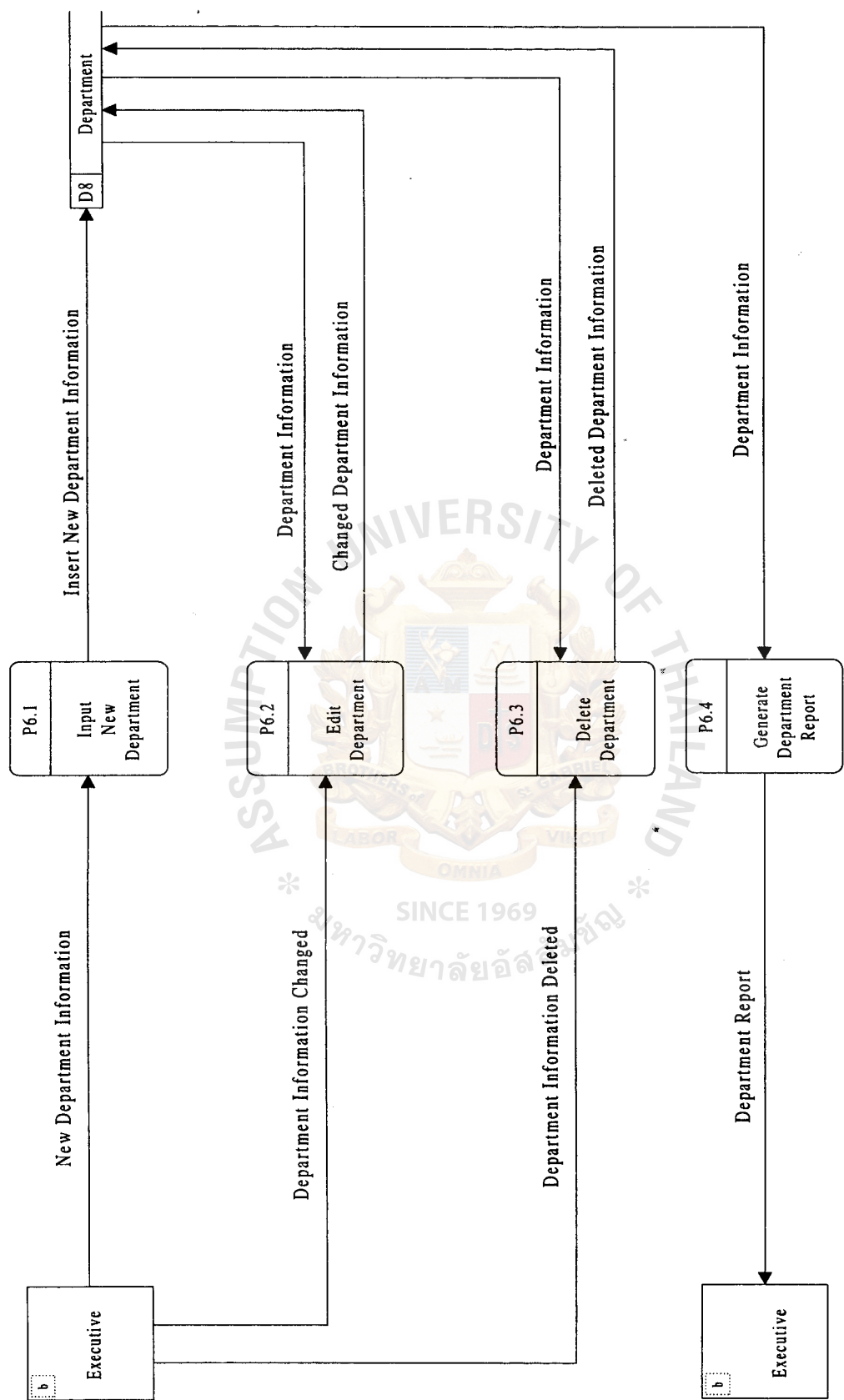


Figure B.7. Data Flow Diagram Level 0 of the Proposed System.

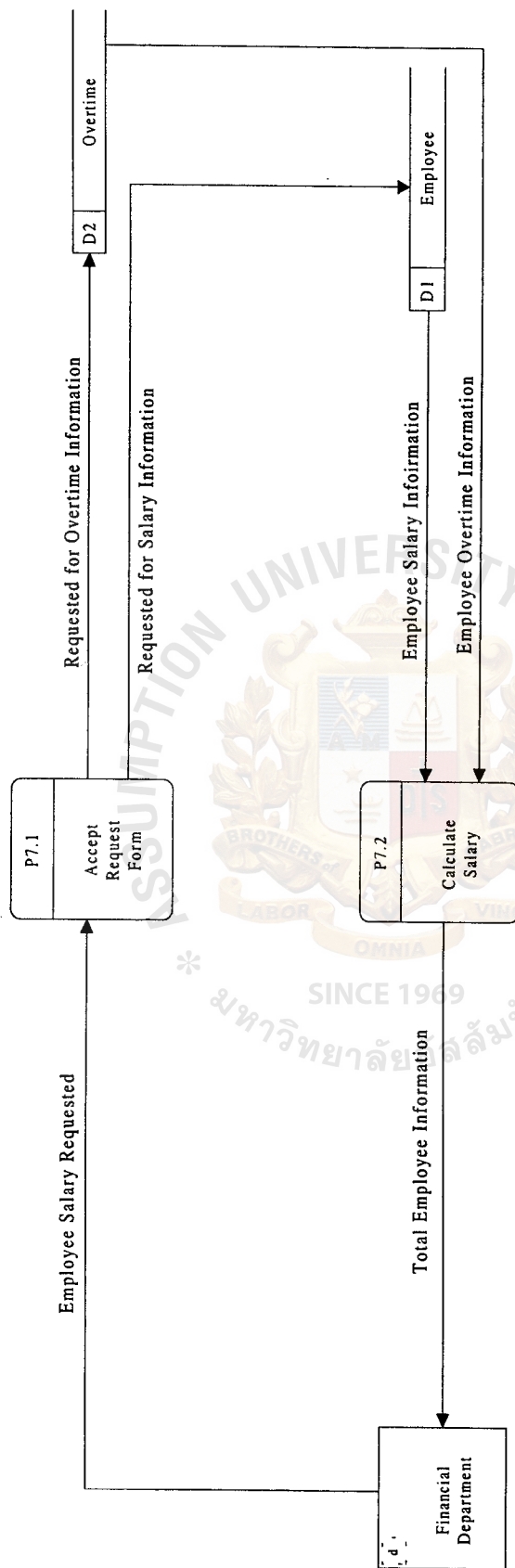


Figure B.8. Data Flow Diagram Level 0 of the Proposed System.



## **APPENDIX C**

### **OUTPUT DESIGN & INPUT DESIGN**

The screenshot shows a Microsoft Access application window. The main window is titled 'Absent' and contains a form titled 'EAST HOTEL' with the subtitle 'FORM OF EMPLOYEE ABSENT INFORMATION'. The form has four input fields: 'Absent\_No', 'AbsentType\_No' (with a value of 1), 'Employee\_Id' (with a value of 2), and 'Absent Date' (with a value of 3/3/00). Below the fields are four buttons: 'SEARCH', 'DELETE', 'OK', and 'CANCEL'. At the bottom of the form, there is a status bar showing 'ระเบียบ: 1' and 'จาก 12'. The background of the form has a watermark that reads 'SINCE 1969' and 'มหาวิทยาลัยวลัยลักษณ์'.

Figure C.1. Form of Employee Absent Information.

Microsoft Access

แฟ้ม แอปฯ มุมมอง แปรปรู รูปแบบ ระเบียบ เครื่องมือ ฐานข้อมูล วัตถุใช้

AbsentType

**EAST HOTEL**

FORM OF EMPLOYEE ABSENT TYPE INFORMATION

AbsentType\_No

AbsentType\_Name Sick Leave

Limited Absent Amount 15

SEARCH DELETE OK CANCEL

ระเบียบ: 14 1 1 11 11 จาก 2

NUM

Figure C.2. Form of Employee Absent Type Information.

Microsoft Access

แฟ้ม แก้ไข มุมมอง แปรปรู รูปแบบ ระเบียบ เครื่องมือ หน้าต่าง วิเคราะห์

Employee1

**EAST HOTEL**  
CALCULATE EMPLOYEE SALARY

Employee Id

Name

SEARCH DELETE OK CANCEL

ระเบียน: 1 จาก 9

NUM

Figure C.3. Form of Calculating Employee Salary.

Microsoft Access

Department

**EAST HOTEL**

FORM OF DEPARTMENT INFORMATION

Department No:

Department Name:

Department Description:

SEARCH DELETE OK CANCEL

1 จาก 5

SINCE 1969

มหาวิทยาลัยอัสสัมชัญ

Figure C.4. Form of Inputting Department Information.



Microsoft Access

Employee Late

**EAST HOTEL**

FORM OF EMPLOYEE LATE INFORMATION

EmplLate_No	
Employee_Id	2
Date	6/3/99
Time	10:00:00
LimitedLate Amount	3

SEARCH DELETE OK CANCEL

จะเขียน: 1 จาก 8

NUM

Figure C.6. Form of Inputting Employee Late Information.

