



# JOB DESCRIPTION ON NOTES DATABASE SYSTEM

By

MS. SIWIMON LEENOI

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

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

April, 1998



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Project Title : Job Description On Notes Database System  
Name : Ms.Siwimon Leenoi  
Project Advisor : Dr.Aran Namphol  
Academic Year : 1998


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


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## ABSTRACT

The system development project was developed to improve the existing Database System at Human Resources Department of Big Bear Appliances (Thailand) Limited. The emphasis are systematic, computerization of the information storage and retrieve on the existing Notes Database system. Presently, the standard Job Description Center keeps considerable amount of information about Job Description workflow. The existing system does not provide timely, correct information, systematic, redundancy, and inconsistency due to the number of files on various disk storage making it to be imbalance conflicting requirements.

Considering these and many other problems, the proposed system was designed to support correctness, timeliness, and to increase efficiency of Job Description workflow in the work place. Using computerized system on the existing Lotus Notes Application instead of using manual system in order to utilize economically both the hardware and the software. Designing the job description to be standardized on database notes for providing to control stages of processing or to keep transaction logging of revision which schedule every 6 months. Creating security restriction system for authorized group only which can guarantee security better than using password in Excel against password changing or telling. Summarizing system reports or back-up data to support management decision making. ISO standard requirement, auditing purposes, and further action plan. The tools of structured analysis such as a context diagram, data flow diagrams, and data dictionary are used for analysis phase. The detailed design is achieved through file design, software design, screen design, and report design.

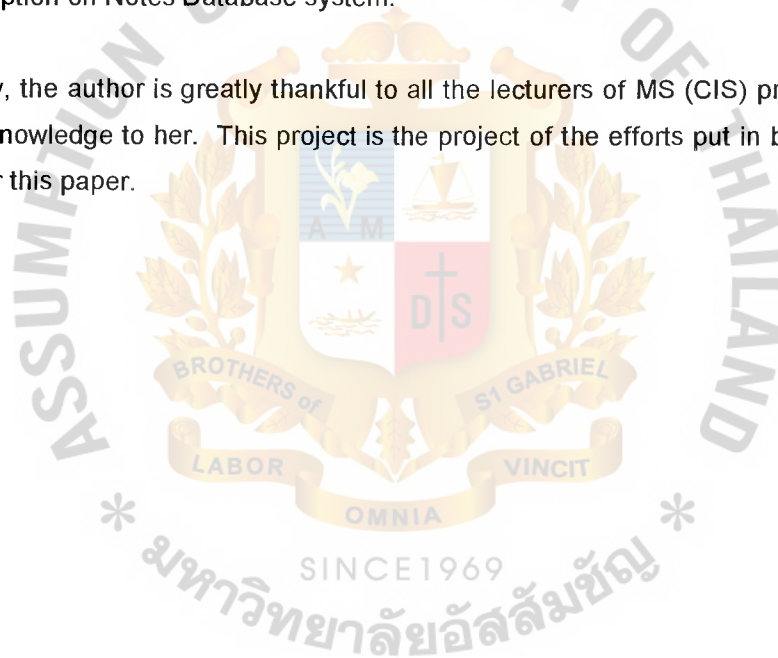
Finally, the major of this project is a computerized system that would enhance the effectiveness of Job Description on Notes Database system in attaining its objectives.

## ACKNOWLEDGMENTS

The author would like to take this opportunity to express her earnest appreciation to Dr. Aran Namphol, the advisor of this project, for spending his valuable time in counseling, repetitive corrections, and motivation which made this project possible within the time frame.

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Finally, the author is greatly thankful to all the lecturers of MS (CIS) program for imparting their knowledge to her. This project is the project of the efforts put in by them in preparing her for this paper.



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# I. INTRODUCTION

## 1.1 Background of the Project

Big Bear Appliances (Thailand) Limited was established in 1988 as a wholly-owned Big Bear Subsidiary. The company produces microwave ovens, facsimiles, refrigerators, and air conditioners. Big Bear also entered the customer-driven, commodity services characterized by low margins where differentiation may be in distribution or manufacturing costs.

Big Bear places great value in offering services that are key to customers' satisfaction. Big Bear is serious in working closely with local and international partners in order to provide more services to customers in Thailand.

Presently, Big Bear Appliances (Thailand) Limited employs 14,951 people in **Teparak Plant** ; 4,577 people in **Korat Plant** ; 3,250 people in **Chokchai Plant** ; 7,532 people in **Wellgrow Plant** ; and 5,912 people in **Rayong Plant**. There are more than 45 customer service centers in Thailand. Teparak is the biggest plant which is the information system center to support or to provide to other plants in Thailand.

With the growing acceptance of information technology today, the technology will be widely available and used. Presently, timely and meaningful information on databases system (computerized record-keeping system) is essential for management 's effective to control man-power & working-hour for data-support to provide on-time accurate, and relevant information on the system. The databases itself can be regarded as a kind of electronic filing cabinet, it is a repository for a collection of computerized data files which given facilities to perform a variety of operation on such file, including adding & inserting new and retrieving, updating, and deleting the existing data. To solve some manual problems about inaccurate and inefficient consequently, so to strive system improvement by using computerized system in databases for providing consistent, accurate timely, relevant

information, and less time to processing. Big Bear Appliances (Thailand) Limited has risen to the challenge by the establishment of Human Resources department which is responsible for the arrangement of record keeping that now has a number of problems related to daily operation in terms of efficiency, redundant data, etc. These are the main problems that lack of information for record-keeping system though Personal Computers are being used with various computer application (such as Lotus Notes Application) in the office. But mostly use them for clerical functions.

## **1.2 Objectives of the Project**

The objectives of the project on standard Job Description system in database Notes can be categorized as follows :-

1. To reduce redundancy in stored data files/hard-copies of each related sections, with resultant waste in storage space and to be centralize system in maintenance and control.
2. To avoid inconsistency (to some extent) when one of others has been updated and the other has not, include other operations of insertion, deletion, and modification for data files and hard-copies of each related sections.
3. To share data for completeness not only the existing data can share, but also the new data can be developed to operate at the same data storage.
4. To enforce standard in central control of databases which aid to data interchange, or migration of data between each related sections.
5. To apply security restrictions under appropriate direction from authorized persons in different rules which established for each type of access (retrieve, insert, delete, etc.) to each type of information in the Database system.
6. To maintain integrity, ensuring the data in Database is accurate, no redundancy might still contain incorrect information, so using centralized control of Database can avoid this problem. This case is more important in a multi-user Database system when sharing databases.

7. To balance conflicting requirements, knowing the overall requirements can provide an overall good service.
8. To be systematic in providing management with timely, meaningful, and reliable information.
9. To merge the existing system to Job Description process and develop for more effectiveness and efficiency support.
10. To reduce time and paperless
11. To conform to ISO requirement

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

The project will cover major parts of computerized recording-keeping system for standard JD on databases notes which can be categorized as follows :-

1. Study Job Description Information System  
It will concern about some more details of Job Description, to study and to analyze the existing private file/data storage of related sections in the organizations, then analyze data/data - recording to be standardization.
2. Analyze the Existing System and the Proposed System of Organization  
It will concern about the existing Lotus Notes Application System of the organization and methods of system (how to merge the existing Job Description process to Lotus Notes System) then design system.
3. Analyze and Design the Database
4. Specify the Authorized persons in security restriction  
It will specify the authorized levels to establish each type of access (receiving, updating, recording, printing, etc.) for data security, then design security system.

## **1.4 Activities of the Project**

The activities of the project can be classified as follows :-

### **Phase I : System Analysis**

#### **(1). Study Job Description process**

- Meeting & Discussion
- Job Description review
- Duties and responsibilities of Job Description Writing
- Job Description writing method
- Method of standard Job Description in data and record-keeping

#### **(2). Define Problems**

- Collect data & identify problems
- Interview personal involved & identify system problems
- Gather data
- Evaluation & conclusion

#### **(3). Understanding Existing System**

- Develop a complete understanding of the entire system
- Requirement analysis

#### **(4). Study the existing Lotus Notes Application**

- Introduction application in working method
- How to create/design databases on Notes application

#### **(5). Analyze data and the existing system**

- Observe the current system
- Gather general data & information of each departments
- Evaluate the entire system

### **Phase II : Detailed Analysis & Design**

#### **(1). Define system requirement**

- Define the current and the future requirement



(2). Design new system

- Design inputs, outputs, and operations
- Document the new design

Phase III : Implementation (New System)