The screenshot shows a Microsoft Access application window titled 'Absent1'. Inside the window is a form titled 'EAST HOTEL FORM OF REPORT GERNERATING'. The form contains several text boxes for data entry, each with a label to its left:

- Employee\_Id
- Absent\_No
- AbsentType\_No
- Department\_No
- Emplate\_No
- Overtime\_No
- OvertimeType\_No
- Retirement\_No

Below the text boxes are two buttons: 'OK' and 'CANCEL'. At the bottom of the form, there is a status bar showing 'Page 1 of 12' and a 'NUM' button. The Microsoft Access ribbon is visible at the top, and the Windows taskbar is at the bottom.

Figure C.7. Form of Report Generating.

The screenshot shows a Microsoft Access application window. The title bar reads 'Microsoft Access'. The menu bar includes options in Thai: แฟ้ม, แก้ไข, ผนวก, แทรก, รูปแบบ, ระเบียบ, เครื่องมือ, ฐานข้อมูล, and ฐานข้อมูล. The toolbar contains various icons for database operations. The main window displays a form titled 'Overtime' with the header 'EAST HOTEL' and 'FORM OF OVERTIME INFORMATION'. The form has the following fields and values:

Field Name	Value
Overtime_No	
OvertimeType_No	1
Employee_Id	2
Overtime_Date	3/7/00
Overtime_TimeIn	17:00:00
Overtime_TimeOut	20:00:00

Below the fields are four buttons: SEARCH, DELETE, OK, and CANCEL. At the bottom of the form, there is a status bar showing 'ระเบียน: 1 จาก 3'. The background of the form features a watermark image of a building with the text 'ASSUMPTION' and 'SINCE 1969'.

Figure C.8. Form of Inputting Overtime Information.

The image shows a Microsoft Access window with a form titled "OvertimeType". The form is for "EAST HOTEL" and is titled "FORM OF OVERTIME TYPE INFORMATION". It contains three input fields: "OvertimeType\_No", "OvertimeType\_Name" (which has the value "Normal" entered), and "Rate". Below the input fields are four buttons: "SEARCH", "DELETE", "OK", and "CANCEL". At the bottom of the form, there is a status bar that says "จะเปิด: 1 จาก 2". The background of the Access window shows a watermark for "SAKUNTHALA" and "SINCE 1969".

Figure C.9. Form of Inputting Overtime Type Information.



Figure C.10. Personnel Operational Menu.

Microsoft Access

Retirement

**EAST HOTEL**

FORM OF EMPLOYEE RETIREMENT INFORMATION

Retirement\_No:

Employee\_Id:

Retirement Description:

Date:

SEARCH DELETE OK CANCEL

จะเขียน: 14 1 จาก 1

NUM

Figure C.11. Form of Employee Retirement Information.

<i><b>East Hotel Absent Type Report</b></i>		
<i><b>AbsentType_No</b></i>	<i><b>AbsentType_Name</b></i>	<i><b>Limited Absent Amount</b></i>
1	Sick Leave	15
2	Business Leave	10

Figure C.12. Absent Type Report.

<i><b>East Hotel Department Report</b></i>		
<i><b>Department_No</b></i>	<i><b>Department_Name</b></i>	<i><b>Department Description</b></i>
1	Personnel	Personnel management
2	Accounting	Accounting Management
3	Marketing	Marketing management
4	Room Service	Room Service operation
5	Front Office	Reservation Operation

Figure C.13. Department Report.

<i>East Hotel Employee Absent Report</i>			
<i>Employee_Id</i>	<i>Name</i>	<i>AbsentType_Nam</i>	<i>Absent</i>
2	Chalernpol Wongmek	Sick Leave	3/3/00
3	Thongbai Saena	Sick Leave	3/3/00
4	Somboon Sodaban	Sick Leave	3/4/00
5	Sompong gamlangdaj	Sick Leave	3/4/00
7	Thawat Tarapimol	Sick Leave	3/5/00
8	Tantawan Boonta	Sick Leave	3/5/00
2	Chalernpol Wongmek	Business Leave	5/3/00
3	Thongbai Saena	Business Leave	5/3/00
4	Somboon Sodaban	Business Leave	5/4/00
5	Sompong gamlangdaj	Business Leave	5/4/00
7	Thawat Tarapimol	Business Leave	5/5/00
8	Tantawan Boonta	Business Leave	5/5/00

Figure C.14. Employee Absent Report.

<i>East Hotel Employee Late Information Report</i>			
<i>Employee_Id</i>	<i>Name</i>	<i>Date</i>	<i>Time</i>
2	Chalernpol Wongmek	6/3/99	10:00:00
2	Chalernpol Wongmek	7/3/99	11:00:00
3	Thongbai Saena	6/3/99	9:30:00
3	Thongbai Saena	7/3/99	10:20:00
4	Somboon Sodaban	6/3/99	9:45:00
4	Somboon Sodaban	7/3/99	10:15:00
5	Sompong gamlangdaj	6/3/99	9:45:00
5	Sompong gamlangdaj	7/3/99	10:55:00

Figure C.15. Employee Late Information Report.

<i>East Hotel Employee Overtime Report</i>				
<i>Name</i>	<i>OvertimeType_Name</i>	<i>Date</i>	<i>TimeIn</i>	<i>TimeOut</i>
<i>Chalernmpol Wongmek</i>				
	Holiday	5/7/00	9:00:00	16:00:00
	Normal	4/7/00	17:00:00	21:00:00
	Normal	3/7/00	17:00:00	20:00:00

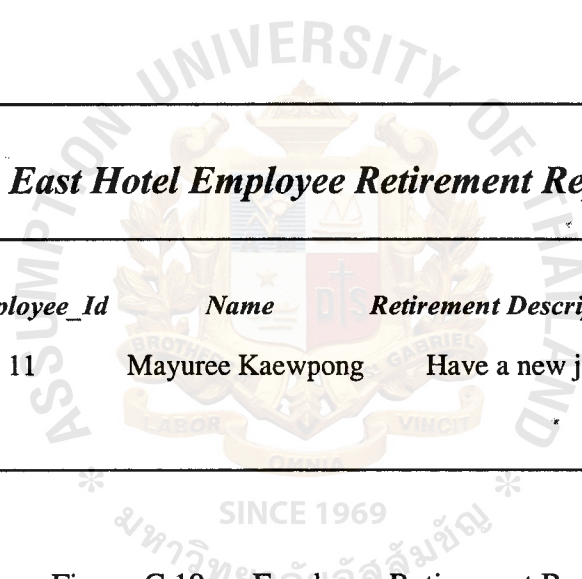
Figure C.16. Employee Overtime Report.

<i>East Hotel Overtime Type Report</i>		
<i>OvertimeType_No</i>	<i>OvertimeType_Name</i>	<i>Rate</i>
1	Normal	1
2	Holiday	2

Figure C.17. Overtime Type Report.

East Hotel Employee Report			
Employee_Id	Name	Department_Name	Position
2	Chalermpol Wongmek	Personnel	Personnel Manager
3	Thongbai Saena	Personnel	Personnel Staff
4	Somboon Sodaban	Personnel	Personnel Staff
5	Sompong gamlangdaj	Accounting	Accounting Manager
7	Thawat Tarapimol	Accounting	Accounting Staff
8	Tantawan Boonta	Accounting	Accounting Staff
9	Wattana Sripanya	Marketing	Marketing Manager
10	Niyom Potirat	Marketing	Marketing Staff
11	Mayuree Kaewpong	Marketing	Marketing Staff

Figure C.18. Employee Report.



<i>East Hotel Employee Retirement Report</i>			
<i>Employee_Id</i>	<i>Name</i>	<i>Retirement Description</i>	<i>Date</i>
11	Mayuree Kaewpong	Have a new job	30/4/01

Figure C.19. Employee Retirement Report.



## APPENDIX D

### DATABASE DESIGN

## DATABASE DESIGN

1. OvertimeType(OvertimeType\_No<PK>,OvertimeTypeName,Rate)

Table D.1. OvertimeType Table.

Field Name	Type	Size
OvertimeType_No	Character	2
Overtimetype_Name	Character	15
Rate	Number	3

2. AbsentType(AbsentType\_No<PK>,AbsentTypeName,LimitedAbsentAmount)

Table D.2. AbsentType Table.

Field Name	Type	Size
AbsentType_No	Character	3
Absenttype_Name	Character	25
LimitedAbsentAmount	Number	2

3. Overtime(Overtime\_No<PK>,OvertimeType\_No<FK>,EmployeeID,OvertimeDate  
OvertimeTimeIn,OvertimeTimeOut

Table D.3. Overtime Table.

Field Name	Type	Size
Overtime_No	Character	5
OvertimeType_No	Character	3
Employee_ID	Character	5
Overtime_Date	Date	10
Overtime_TimeIn	Time	10
Overtime_TimeOut	Time	10

4. Absent(Absent\_No<PK>,AbsentType\_No<FK>,Employee\_ID<FK>,AbsentDate)

Table D.4. Absent Table.

Field Name	Type	Size
Absent_No	Character	5
AbsentType_No	Character	3
Employee_ID	Character	5
AbsentDate	Date	10

5. Retirement(Retirement\_No<PK>,Employee\_ID<FK>,RetirementDescription,Date)

Table D.5. Retirement Table.

Field Name	Type	Size
Retirement_No	Character	5
Employee_ID	Character	5
RetirementDescription	Character	256
Date	Date	10



6. Employee(Employee\_ID<PK>,Department\_No<FK>,Name,Sex,Birthdate,Status,Addrsss,Telephone No.,Position,Salary,TaxID,SocialSecurityNo,HireDate,Shift

Table D.6. Employee Table.

Field Name	Type	Size
Employee_Id	Character	5
Name	Character	30
Sex	Logical	1
Birthdate	Date	10
Status	Character	10
Address	Character	256
Telephone_No	Character	9
Department_No	Character	5
Position	Character	30
Salary	Number	6
Tax Id	Number	10
SocialSecurityNo	Number	10
Hire Date	Date	10
Shift	Character	2

7. EmployeeLate(EmpLate\_No<PK>,Employee\_Id<FK>,Date,Time,LimitedLateAmount)

Table D.7. EmployeeLate Table.

Field Name	Type	Size
EmpLate_No	Character	5
Employee_Id	Character	5
Date	Date	10
Time	Time	10
LimitedLateAmount	Character	3

8. Department(Department\_No<PK>,DepartmentName,DepartmentDescription)

Table D.8. Department Table.

Field Name	Type	Size
Department_No	Character	3
Department_Name	Character	25
Department Description	Character	256

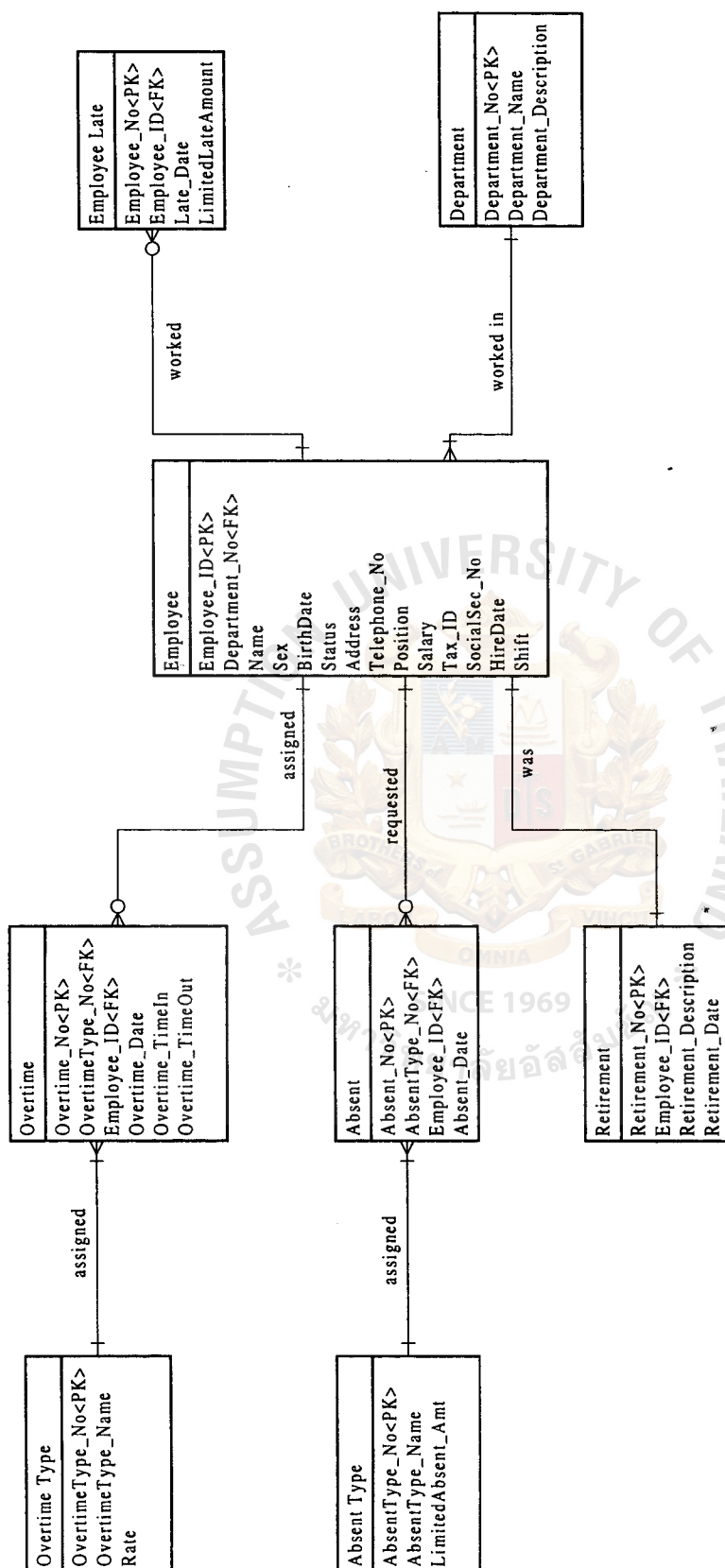


Figure D.1. Entity Relationship of Personnel Information System.



**APPENDIX E**

**DATA DICTIONARY**

## DATA DICTIONARY OF ER DIAGRAM

Absent Date	= *Absent date of employees.*
Absent_No	= *Number that represent employees absent.*
AbsentType_Name	= *Name of absent type in the hotel.*
AbsentType_No	= *Number that represent how many type of absent there are in the hotel.*
Address	= *Address of employees or where they live.*
Birthdate	= *The birth date of employees.*
Department Description	= *The information about that department.*
Department_Name	= *Name of department.*
Department_No	= *Number that represent how many department there are in the hotel.*
EmpLate_Date	= *Date that employees have been late.*
EmpLate_No	= *Number that represent information about employees late.*
EmpLate_Time	= *Time that employee come into the hotel in when they are late.*
Employee_ID	= *Number that represent how many employees there are in the hotel.*
Hire Date	= *The date that employee had been hired.*
Limited Absent Amount	= *The number that is limited by the hotel each employee can be absent.*
Limited Late Amount	= *The number that is limited by the hotel each employee can be late.*
Name	= *Name of employee.*
Overtime_Date	= *Date that employees have done an overtime work.*

Overtime_No	= *Number that represent information about overtime.*
Overtime_TimeIn	= *Time that employee start counting to be overtime.*
Overtime_TimeOut	= *Time that employee stop counting to be overtime.*
OvertimeRate	= *The rate per hour that hotel pay to employee for overtime work.*
OvertimeType_Name	= *Name of overtime type in the hotel.*
OvertimeType_No	= *Number that represent how many overtime type there are in the hotel.*
Position	= *The position of employee in the hotel.*
Retirement Date	= *The date that employee had been retired from the hotel.*
Retirement Description	= *The description or reson of employees retirement.*
Retirement_No	= *Number that represent the information about retirement.*
Salary	= *Salary of each employee.*
Sex	= *Sex of each employee.*
Shift	= *Shift of employee.*
Social Security NO.	= *Social Security Number of employee.*
Status	= *The status of employee.*
Tax ID	= *Tax ID of each employee.*
Telephone_No	= *Telephone number of employee.*
Absent	= @Absent_No + AbsentType_No + Employee_ID + Absent Date
Absent Type	= @AbsentType_No + AbsentType_Name + Limited Absent Amount
Department	= @Department_No + Department_Name + Department Description

Employee = @Employee\_Id + Name + Sex + Birthdate + Status +  
Address + Telephone Number + Department\_No +  
Position + Salary + Tax ID + Social Security Number +  
Hire Date + Shift

Employee Late = @EmpLate\_No + Employee\_Id + Date + Time +  
Limited Late Amount

Overtime = @Overtime\_No + OvertimeType\_No + Employee\_Id +  
Overtime\_Date + Overtime\_TimeIn + Overtime\_TimeOut

Overtime Type = @OvertimeType\_No + OvertimeType\_Name + Rate

Retirement = @Retirement\_No + Employee\_Id +  
Retirement Description + Date



## DATA DICTIONARY OF PROCESS MODEL

Absent Type Information Changed	Data Flow = * Information about absent type to be changed.*
Absent Type Information Deleted	Data Flow = * Information about absent type to be deleted.*
Changed Absent Type Information	Data Flow = * Information about absent type have been changed to input to the database.*
Changed Department Information	Data Flow = * Information of department have been changed to input to the database.*
Changed Employee Information	Data Flow = * Information of employee have been changed to input to the database.*
Changed Employee Late Information	Data Flow = * Information of employee late have been changed to input to the database.*
Changed Employee Overtime Informaiton	Data Flow = * Information of employee overtime have been changed to input to the database.*
Changed Employee Retire	Data Flow = * Information of employee

Informaiton		retirement have been changed to input to the database.*
Changed Overtime Type Information	Data Flow	= * Information of employee overtime type have been changed to input to the database.*
Deleted Absent Type Information	Data Flow	= * Information of employee absemt type have been deleted in the database.*
Deleted Department Information	Data Flow	= * Information of department have been deleted in the database.*
Deleted Employee Absent Information	Data Flow	= * Information of employee absent have been deleted in the database.*
Deleted Employee Information	Data Flow	= * Information of employee have been deleted in the database.*
Deleted Employee Late Information	Data Flow	= * Information of employee late have been deleted in the database.*