(1). User's testing & Evaluation

(2). Documentation & Implementation

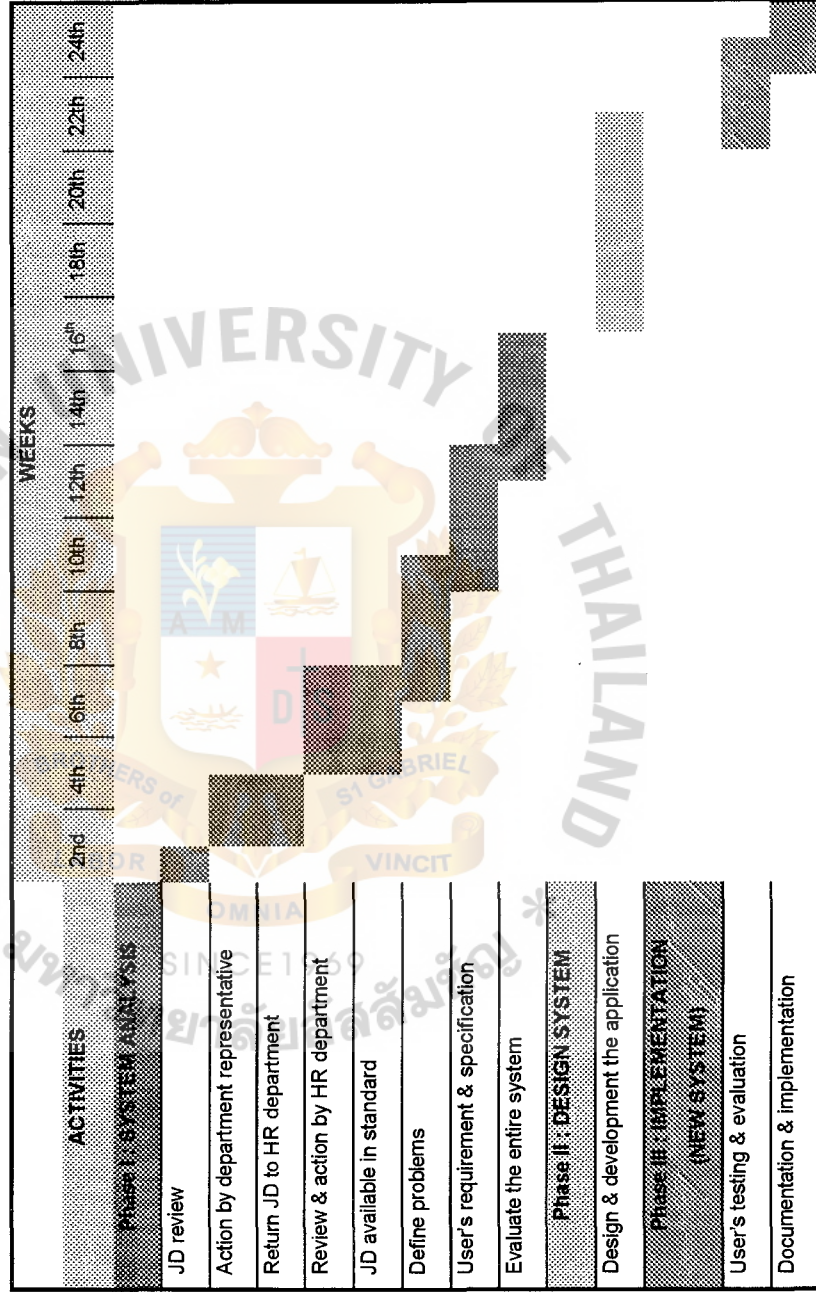
(3). Emphasize or building the new system and training HR staff (excluded in this project).



### 1.5 Outline of Project Plan

The project plan may be given in terms of the Gantt Chart (as shown in Table 1.1)

Table 1.1. Project Plan



## II. EXISTING SYSTEM

### 2.1 History of Big Bear Appliances (Thailand) Limited

#### About Big Bear Corporation

It is the leading worldwide manufacturing industry, development and implementation of appliances. It employs more than 120,000 people in 100 countries worldwide.

An international company, Big Bear does more than half of its business outside. Japan, developing and manufacturing products and providing customers services. In the Americas, Europe, and Asia.

Worldwide operations are now structured in three large geographics : the Americas, and Europe. Including Asia comprises Japan and South Pacific.

#### About Big Bear Organization

Big Bear Asia covers all of the countries in Asia. Today, throughout the Asia Region, which is headquartered in Japan, Big Bear has eight subsidiaries : Hong Kong, India, Malaysia, Singapore, South Korea, Taiwan, and Thailand. Big Bear's presence in the People's Republic of China and the Philippines is through a joint venture agreement with Big Bear's current distributor in Indonesia. Elsewhere in Bangladesh, Pakistan, Vietnam and Sri Lanka, business is handled by Big Bear's well-established local distributors.

The company is developing a business presence in Cambodia, Nepal, and other developing countries.

There are currently five manufacturing located in Hong Kong, India, Singapore, Taiwan, and Indonesia respectively.

Big Bear Asia has a strong and unified organization. The regional sales and support activities are organized into the functions of Sales, Marketing, and services.

### About Big Bear Appliances (Thailand) Limited

Big Bear Appliances (Thailand) Limited was established in 1988 as a wholly-owned Big Bear Subsidiary. The company produces microwave ovens, facsimiles, refrigerators, and air conditioners. Big Bear also entered the customer-driven, commodity services characterized by low margins where differentiation may be in distribution or manufacturing costs.

Big Bear places great value in offering services that are key to customers' satisfaction. Big Bear is serious in working closely with local and international partners in order to provide more services to customers in Thailand.

Presently, Big Bear Appliances (Thailand) Limited employs 14,951 people in **Teparak Plant** ; 4,577 people in **Korat Plant** ; 3,250 people in **Chokchai Plant** ; 7,532 people in **Wellgrow Plant** ; and 5,912 people in **Rayong Plant**. There are more than 45 customer service centers in Thailand. Teparak is the biggest plant which is the information system center to support or to provide to other plants in Thailand.

### About Big Bear Appliances (Teparak) Limited

Teparak plant is the center plant of Big Bear Appliances (Thailand) Limited. There are 11 main departments and approximate 73 sections. It is the biggest plant, which is the information system center to support or to provide to other plants in Thailand.

There are 3 employee categories through job analysis/evaluation, also determines which jobs are subject to the wage and hour provisions of Labour Law. If a position is classified "NON-EXEMPT" the employee is employed in undergraduate level. A position is classified "EXEMPT", the employee is employed in graduated level. Such positions are not required for undergraduate or graduated level which are "DAILY".

### About Human Resources (Teparak)

Teparak Human Resources department handles many big duties and responsibilities. The department supports Human Resources information system, employee relations, benefits, compensation, administration services, professional recruitment & development, training development, continuous process improvement support, environment health & safety, security & general affairs, and telecommunication services for mass media.



In view of many big duties and responsibilities, the system development projects will be generated to improve/ to support/ to develop the existing system. It was emphasized the computerization of information support to provide timeliness, correctness, system, redundancy, inconsistency, factory paperless, convenience for internal and external customer satisfaction.

## **2.2 The Existing System & Process**

### About existing system of this project

The existing Human Resources process was granted is “ Job Description Process “. The existing Job Description process is manual with enormous hard copy in file cabinets handle by 2 sources (Human Resources and 11 main departments). For 11-main department purpose is their convenient utilization. For Human Resources purposes are back-up record, ISO and standard requirement. Some problems for two sources are incorrectness, timeliness, redundancy, inconsistency, factory paper, inconvenience and complicate workflow.

While the existing office application system was also granted is “ Lotus Notes Application “ . It provides Notes' e-mail and attached files to e-mail as well as import and export files to e-mail messages to take full advantage of Notes' capabilities. It also enables all exempt and non-exempt employees to easily access database information, create own database, and access document databases containing such company documents as forms, reports, lists, articles, and other information, as well as open, edit, and post changes to documents in a database.

Both the existing Job Description process and the existing Lotus Notes Application system could be merged to support the objectives and to accomplish this project.

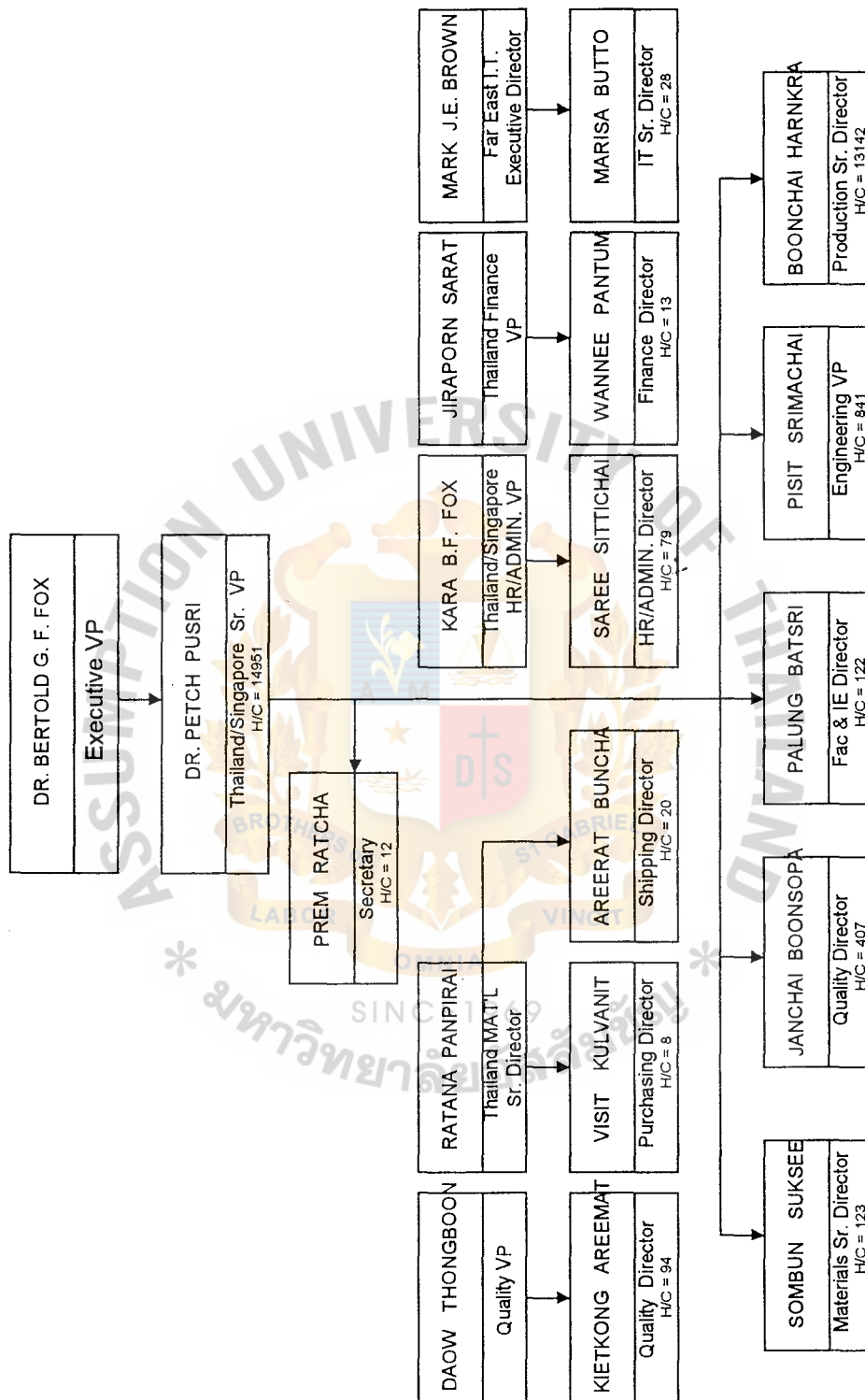


Figure 2.1. Big Bear Appliances (Thailand) Limited

### III. THE PROPOSED SYSTEM

#### 3.1 The User's Requirement

- To be systematic, on-line information
- To support paperless factory.
- Data Center, stored existing Job Description all position of all department at Teparak site on Notes database.
- Support electronic workflow about requisition a new job description from department concerned
- Support electronic workflow to change existing job description requisition by department concerned
- In case of promote/upgrade, hard copy of current job description and new job description are required to submit along with ESR and justification to HR dept.
- If new job description does not exist in Standard Job Description, new job description file and hard copy will be sent to HR department for approval and keep in HR's Standard Job Description file, copy of approved new job description will be sent to department concerned .