Deleted Employee Overtime Information	Data Flow = * Information of employee overtime have been deleted in the database.*
Deleted Employee Retire Information	Data Flow = * Information of employee retirement have been deleted in the database.*
Deleted Overtime Type Information	Data Flow = * Information of employee overtime type have been deleted in the database.*
Department Information Changed	Data Flow = * Information of department to be changed in database.*
Department Information Deleted	Data Flow = * Information of department to be deleted in database.*
Department Information Report	Data Flow = * Report of department to be sent to executive.*
Department Information	Data Flow = * Information of each specific department.*
Employee Absent Information	Data Flow = * Information of employee absent that must be kept in the database.*

Employee Absent Information Changed	Data Flow = * Information of employee absent to be changed in the database.*
Employee Absent Information Deleted	Data Flow = * Information of employee absent to be deleted in the database.*
Employee Absent Report	Data Flow = * Report of employee absent to be sent to executive.*
Employee Information	Data Flow = * Personal information of employee to kept in the database.*
Employee Information Changed	Data Flow = * Information of employee to be changed in the database.*
Employee Information Deleted	Data Flow = * Information of employee to be deleted in the database.*
Employee Late Information	Data Flow = * Information of employee late to kept in the database.*
Employee Late Information Changed	Data Flow = * Information of employee late to be changed in the database.*
Employee Late Information Deleted	Data Flow = * Information of employee late to be deleted in the database.*

Employee Late Report	Data Flow = * Report of employee late information to be sent to executive.*
Employee Overtime Information	Data Flow = * Information of employee overtime to be kept in the database.*
Employee Overtime Information Changed	Data Flow = * Information of employee overtime to be changed in the database.*
Employee Overtime Information Deleted	Data Flow = * Information of employee overtime to be deleted in the database.*
Employee Overtime Information Request	Data Flow = * Information of employee overtime to be requested in the database.*
Employee Overtime Report	Data Flow = * Report of employee overtime to be sent to executive.*
Employee Report	Data Flow = * Report of employee information to be sent to executive.*

Employee Retire Information Changed	Data Flow	= * Information of employee retirement to be changed in the database.*
Employee Retire Information Deleted	Data Flow	= * Information of employee retirement to be deleted in the database.*
Employee Retirement Information	Data Flow	= * Information of employee retirement to be kept in the database.*
Employee Retirement Report	Data Flow	= * Report of employee retirement to be sent to executive.*
Employee Salary Information Requested	Data Flow	= * Information of employee salary to be requested in the database.*
Inputted Employee Absent Information	Data Flow	= * Information of employee absent that have been inputted to the database.*
Inputted Overtime Type Information	Data Flow	= * Information of employee overtime type that have been inputted to the database.*

Insert Department Information	Data Flow	= * Information of department that have been inserted to the database.*
Insert Employee Late Information	Data Flow	= * Information of employee late that have been inserted to the database.*
Insert Employee Overtime Information	Data Flow	= * Information of employee overtime that have been inserted to the database.*
Insert Employee Retirement Information	Data Flow	= * Information of employee retirement that have been inserted to the database.*
Insert New Absent Type Information	Data Flow	= * Information of employee absent type that have been inserted to the database.*
Insert New Employee Information	Data Flow	= * Information of employee that have been inserted to the database.*
New Absent Type Information	Data Flow	= Information of absent type to be kept to the database.*
New Overtime Type Information	Data Flow	= Information of overtime type to be kept to the database.*
Overtime Type Information Changed	Data Flow	= Information of overtime type

		to be changed in database.*
Overtime Type Information Deleted	Data Flow	= Information of overtime type to be deleted in database.*
Total Employee Income Information	Data Flow	= Information of employee income to be sent to finance department.*
Accept Request Form	Data Process	= * Process accepting request employee salary to the database.*
Calculate Salary	Data Process	= * Process of calculating salary of each employee.*
Create Employee Absent Type	Data Process	= * Process of inputting employee absent type to the database.*
Create Employee Overtime Type	Data Process	= * Process of inputting employee overtime type to the database.*
Create New Employee	Data Process	= * Process of inputting employee to the database.*
Delete Department	Data Process	= * Process of deleting department to the database.*

Delete Employee Absent

Data Process = \* Process of deleting  
employee absent to the  
database.\*

Delete Employee Absent Type

Data Process = \* Process of deleting  
employee absent type to the  
database.\*

Delete Employee Information

Data Process = \* Process of deleting  
employee information to the  
database.\*

Delete Employee Late

Data Process = \* Process of deleting  
employee late information to  
the database.\*

Delete Employee Overtime

Data Process = \* Process of deleting  
employee overtime  
information to the database.\*

Delete Employee Overtime Type

Data Process = \* Process of deleting  
employee overtime type  
information to the database.\*

Delete Employee Retirement

Data Process = \* Process of deleting  
employee retirement  
information to the database.\*

Edit Department	Data Process = * Process of editing department information to the database.*
Edit Employee Absent	Data Process = * Process of editing employee absent information to the database.*
Edit Employee Absent Type	Data Process = * Process of editing employee absent type information to the database.*
Edit Employee Information	Data Process = * Process of editing employee information to the database.*
Edit Employee Late	Data Process = * Process of editing employee absent type information to the database.*
Edit Employee Overtime	Data Process = * Process of editing employee overtime information to the database.*
Edit Employee Overtime Type	Data Process = * Process of editing employee overtime type information to the database.*
Edit Employee Retirement	Data Process = * Process of editing employee retirement information to the database.*

Generate Department Report                      Data Process = \* Process of generating  
departmental report.\*

Generate Employee Absent Report              Data Process = \* Process of generating  
employee absent report.\*

Generate Employee Information Report      Data Process = \* Process of generating  
employee report.\*

Generate Employee Late Report                Data Process = \* Process of generating  
employee late report.\*

Generate Employee Overtime Report        Data Process = \* Process of generating  
employee overtime report.\*

Generate Employee Retirement Report      Data Process = \* Process of generating  
employee retirement report.\*

Input Employee Absent                          Data Process = \* Process of Inputting  
employee absent to the  
database.\*

Input Employee Late                            Data Process = \* Process of Inputting  
employee late informaiton to  
the database.\*

Input Employee Overtime                      Data Process = \* Process of Inputting  
overtime information to the  
database.\*

Input Employee Retirement

Data Process = \* Process of Inputting retirement information to the database.\*

Input New Department

Data Process = \* Process of Inputting new department information to the database.\*

Employee

Storage = \* A table to keep employee information.\*

Overtime

Storage = \* A table to keep employee overtime information.\*

Overtime Type

Storage = \* A table to keep employee overtime type information.\*

Absent

Storage = \* A table to keep employee absent information.\*

Absent Type

Storage = \* A table to keep employee absent type information.\*

Employee Late

Storage = \* A table to keep employee late information.\*

Employee Retirement

Storage = \* A table to keep employee retirement information.\*

Department

Storage = \* A table to keep department information.\*

Employee

External Agent = \* A person who is hired by  
the hotel.\*

Executive

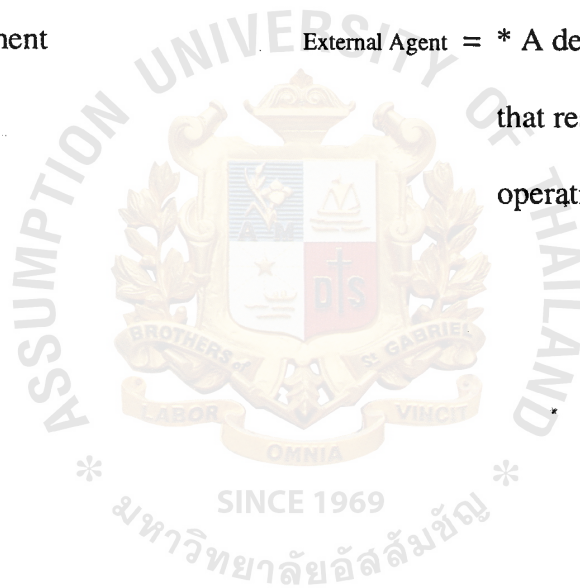
External Agent = \* A person who is hired by  
the hotel in manangement  
position.\*

Time Sheet

External Agent = \* A card fpr the employee to  
stamp when come to work  
and finish work.\*

Finance Department

External Agent = \* A department in the hotel  
that responsible for financial  
operation.\*





**APPENDIX F**  
**PROCESS SPECIFICATION**

## PROCESS SPECIFICATION

### Process 1.0 Update Employee

Process no. : 1.1

Process name : Create New Employee

Description : Inputting process when there is new employee is hired

Input : Employee Information

Output : Insert new employee information

Process : 1. Receive employee information from employee  
2. Input new employee information to employee database  
3. Return to personnel operation menu

Process no. : 1.2

Process name : Edit Employee Information

Description : Employee information is modified when employee information changed

Input : 1. Employee information change  
2. Employee information

Output : Changed employee information

Process : 1 Employee request to change information  
2. The process take the specific employee record from the database  
3. Employee information is changed according to the need of the employee  
4. Return to personnel operation menu

Process no. : 1.3

Process name : Delete Employee Information

Description : Employee information is deleted when there is some inputting mistake

Input : 1. Employee information delete  
2. Employee information

Output : Deleted employee information

Process : 1. Receive request for delete employee information  
2. The process take the specific employee record from the database  
3. Employee information is deleted  
5. Return to personnel operational menu

Process no. : 1.4

Process name : Generate Employee Information Report

Description : Generate employee information report upon executive request

Input : Employee information

Output : Employee report

Process : 1. Receive employee information from the database to generate employee report  
2. Generate report and send to executive

Process 2.0 Update Employee Overtime

Process no. : 2.1

Process name : Input Employee Overtime

Description : Input overtime information when employee has done an overtime work

Input : Employee overtime information

Output : Employee overtime information

Process : 1. Receive overtime information from time sheet  
2. Input employee overtime information to the database  
3. Return to personnel operation menu

Process no. : 2.2

Process name : Edit Employee Overtime

Description : Edit employee overtime information when there is a mistake

Input : 1. Employee overtime information  
2. Employee overtime information changed

Output : Changed employee overtime information

Process : 1. Receive employee overtime information changed from time sheet  
2. Receive employee overtime information from employee database  
3. Edit employee overtime information to the database  
4. Return to personnel operation menu

Process no. : 2.3

Process name : Delete Employee Overtime

Description : Delete employee overtime information when there is a mistake

Input : 1. Employee overtime information  
2. Employee overtime information deleted

Output : Deleted employee information

Process : 1. Receive employee overtime information deleted from time sheet  
2. Receive employee overtime information from employee database  
3. Delete employee overtime information to the database

4. Return to personnel operation menu

Process no. : 2.4

Process name : Generate Employee Overtime Report

Description : Generate employee overtime report and send to executive

Input : employee overtime information

Output : employee overtime report

Process : 1. Receive employee overtime information from the database  
2. Generate employee overtime report to executive

Process no. : 2.5

Process name : Create Employee Overtime Type

Description : Input new overtime type when there is a change from executive

Input : New overtime type information

Output : Inputted overtime type information

Process : 1. Receive new overtime type information from executive  
2. Create new employee overtime type to the database  
3. Return to personnel operation menu

Process no. : 2.6

Process name : Edit Employee Overtime Type

Description : Edit employee overtime type when there is a change from executive

Input : 1. Overtime type information  
2. Overtime type information changed

Output : Changed overtime type information

Process : 1. Receive overtime type information changed from executive  
2. Receive overtime type information from the database  
3. Edit employee overtime type information to the database  
4. Return to personnel operation menu

Process no. : 2.7

Process name : Delete Employee Overtime Type

Description : Delete employee overtime type when there is a change from executive

Input : 1. Overtime type information  
2. Overtime type information deleted

Output : Deleted overtime type information

Process : 1. Receive overtime type information deleted from executive  
2. Receive overtime type information from the database  
3. Delete employee overtime type information to the database  
4. Return to personnel operation menu

Process 3.0 Update Absent Information

Process no. : 3.1

Process name : Input Employee Absent

Description : Input employee absent when there is an absent of employee

Input : Employee absent information

Output : Inputted employee absent information

Process : 1. Receive employee absent information from time sheet  
2. Input employee absent information to the database  
3. Return to personnel operation menu

Process no. : 3.2

Process name : Edit Employee Absent

Description : Edit employee absent information when there is an inputted mistake

Input : 1. Employee absent information  
2. Employee absent information changed

Output : Changed employee absent information

Process : 1. Receive employee absent information changed from time sheet  
2. Receive employee absent information from the database  
3. Edit employee absent information to the database  
4. Return to personnel operation menu

Process no. : 3.3

Process name : Delete Employee Absent

Description : Delete employee absent information when there is an inputted mistake

Input : 1. Employee absent information deleted  
2. Employee absent information

Output : Deleted employee absent information

Process : 1. Receive employee absent information deleted from time sheet  
2. Receive employee absent information from the database  
3. Delete employee absent information to the database  
4. Return to personnel operation menu

Process no. : 3.4

Process name : Generate Employee Absent Report

Description : Generate employee absent report to present to executive

Input : Employee absent information

Output : Employee absent report

Process : 1. Receive employee absent information from the database  
2. Generate employee absent information report to executive

Process no. : 3.5

Process name : Create Employee Absent Type

Description : Create employee absent type when executive request

Input : New absent type information

Output : Inputted new absent type information

Process : 1. Receive new absent type information from executive  
2. Inputted new absent type information to the database  
3. Return to personnel operation menu

Process no. : 3.6

Process name : Edit Employee Absent Type

Description : Edit employee absent type when executive request

Input : 1. Absent type information  
2. Absent type information changed

Output : Changed absent type information

Process : 1. Receive absent type information from the database  
2. Receive absent type information changed from executive  
3. Edit employee absent type information to the database  
4. Return to personnel operation menu

Process no. : 3.7

Process name :Delete Employee Absent Type

Description : Delete employee absent type when executive request

Input : 1. Absent type information  
2. Absent type information deleted

Output : Deleted absent type information

Process : 1. Receive absent type information from the database  
2. Receive absent type information deleted from executive  
3. Delete employee absent type information to the database  
4. Return to personnel operation menu

Process 4.0 Update Employee Late

Process no. : 4.1

Process name : Input Employee Late

Description : Input employee late information to the database

Input : Employee late information

Output : Insert employee late information

Process : 1. Receive employee late information from time sheet  
2. Input employee late information to the database  
3. Return to personnel operation menu

Process no. : 4.2

Process name : Edit Employee Late

Description : Edit employee late information to the database

Input : 1. Employee late information

2. Employee late information changed

Output : Changed employee late information

- Process :
1. Receive employee late information from the database
  2. Receive employee late information changed from time sheet
  3. Edit employee late information to the database
  4. Return to personnel operation menu

Process no. : 4.3

Process name : Delete Employee Late

Description : Delete employee late information to the database

- Input :
1. Employee late information
  2. Employee late information deleted

Output : Deleted employee late information

- Process :
1. Receive employee late information from the database
  2. Receive employee late information deleted from time sheet
  3. Deleted employee late information to the database
  4. Return to personnel operation menu

Process no. : 4.4

Process name : Generate Employee Late Report

Description : Generate employee late report to executive

Input : Employee late information

Output : Employee late report

- Process :
1. Receive employee late information from the database
  2. Generate employee late report to executive

## Process 5.0 Update Employee Retirement

Process no. : 5.1

**Process name : Input Employee Retirement**

**Description** : Input employee retirement to the database

**Input** : Employee retirement information

**Output** : Inputted employee retirement information

Process : 1. Receive employee retirement information from employee

2. Input employee retirement to the database

3. Return to personnel operation menu

Process no. : 5.2

**Process name : Edit Employee Retirement**

**Description** : Edit employee retirement to the database

Input : 1. Employee retirement information  
2. Employee retirement information changed

**Output** : Changed employee retirement information

Process : 1. Receive employee retirement information from the database

2. Receive employee retirement information changed from employee

3. Edit employee retirement information to the database

4. Return to personnel operational menu

Process no. : 5.3

Process name : Delete Employee Retirement

**Description** : Delete employee retirement to the database

Input : 1. Employee retirement information  
2. Employee retirement information deleted

Output : Deleted employee retirement information

Process : 1. Receive employee retirement information from the database  
2. Receive employee retirement information deleted from employee  
3. Deleted employee retirement information to the database  
4. Return to personnel operational menu

Process no. : 5.4

Process name : Generate Employee Retirement Report

Description : Generate employee retirement report to executive

Input : Employee retirement information

Output : Employee retirement report

Process : 1. Receive employee retirement information from the database  
2. Generate employee retirement report to executive

Process 6.0 Update Department

Process no. : 6.1

Process name : Create New Department

Description : Create new department upon the request of executive

Input : Department information

Output : Inputted department information

Process : 1. Receive department information from executive  
2. Inputted department information to the database

Process no. : 6.2

Process name : Edit Department

Description : Edit department upon the request of executive

Input : 1. Department information  
2. Department information changed

Output : Changed department information

Process : 1. Receive department information from the database  
2. Receive department information changed from executive  
3. Edit department information to the database  
4. Return to personnel operational menu

Process no. : 6.3

Process name : Delete Department

Description : Delete department upon the request of executive

Input : 1. Department information  
2. Department information deleted

Output : Deleted department information

Process : 1. Receive department information from the database  
2. Receive department information deleted from executive  
3. Delete department information to the database  
4. Return to personnel operational menu