#### 3.2 The Problems

The worksheet was designed for publishing rather than data-processing purpose. There are no appropriate security mechanism. Using password in Excel is applicable at file scope so that HR has to group many sets of JD for all sections. Nevertheless there is no guaranteed control for HR against password changing or telling.

#### 3.3 The Specification for User Requirements

- Managers can view their team's JDs from their terminals, with restriction controllable by HR.
- A facility to track JD modification requested from managerial level and up. It can indicate stages of processing such as requested by who, received or done by HR officer.
- A way to keep transaction logging of revision of JD.

#### 3.4 The Proposed Specification Requirements

- JD database center for all existing position/department
- Support new JD requisition workflow
- Support to revise existing JD schedule on 6 months/time.

### 3.5 New JD Requisition Workflow

- Department concerned enter request on Lotus Notes included with detail of new JD and management approval.
- Review & Verified by HR department management.
- If the requisition acceptable by HR department management then stored in JD database center with " Complete " or " On going " status, else shown with " Reject "

### 3.6 Revised Existing JD Workflow

The all department received notice from HR department management to revise JD on 6 months/year. Concerned department revised and approved by management. Then review & verified the JD by HR management and stored in JD database.

### 3.7 Advantages from Proposed System

Table 3.1. Advantages - Proposed System

Titles	The existing system	The proposed system
1. Paper work	use many papers when promotion/ upgrade cases held 2 times/month (estimate 2,000 – 3,000 pcs/year)	Just refer only reference code
2. Time	many departments have to make many copies	no need to make copies.
3. Data input	Department secretary Management or above level	Only HR representative
4. Data output	some managers or above level (totally 150-200 persons)	all managers and above level (more than 150-200 persons)
5. Project Implement	individual site	Now : Only Teparak site Future : All Thailand sites
6. Security Restriction	not control security access	Can control security access
7. Sensitive information	specific reader levels for sensitive information	Specific only manager and above level to see JD neither higher than his/her position nor of different sections.
8. Determine information to become interactive	not control headcount quota, new replacement on process	Easily control headcount quota, new replacement on process



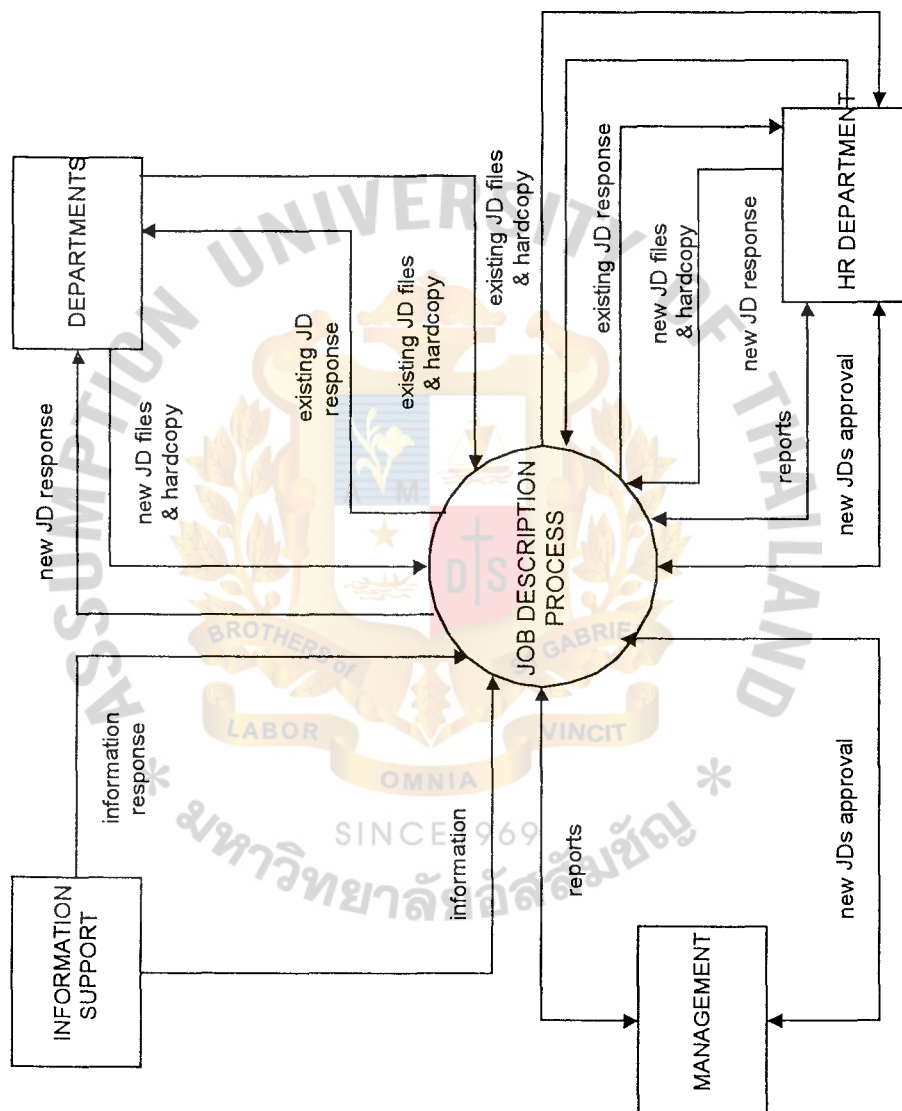


Figure 3.1. Context Diagram ( The Existing System)

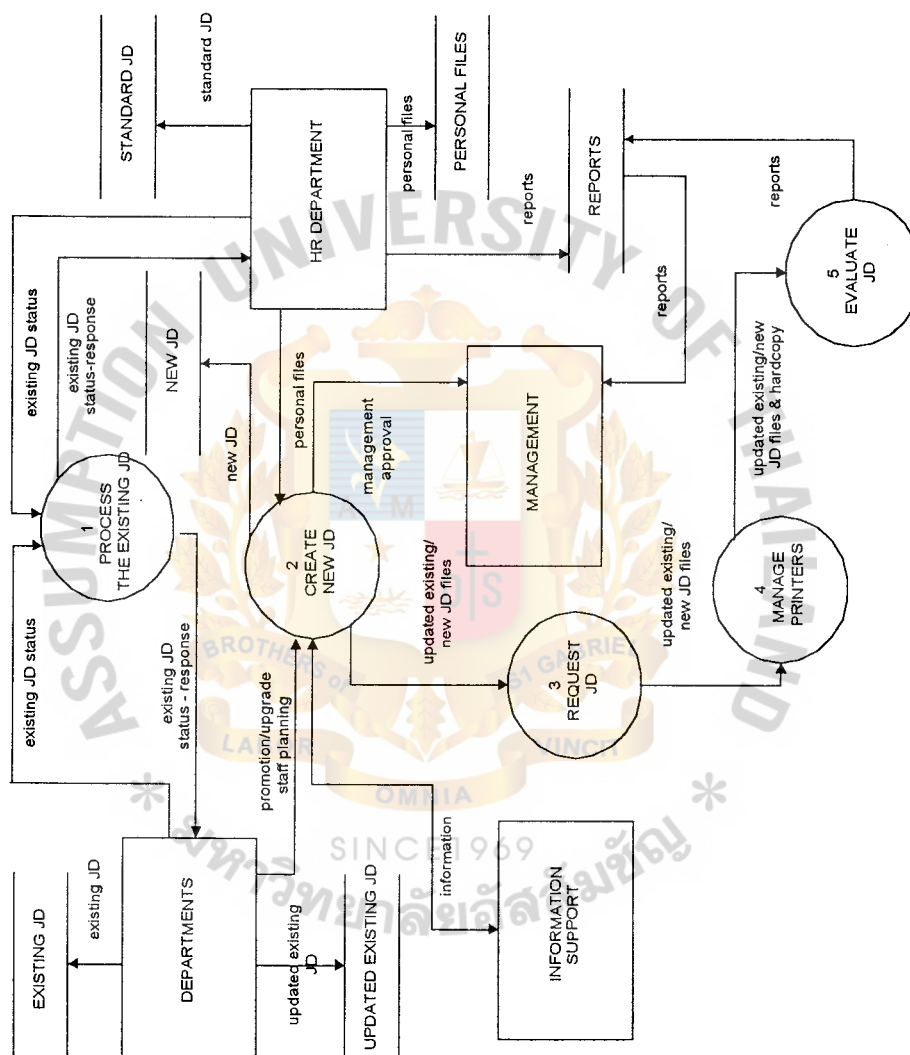


Figure 3.2. Data Flow Diagram (Level 0)

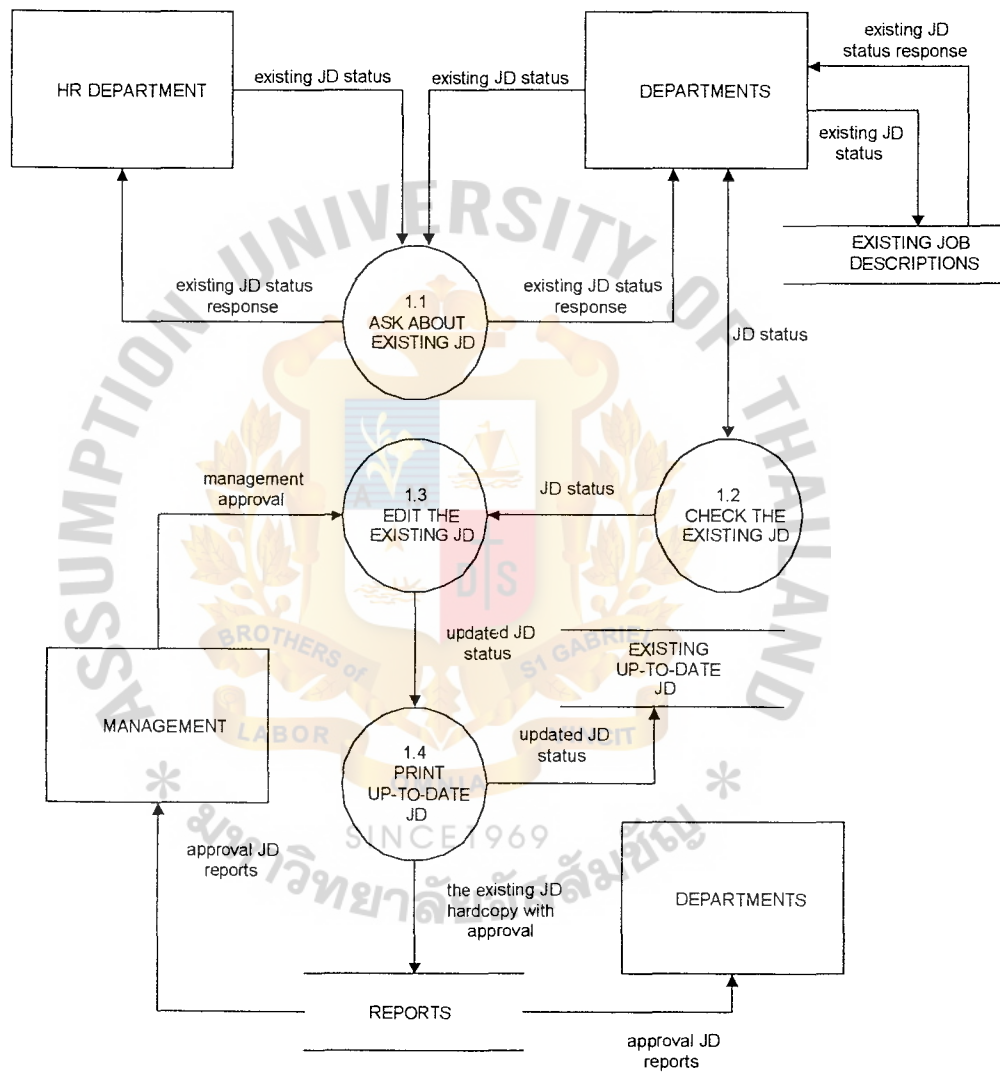


Figure 3.3. Process the existing Job Description

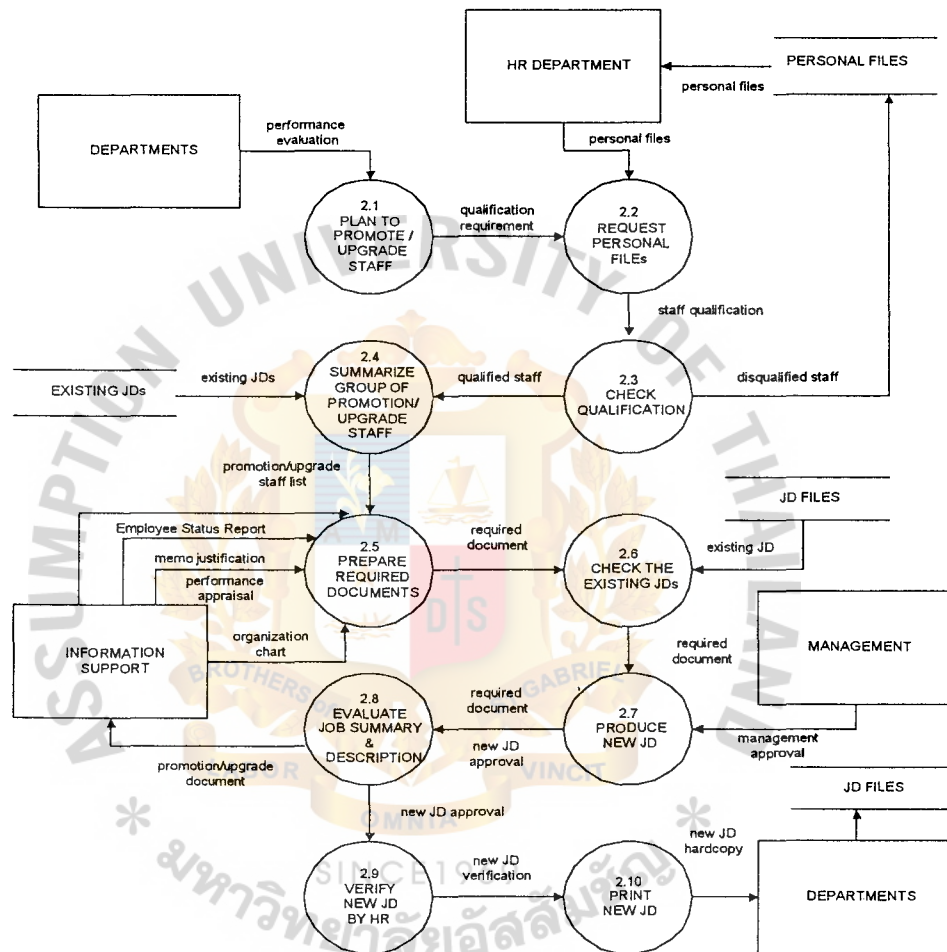


Figure 3.4. Create new Job Description

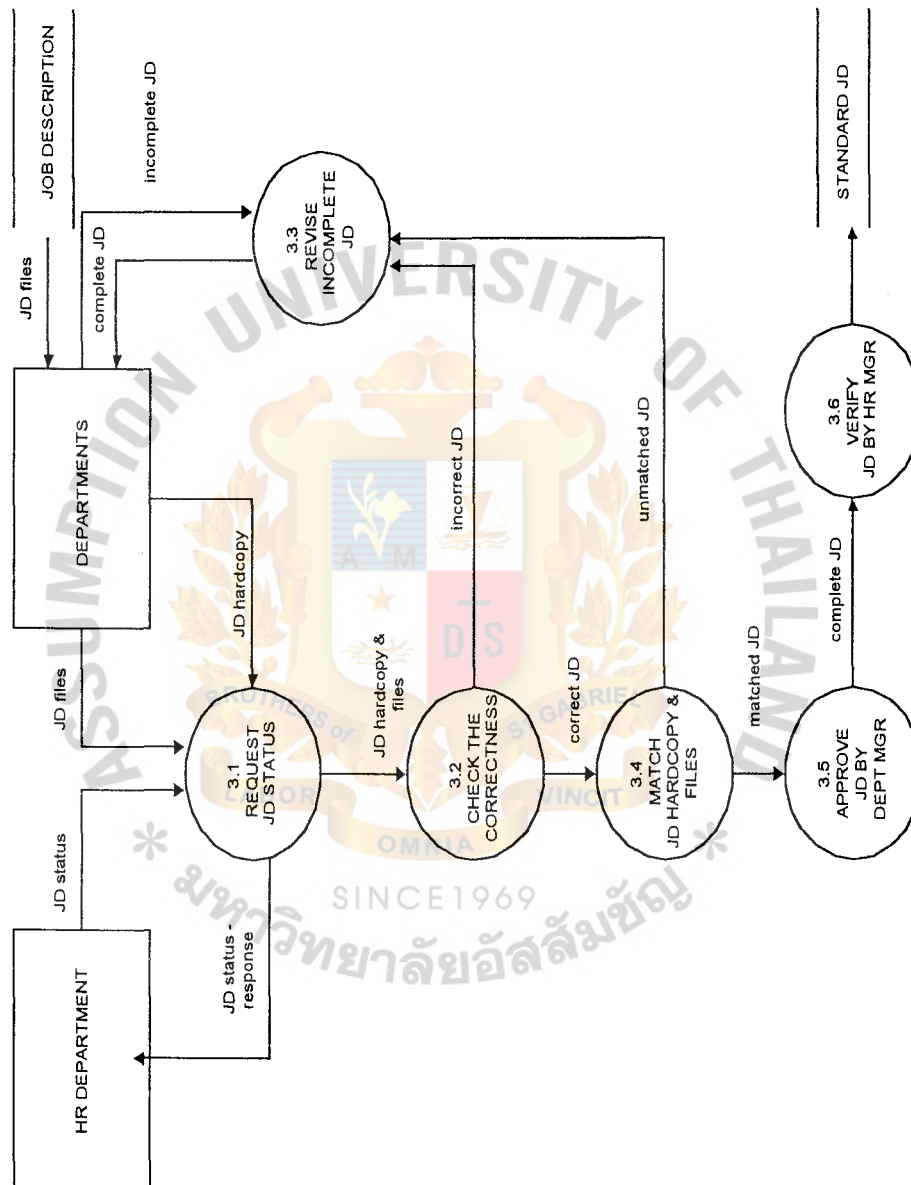


Figure 3.5. Request Job Description