Process no. : 6.4

Process name : Generate Department Report

Description : Generate department report to executive

Input : Department information

Output : Department report

Process : 1. Receive department information from the database

2. Generate department report to executive

#### Process 7.0 Calculate Salary Employee

Process no. : 7.1

Process name : Accept Request Form

Description : Accept employee salary requested from financial department

Input : Employee salary requested

Output : 1. Request for overtime information

2. Request for salary information

Process : 1. Receive a employee salary requested from the finance department

2. Request for overtime information to overtime database

3. Request for salary information to employee database

Process no. : 7.2

Process name : Calculate Salary

Description : Calculate salary of each employee

Input : 1. Employee salary information

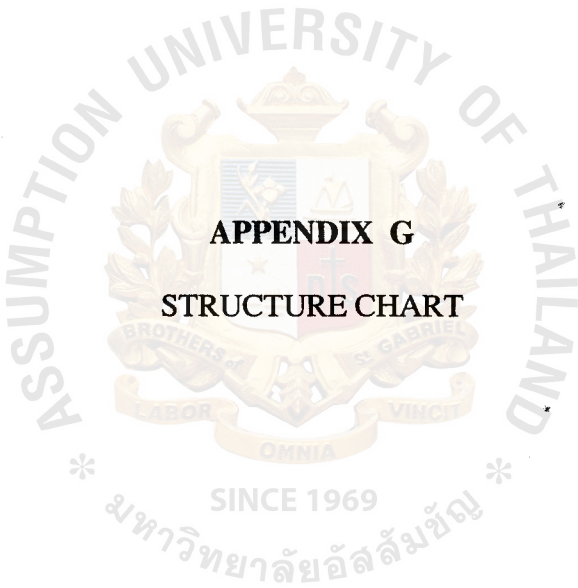
2. Employee overtime information

Output : Total employee payment information

Process : 1. Receive employee salary information from the database

2. Receive employee overtime information from the database

3. Calculate total payment and send to finance department



**APPENDIX G**

**STRUCTURE CHART**

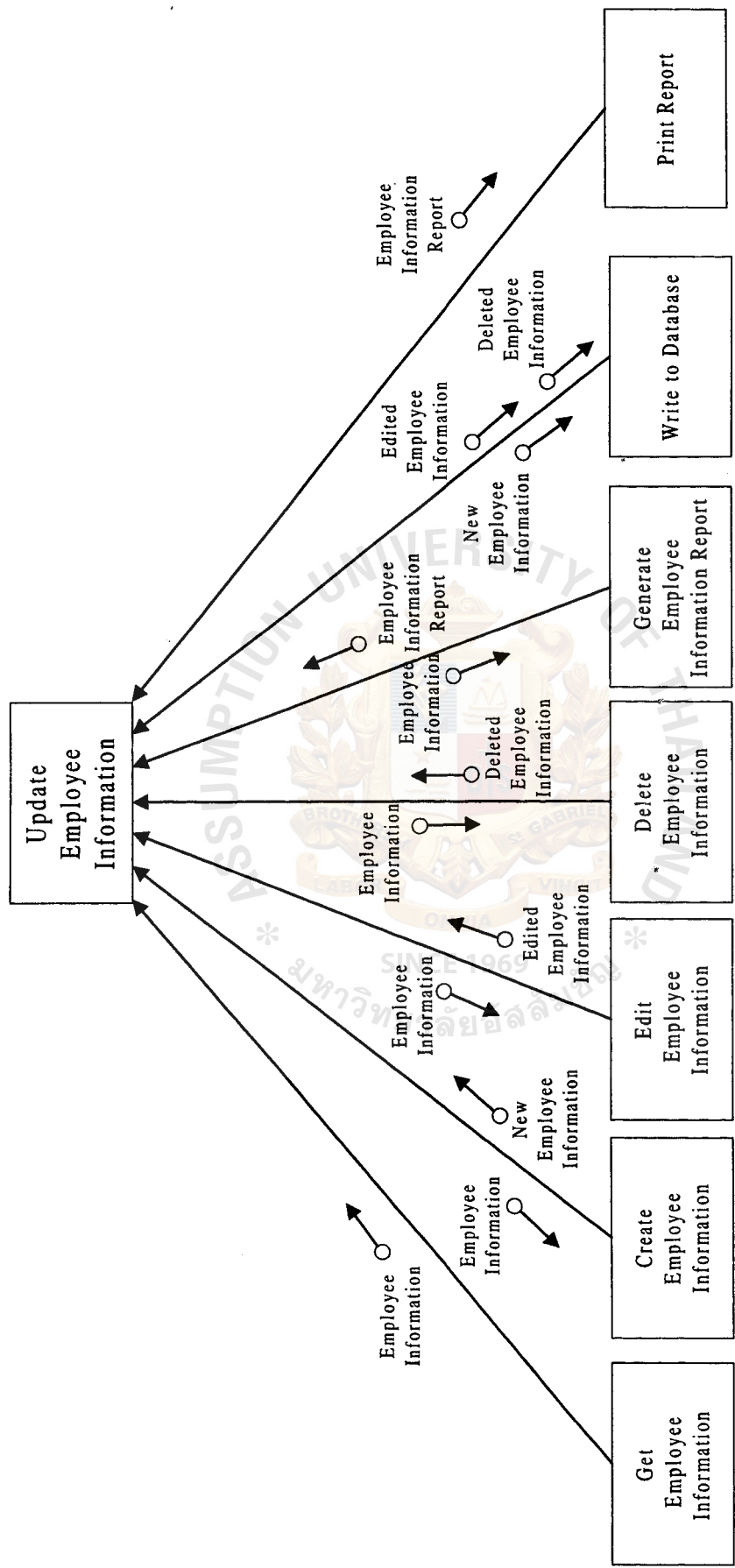


Figure G.1. Structure Chart of Process Update Employee Information.

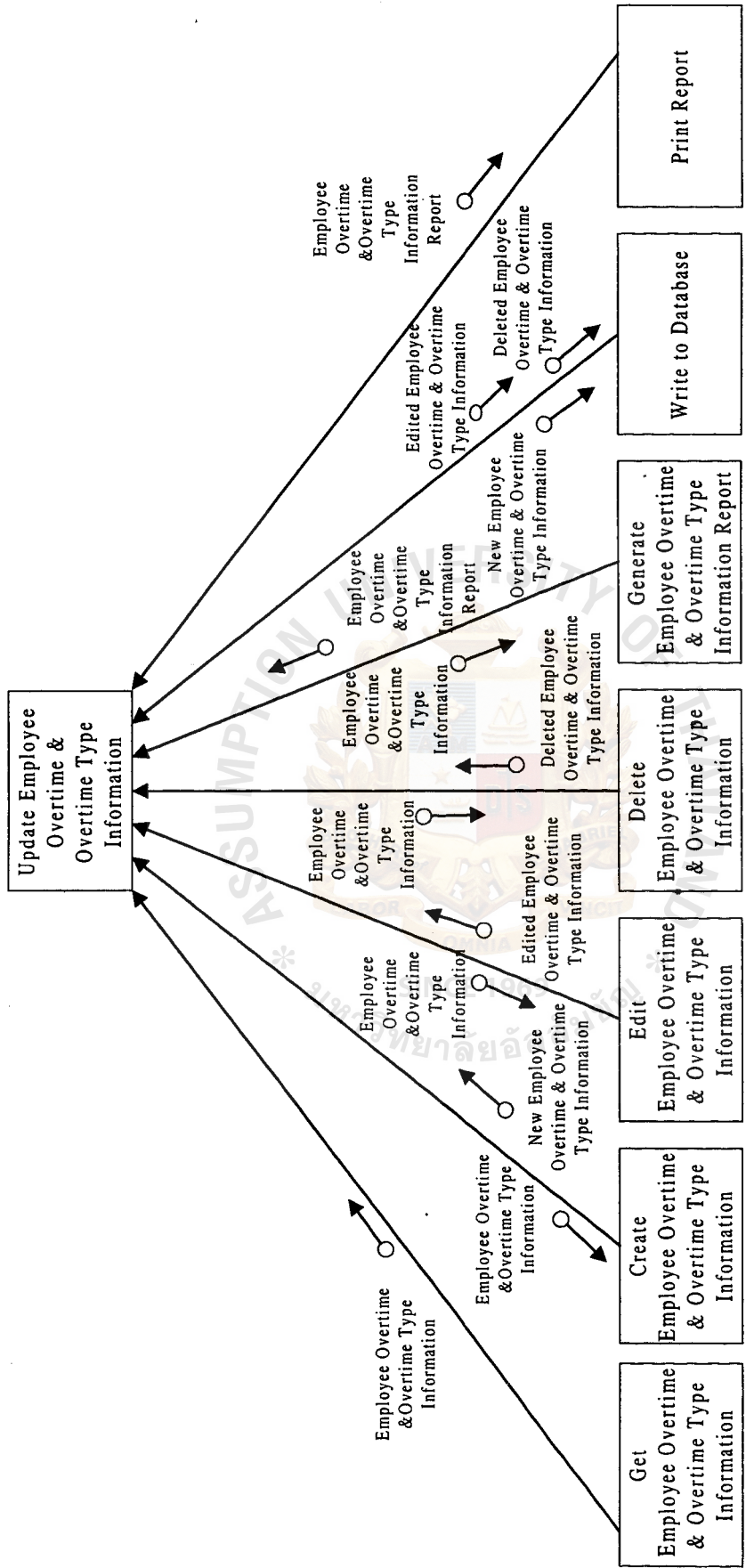


Figure G.2. Structure Chart of Process Update Employee Overtime Information.