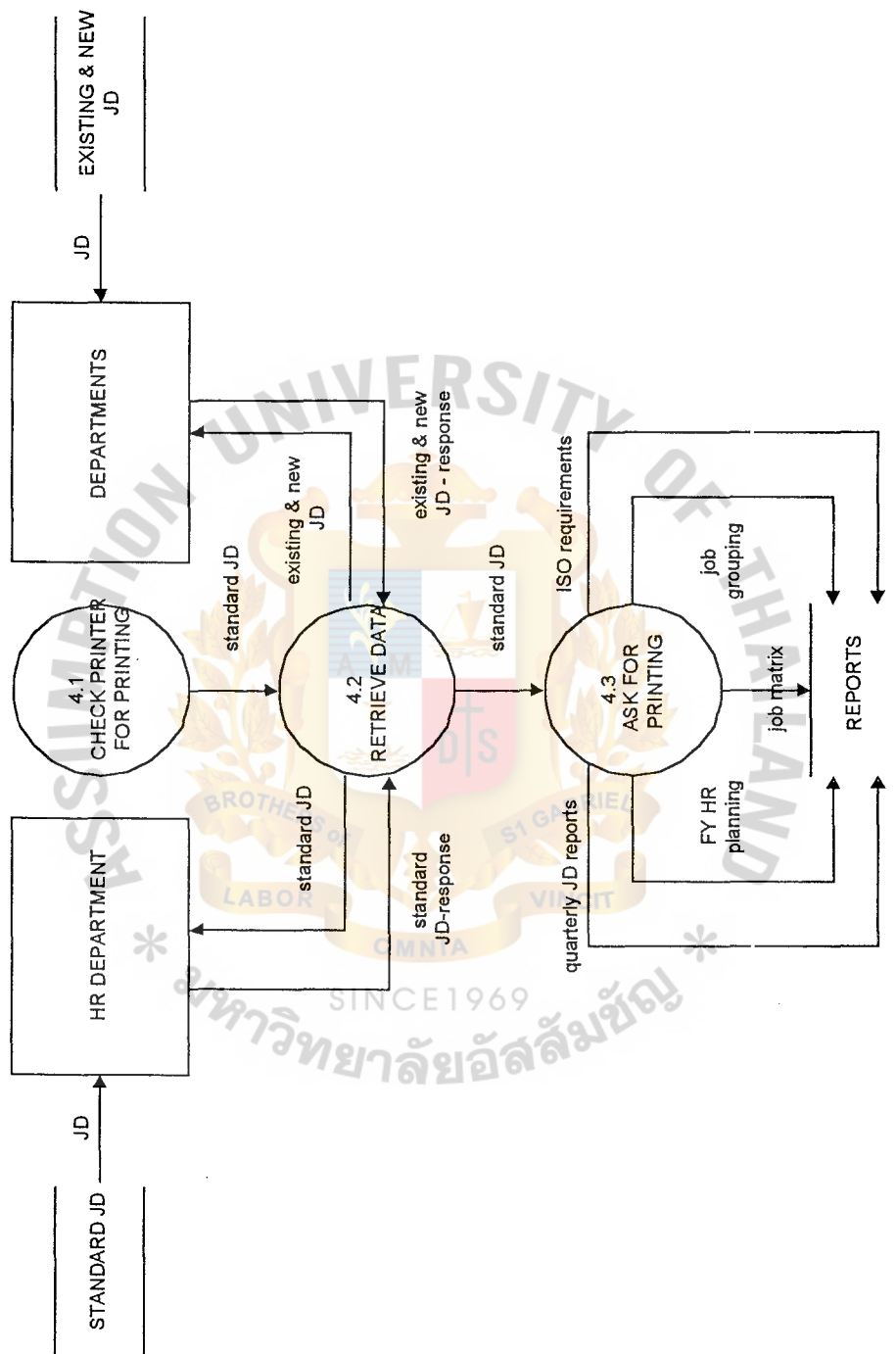


Figure 3.6. Manage Printers

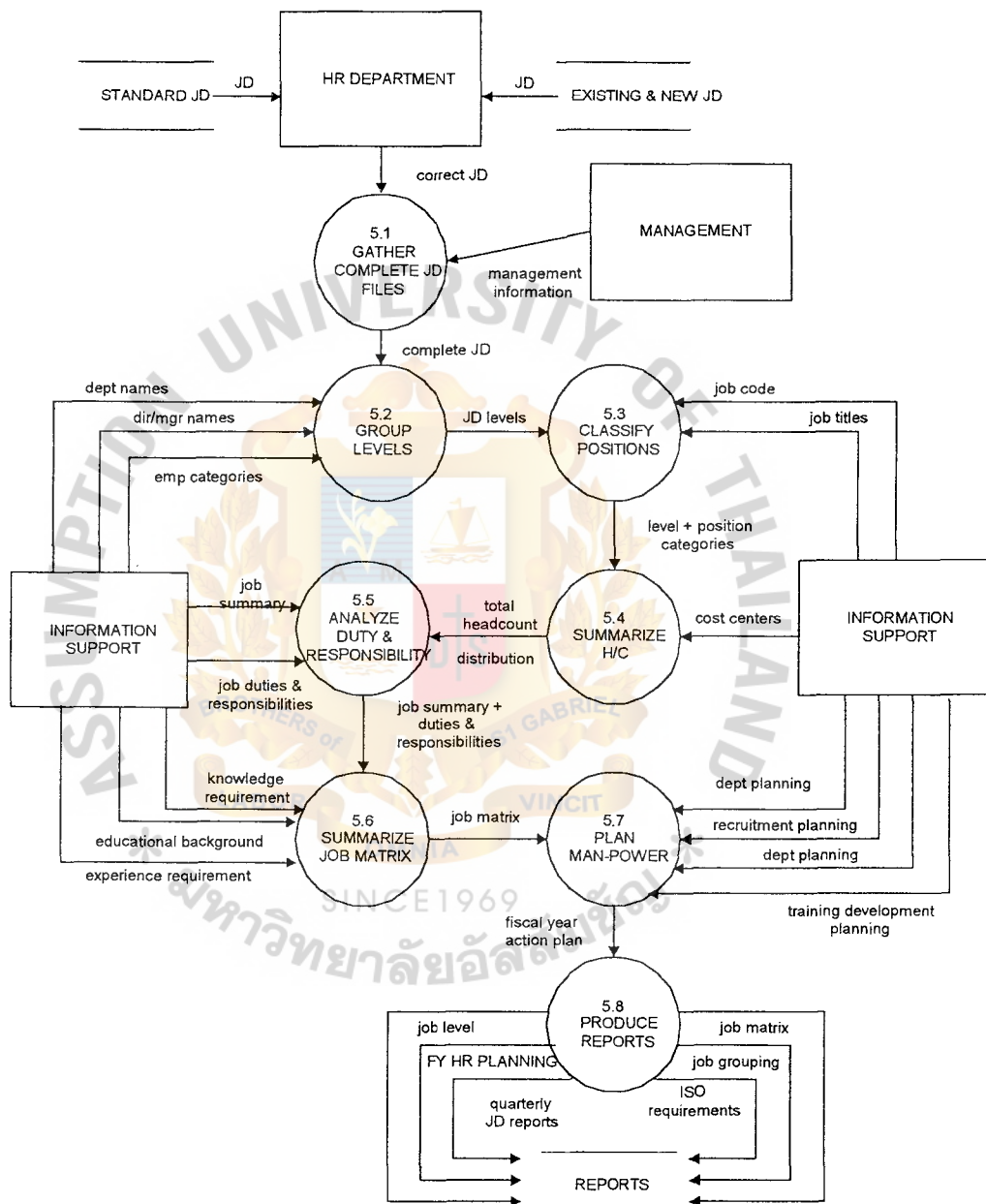


Figure 3.7. Evaluate Job Description

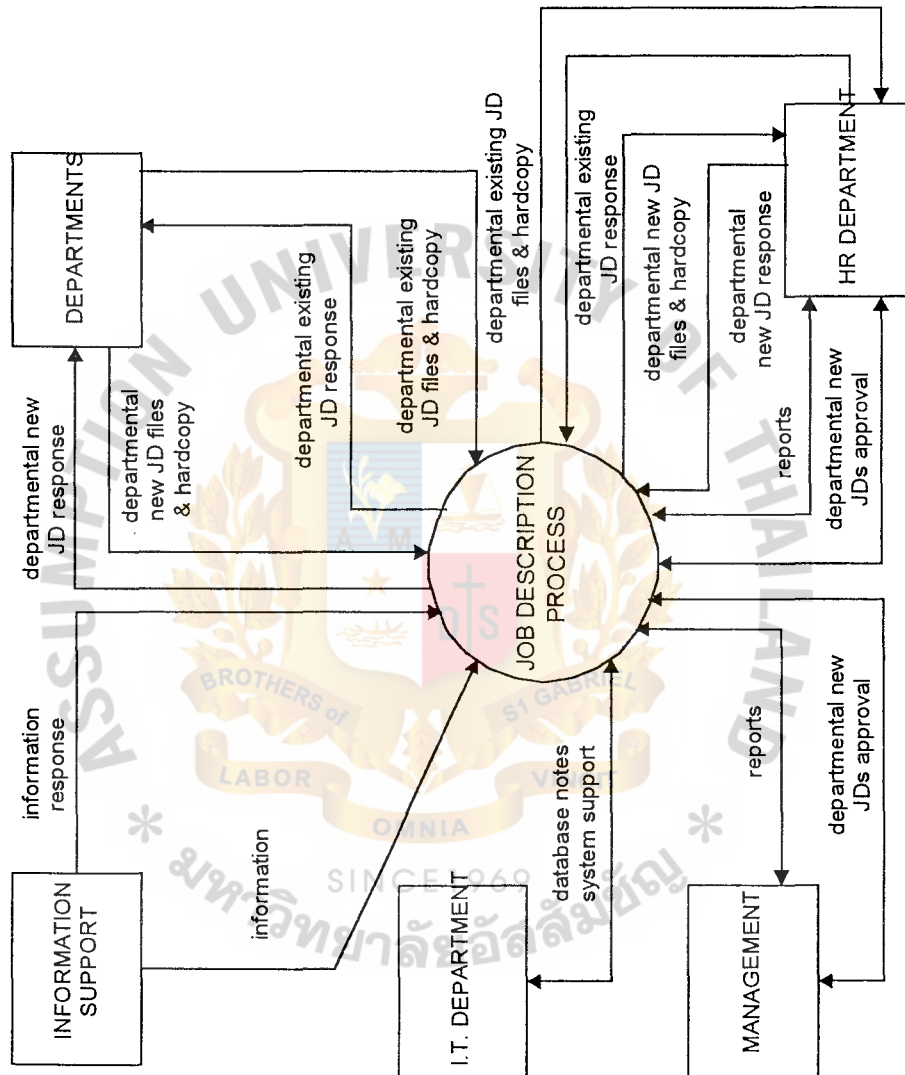


Figure 3.8. Context Diagram ( The Proposed System)

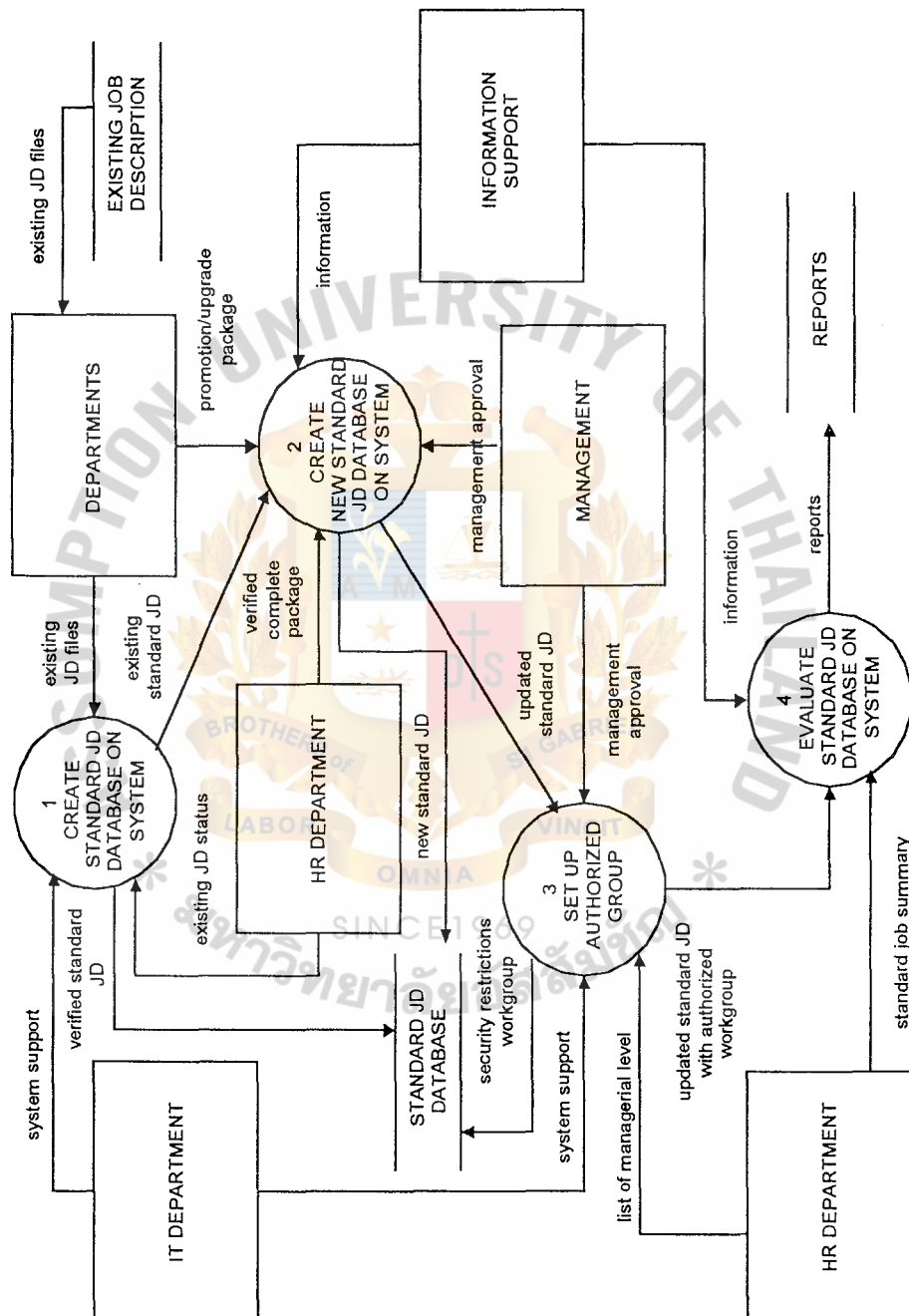


Figure 3.9. Data Flow Diagram (Level 0)