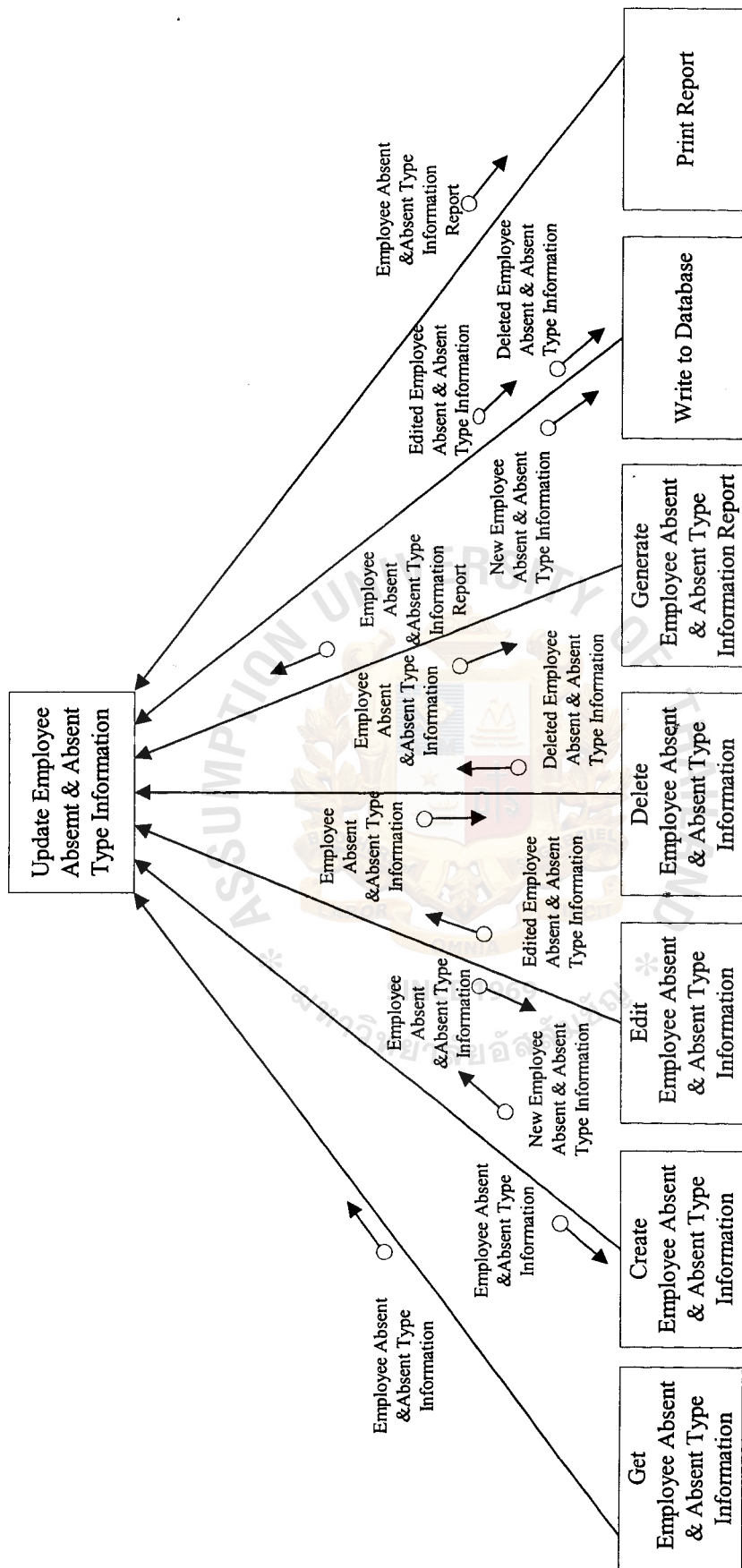


Figure G.3. Structure Chart of Process Update Employee Absent Information.

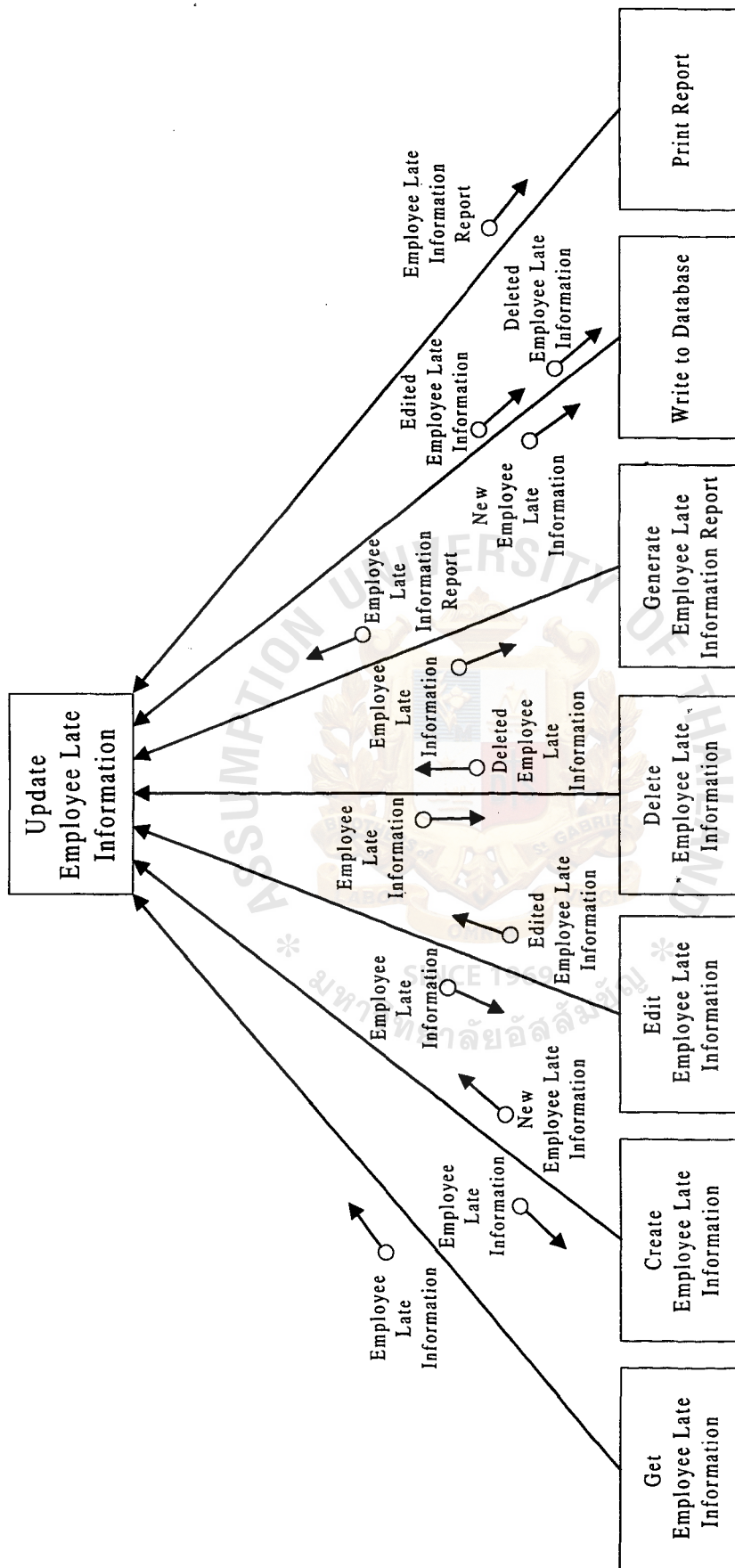


Figure G.4. Structure Chart of Process Update Employee Late Information.

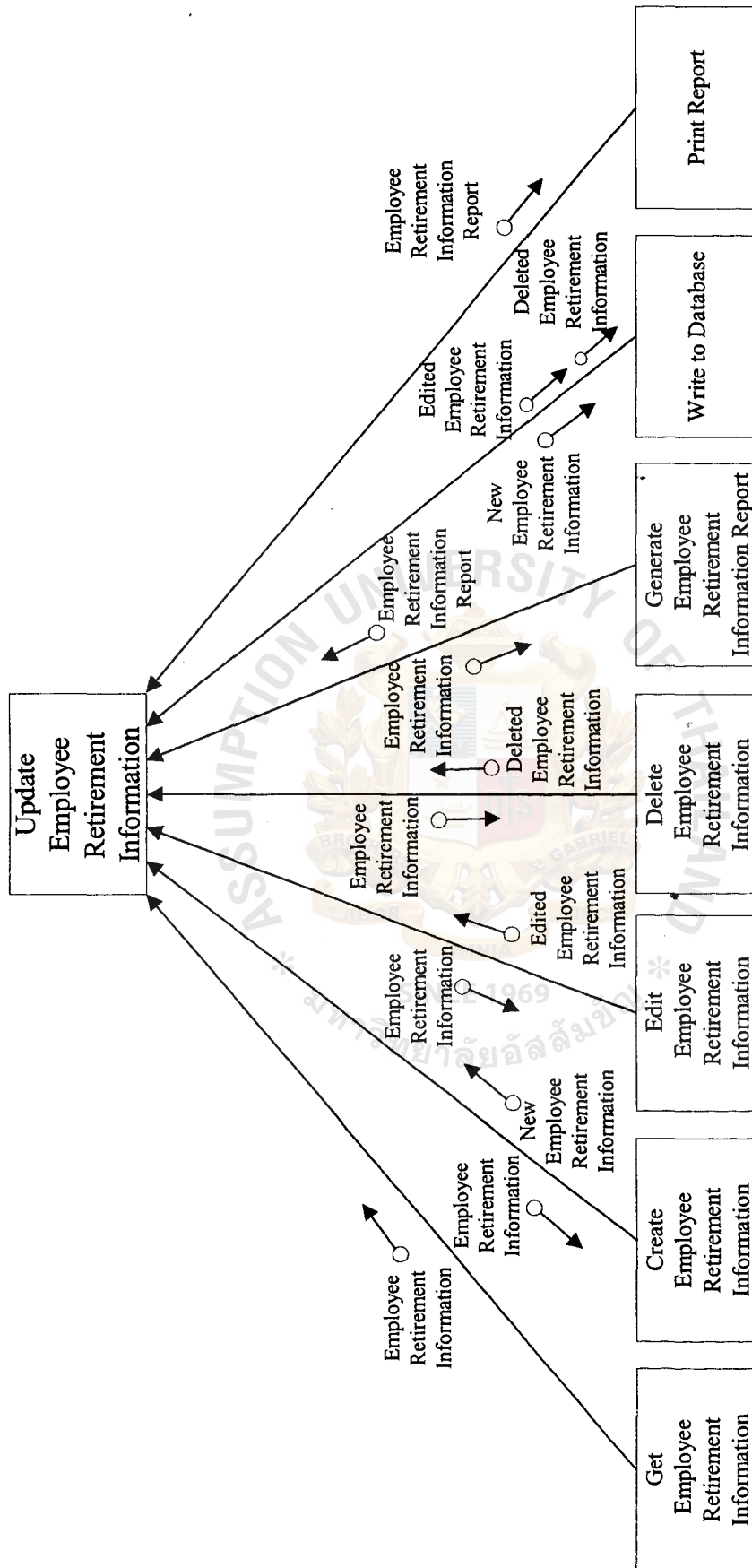


Figure G.5. Structure Chart of Process Update Employee Retirement Information

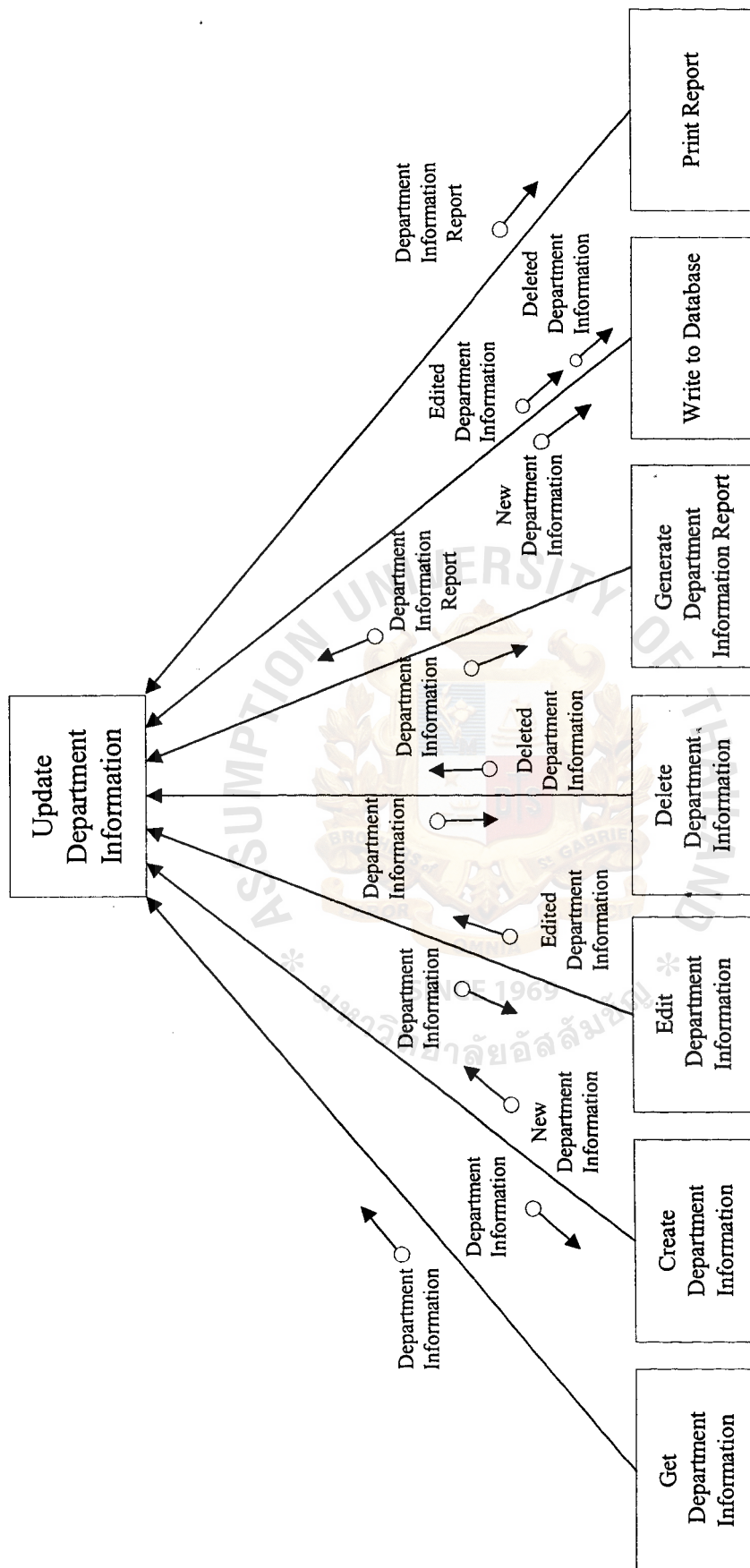


Figure G.6. Structure Chart of Process Update Department Information

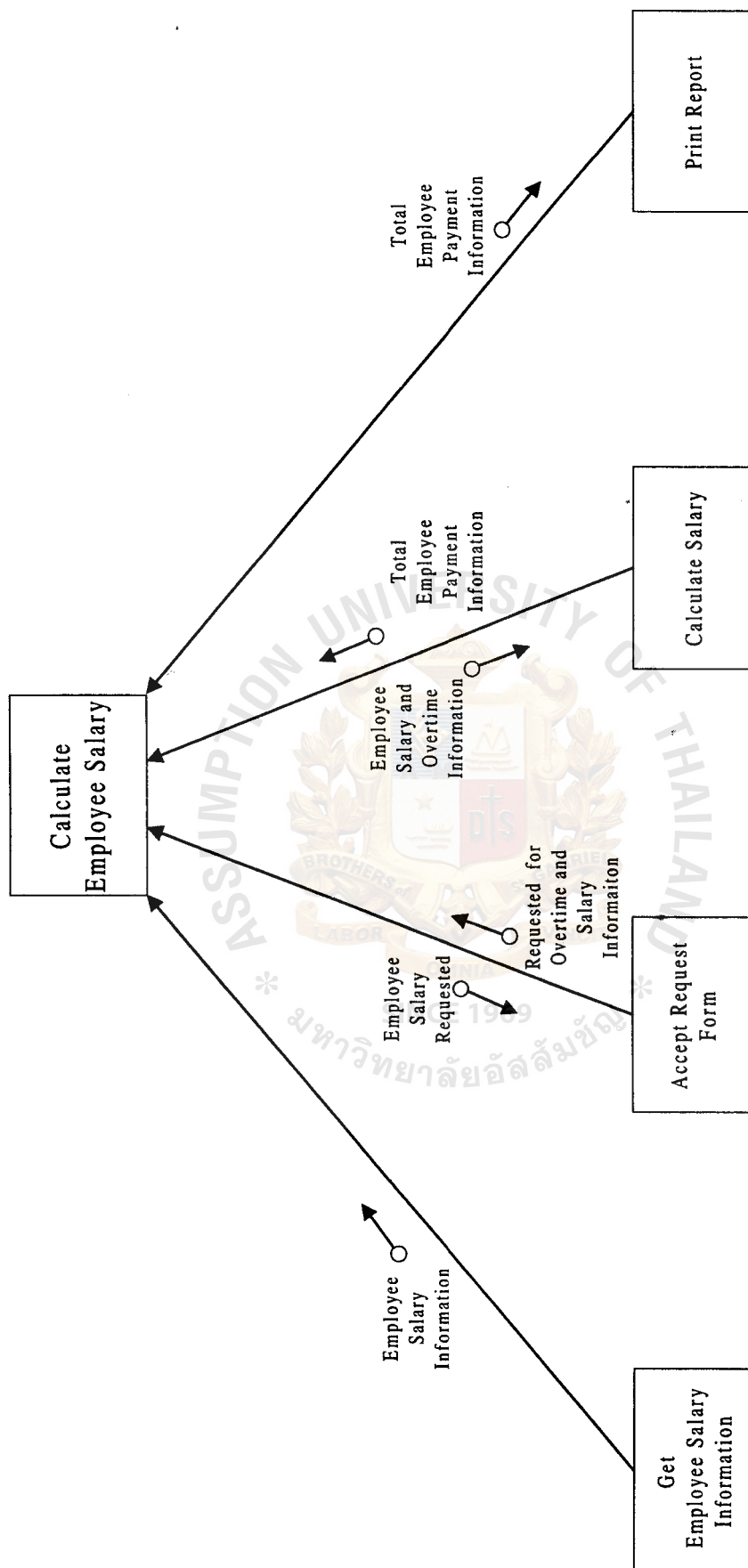


Figure G.7. Structure Chart of Process Calculate Employee Salary.

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