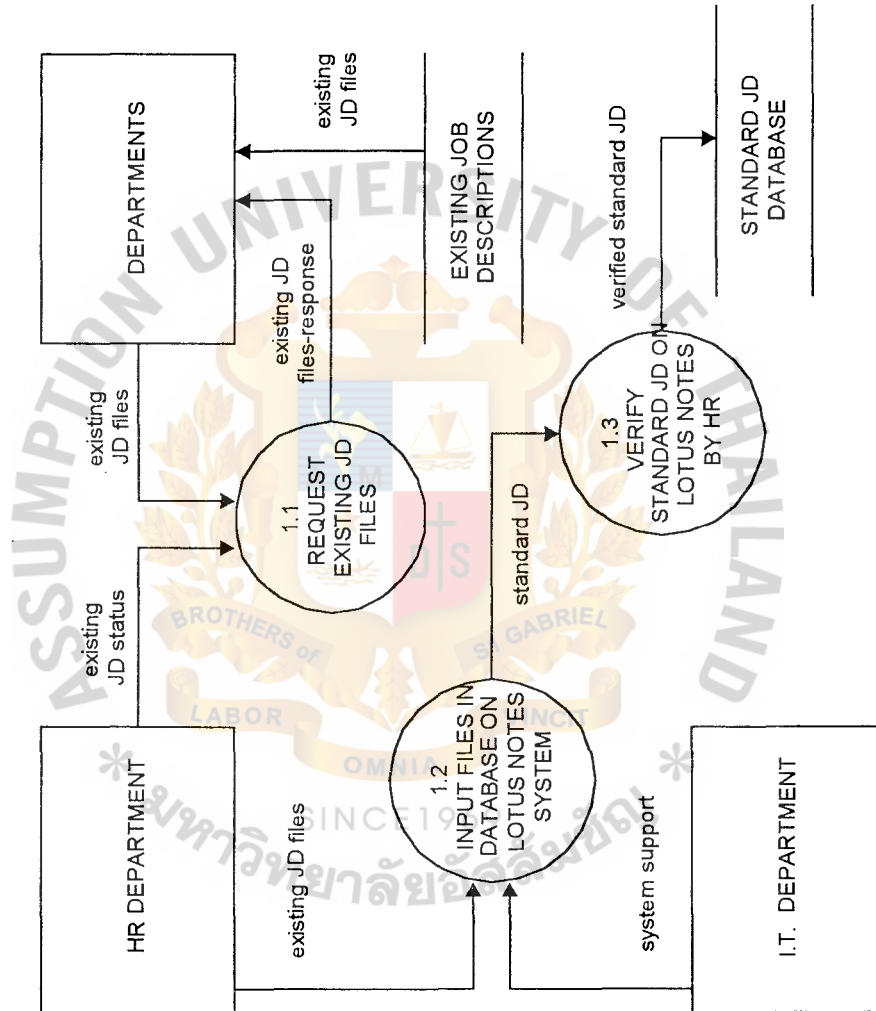


Figure 3.10. Create Standard Job Description Database in Lotus Notes System



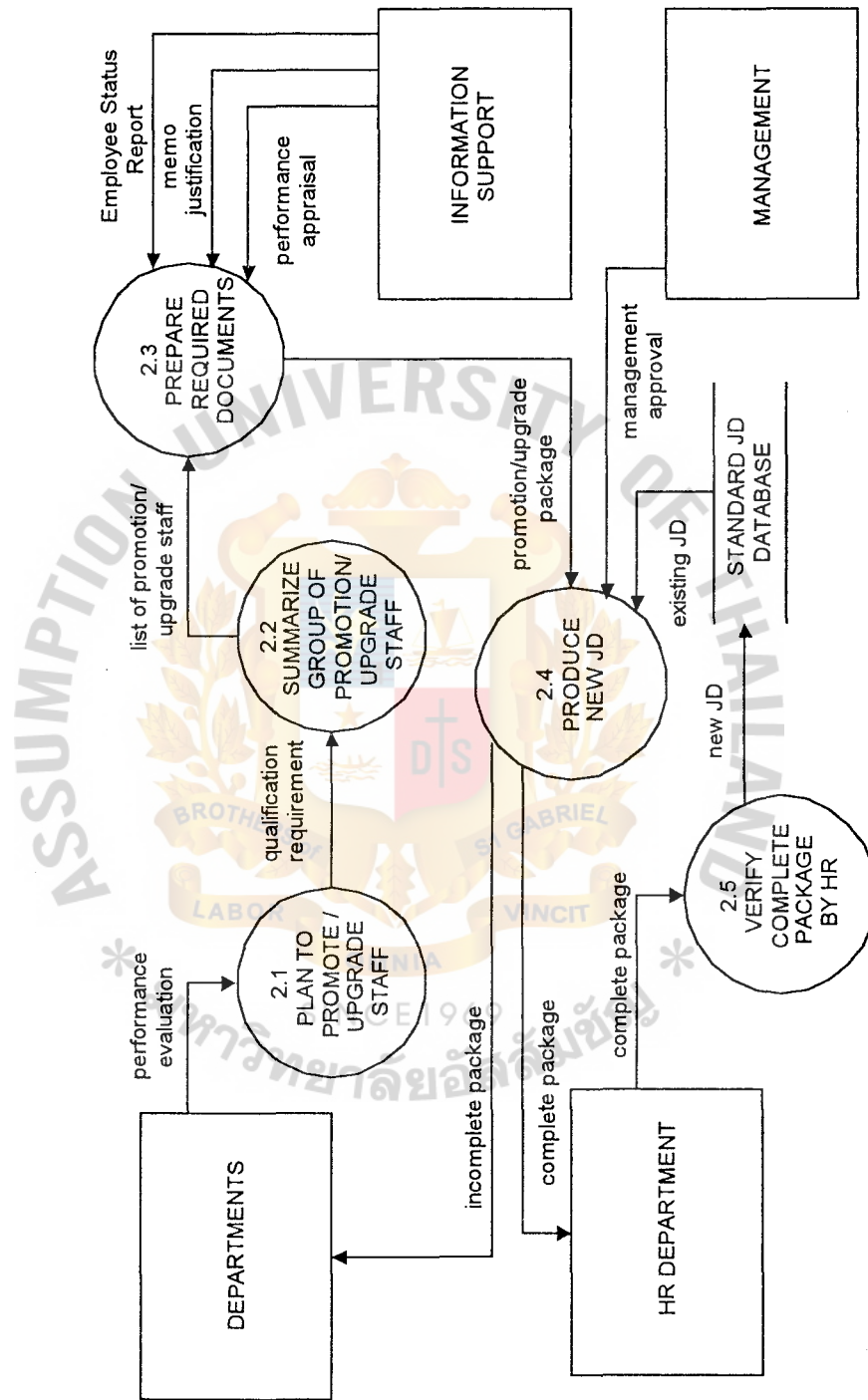


Figure 3.11. Create New Standard Job Description Database on Lotus Notes System

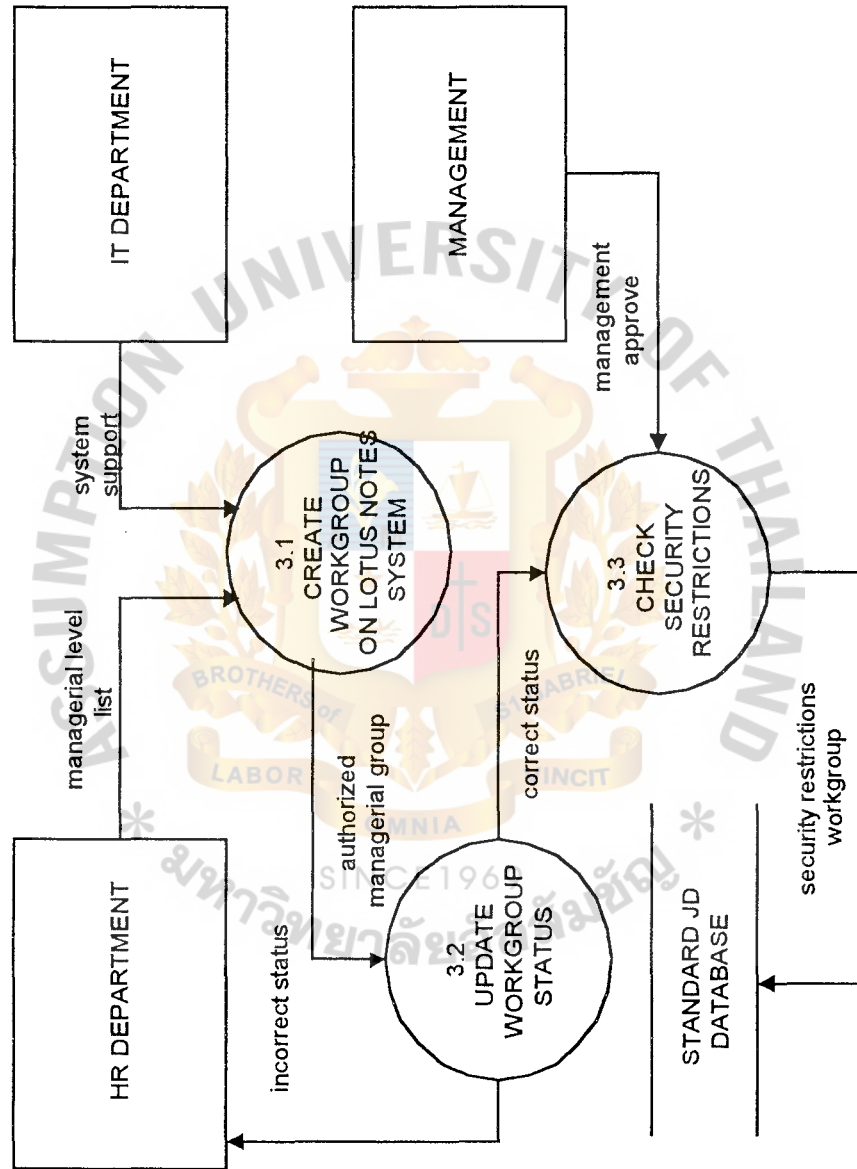


Figure 3.12. Set Up Authorized Group for Standard Job Description Database on Lotus Notes System



### 3.8 Process Specification

#### *PROCESS 1.1 REQUEST EXISTING JD FILES*

PRECONDITION : The existing job description files of each departments will be sent to HR for JD-status

BEGIN

CHECK the existing job description files of each departments

ACCEPT the existing job description status

SET the existing job description reference code

RECORD the existing standard job description in EXISTING JD

END

POSTCONDITION : The existing standard job descriptions were completely set reference code.

#### *PROCESS 1.2 INPUT FILES IN DATABASE ON LOTUS NOTES SYSTEM*

PRECONDITION : The existing standard job description with reference code were used.

BEGIN

GET I.T. system support for database on lotus notes system

RECORD the existing standard job description with reference code in database notes

DISPLAY the existing standard job description with reference code on system

END.

POSTCONDITION : The existing standard job description with reference code were input in database system.

#### *PROCESS 1.3 VERIFY STANDARD JD ON LOTUS NOTES BY HR*

PRECONDITION : The existing standard job descriptions were displayed on system.

BEGIN

RECEIVE the existing standard job description on database notes system

CHECK the correctness of the existing standard job description on database notes system

APPROVE the existing standard job description on database notes system with workflow

RECORD the existing standard job description in STANDARD JD DATABASE

END

POSTCONDITION : HR management level verify the existing standard job description on

## database notes system

### *PROCESS 2.1 PLAN TO PROMOTE/UPGRADE STAFF*

PRECONDITION : Management level request data support for promotion/upgrade consideration.

BEGIN

EVALUATE performance history, job function, and organization need

ANALYZE salary structures and ranges in functional area

IF

OVERLAP salary and job summary

THEN

SET it on a new job requiring in a higher level of skill, effort or responsibility

ELSE

INCREASE job responsibilities on a new job requiring the next career step in higher salary grade

END IF

END

POSTCONDITION : Promotion/upgrade planning was produced.

### *PROCESS 2.2 SUMMARIZE GROUP OF PROMOTION/UPGRADE STAFF*

PRECONDITION : Promotion/upgrade planning was requested.

BEGIN

RECEIVE standard requirement for career growth from HR.

CHECK qualification requirement

IF

ACCEPT qualification for career growth

THEN

USE qualified group for further action

ELSE

IGNORE disqualified group

ENDIF



END

POSTCONDITION : Qualified promotion/upgrade list was summarized.

### *PROCESS 2.3 PREPARE REQUIRED DOCUMENTS*

PRECONDITION : Qualified name list summary was considered in departmental committee.

BEGIN

GET Employee Status Report and Performance Appraisal from Information Support

COMPLETE Employee Status Report

CALCULATE overall performance rating in Performance Appraisal

PREPARE memo justification for HR consideration with promotion/upgrade package.

END

POSTCONDITION : Promotion/upgrade package are complete.

### *PROCESS 2.4 PRODUCE NEW JD*

PRECONDITION : Complete promotion/upgrade package was submitted.

BEGIN

VERIFY the complete promotion/upgrade package

CHECK the existing job description in STANDARD JD DATABASE

IF

GET the existing job description in STANDARD JD DATABASE

THEN

    READ the existing job description reference code

    ACCEPT the existing job description and job summary

    VERIFY the existing job description

    SUBMIT the existing job description reference code with the complete  
        promotion/upgrade package

    APPROVE the complete promotion/upgrade package with the existing job  
        description reference code by management level

ELSE

    READ the unmatched reference code in STANDARD JD DATABASE

CREATE new job description

VERIFY new job description

SUBMIT new job description with the complete promotion/upgrade package

APPROVE the complete promotion/upgrade package with new job description  
by management level

END ELSE

END IF

DO WHILE there are some incomplete packages

RETURN the incomplete packages to original department

REPEAT

FIND the revised packages

UNTIL complete packages

END DO

END

POSTCONDITION : The existing or new job description was produced to submit with the  
complete promotion/upgrade package.

#### *PROCESS 2.5 VERIFY COMPLETE PACKAGE BY HR*

PRECONDITION : HR received the complete promotion/upgrade package with job  
description reference code

BEGIN

CHECK the correctness of required documents for promotion/upgrade package

ACCEPT qualification requirement for career growth

VERIFY the existing or new job description with reference code

END

POSTCONDITION : New job description was produced with new reference code.

### *PROCESS 3.1 CREATE WORKGROUP ON LOTUS NOTES SYSTEM*

PRECONDITION : List of management level of each department was produced.

BEGIN

READ the list of management level of each department

ACCEPT the authorized management level of each department

DISPLAY the authorized management level of each department

SET group of the authorized management level divided by departments/sections

GET I.T. system support for database on lotus notes system

CREATE group of the authorized management level in system

UPDATE the workgroup status

END.

POSTCONDITION : The authorized managerial group was updated workgroup status in database notes system.

### *PROCESS 3.2 UPDATE WORKGROUP STATUS*

PRECONDITION : List of management level was updated.

BEGIN

DO WHILE there are new list of management level in the authorized managerial group

ADD new authorized management level in concerned department/section group

UPDATE workgroup status

END DO

CASE the status is incorrect.

REPEAT UNTIL the status is correct.

UPDATE workgroup status

END REPEAT

END CASE

END

POSTCONDITION : The workgroup status was updated in database notes system.

### **PROCESS 3.3 CHECK SECURITY RESTRICTIONS**

**PRECONDITION :** The up-to-date workgroup status of authorized management level was required.

**BEGIN**

**FIND** the existing and new authorized reader/revise group in workgroup status

**IF** documents found incorrect workgroup status

**REVISE** incorrect workgroup status

**DISPLAY** correct workgroup status

**ELSE**

**CONFIRM** the correctness of the authorized group from the concerned departments/sections

**DISPLAY** the correctness of the authorized reader/revise group for security  
        Restriction in STANDARD JD DATABASE

**END IF**

**END**

**POSTCONDITION :** The security restriction workgroup was updated the correct status.

### **PROCESS 4.1 MANAGE STANDARD JD DATABASE**

**PRECONDITION :** The existing and new job descriptions in STANDARD JD DATABASE required.

**BEGIN**

**FIND** the existing and new job descriptions in STANDARD JD DATABASE

**IF** department/section headcount record found

**THEN**

**DISPLAY** department/section headcount

**CREATE** department headcount report

**ELSE IF** job level record found

**THEN**

**DISPLAY** job level

**CREATE** job level report

**ELSE IF** job matrix record found





POSTCONDITION : Department Headcount, job level, job matrix, positions, cost centers,  
job grouping reports were created from STANDARD JD DATABASE.

#### *PROCESS 4.2 ANALYZE DUTY & RESPONSIBILITY*

PRECONDITION : Department Headcount, job level, job matrix, positions, cost centers,  
job grouping reports were required from STANDARD JD DATABASE.

BEGIN

DO WHILE there were found department/section with matching cost centers in

STANDARD JD DATABASE

SET standard cost center of department/section in STANDARD JD DATABASE

END DO

DO WHILE there were found job level with matching positions in STANDARD JD

DATABASE

SET standard job level of each positions in STANDARD JD DATABASE

END DO

DO WHILE there were found job summary with matching job grouping in STANDARD JD

DATABASE

SET standard generic job description in STANDARD JD DATABASE

END DO

DO WHILE there were found job matrix with matching standard generic job description in

STANDARD JD DATABASE

SET standard generic job matrix in STANDARD JD DATABASE

END DO

ANALYZE standard cost center, standard level, standard generic job matrix

CREATE standard job duties and responsibilities

END

POSTCONDITION : standard job duties and responsibilities produced.

#### *PROCESS 4.3 PLAN MAN-POWER*

PRECONDITION : standard cost center with headcount and standard job level were

Considered with action plan from INFORMATION SUPPORT

BEGIN

SET man-power and budget with department planning

ANALYZE man-power, budget, and department planning

SUMMARIZE action plan of each cost center

SET recruitment planning with action plan

SUMMARIZE recruitment planning for FY action plan

SET training development planning with department planning

SUMMARIZE Human Resources Development planning

END

POSTCONDITION : Planning reports in FY action plan were complete.

#### *PROCESS 4.4 PRODUCE REPORTS*

PRECONDITION : Summary reports in bubble 4.1, 4.2, and 4.3 are required.

BEGIN

ACCEPT summary reports in bubble 4.1

ACCEPT summary reports in bubble 4.2

ACCEPT summary reports in bubble 4.3

SET all summary reports for recruitment, FY action plan, and Human Resources  
Development

DISPLAY summary reports to top-management level for consideration and approval

END

POSTCONDITION : Summary reports were produced to top-management decision  
making.

### **3.9 System Support & Network Configuration**

#### **3.9.1 Lotus Notes applications**

The existing Lotus Notes applications allow groups to communicate with one another so users can create and access document-oriented information on LANs, WANs, Internet

channels, and dial-up lines. Lotus Notes applications let us track, share, and organize information in unique ways, even if they connect only occasionally to a network.

Notes applications are generally one (or some combination) of the following types of applications

- Workflow
- Broadcast
- Reference
- Tracking
- Discussion

It can include features of more than one type. For example, an approval application can include discussion features, which help in the decision-making process. Workflow features are an important part of many Notes applications. Users can add them to any of the five major Notes application types to automate routine tasks, such as sending reminders and requesting approvals. Workgroup applications can cross workgroups or organizations.

#### **Notes and relational databases**

Lotus Notes and RDMSs are complementary because they are designed to support different application types.

**Table 3.2. Comparison Table (RDMS VS Lotus Notes)**

<b>RDMS</b>	<b>Lotus Notes</b>
Based on a transaction processing model	Based on a document organizational model
Use structured data	Use semi-structured data elements (rich text, graphics, etc.)
Offers real-time access to data	Uses periodic replication for updates
Locates data using ad hoc query	Locates data using views (pre-defined queries)
Centralized within a single enterprise	Shares resources between enterprises
Access via SQL	Access via full-text search

Notes and RDMS are not mutually exclusive. They can exchange data, creating the possibility for powerful applications. For example, a manager might use Notes to create a Monthly business report using figures pulled in from a monthly expense database.

AND

**Table 3.3. Comparison Table (Notes Application VS Notes Database)**

<b>Notes Application</b>	<b>Notes database</b>
To be an implementation of data and programs that supports a business function or purpose.	To contain information in multiple documents about related topics.
To consist of one or more databases.	To act as a repository for accumulating and distributing information.

#### 3.9.2 FDDI backbone

The existing FDDI backbone standard defines a ring-structured network that uses a token-passing form of medium access control. It specifies the use of full-duplex , point-to-point fibre optic physical links to interconnect stations. It provides a high-capacity LAN data link that can be used to interconnect other, lower-capacity LAN data links.

#### 3.9.3 Database server

The existing large server works as the database server of which the database can be accessed through all I/Os in Big Bear Appliances (Thailand) Limited to connect between each sites. It should be useful for a collection of computerized data file, sharing data, and easy to maintain integrity in our organization.

So we choose the outstanding performance, value, reliability, and scalability in midrange server to operate our network.

#### 3.9.4 Application server

The existing application server provides access to application logic, allowing an application to be distributed among more than one computing system.

#### 3.9.5 Modem

The existing modem is routinely employed in conventional data transmission for transmitting digital data over ordinary analog telecommunications channels. It is also employed on local area networks when analog signaling techniques are used over the physical communication medium.

It can help to keep down the cost of network components.

#### 3.9.6 Hub

For hub or muliport repeaters, the intelligent hum and switches that allows stations to be switched from one LAN cable segment to another are also available for Ethernet LANs. It

is often installed in the wiring closets and allow a separate cable to connect each station to the wiring closets.

The functions are to connect groups of systems to an appropriate transmission medium segment and to allow for great flexibility in workgroup assignment, especially when transmission medium segment assignment can be selected for each port through network management software and can be changed dynamically as workgroup assignments change.

### 3.9.7 Router

The existing router provides the ability to route message from one system to another where there may be multiple paths between them. The router performs its function in the OSI model Network layer. It has more intelligence than bridge and can be used to construct enterprise internetworks of almost arbitrary complexity. It can be used to connect two unlike LANs or to connect a LAN data link to a WAN data link.

The system of router can implement multiple active paths between any two subnetworks. In some network implementation, it is possible for different message traveling from a source to a destination systems to take different routes, and message may arrive at the destination system out of sequence. The higher-level layers in such networks must have the capability for resequencing message segments.

It prevents the flow of broadcast traffic from one local area network to another, thus reducing the amount of network traffic. It is flexibility to support any desired network topology. It allows optimal paths to be selected for traffic and for load balancing over redundant paths between source and destination systems.

### 3.9.8 Transmission media

About typical LAN transmission media for the network, we design to use fiber optic cable to interconnect systems and UTP cable.

#### About optical fiber

The optical fiber can be used to carry data signals in the form of modulated light beams. It consists of an extremely thin cylinder of glass, called the core, surrounded by a concentric layer of glass, called the cladding.

The fiber optic cables have the potential for supporting very high transmission rates (up to 565 Mbps) which are routinely employed in commercially available systems, and data rate (up to 200,000 Mbps) which have been demonstrated. Signals transmitted over fiber optic

cables are not subject to electrical interference. A fiber optic cable is also typically smaller in size and lighter in weight than electrical cable.

### 3.9.9 Concentrator

Concentrator, access unit or hub allows multiple network devices to be connected to the LAN cabling system through a central point. Attached devices through a central concentrator often simplifies the installation and maintenance of the local area network.

### 3.9.10 Hardware Configuration

Using the existing hardware and LAN supports for printing sharing at printer server, the objectives are to reduce unnecessary work to get job from only one computer and to be more efficiency work productivity and to produce high quality outputs.

### 3.9.11 Software Configuration

Also using the existing software packages, that included

- ☐ Microsoft Windows 95 and 97 for the 32 bits operating system
- ☐ Microsoft offices 95 and 97
  - Microsoft Word 7.0 is a new 32 bits word processing program to used with Window95 and used to produce the documentation, letters, publications and so on.
  - Microsoft Excel 7.0 is a new 32 bits speed sheet program to used with Window95 and used to produced the nice graph in the statistic information for the report and so on.
  - Microsoft PowerPoint 7.0 is a new 32 bits presentation program to used with Window95 and used to produced the nice electronics presentation.
  - Microsoft Access 7.0 is the database program.

### 3.9.12 Other devices

- Remote Access Solution
- Interface Cards & Adapter

### 3.9.13 MAC technique

For MAC (Media Access Control) Technique that we decide to use for LANs is “ Distributed Management “. All the systems participate in a distributed algorithm for managing access to the transmission medium. The intent with distributed control is that the systems themselves cooperate to ensure that only one system at a time has the right to transmit.



**Table 3.4. Medium Access Control Technique**

Medium Access Control Technique
Distributed Medium Access Control <ul style="list-style-type: none"><li>➤ Token passing</li></ul> The medium access control method used with FDDI (fiber distributed data interface) LAN technologies

With networks that employ a ring topology, the most commonly used access method is Token Passing. FDDI forms of LAN data link technology use variation of the token-ring form of medium access control.

With a typical token-ring method, a short message, called the token, is passed from one system to the next around the ring. If the token is marked as free, a system that receives it can transmit a message. It then marks the token as busy, appends the token to the message, and transmits the message along with the busy token. The message, with the attached busy token, circulates around the ring, passing from system to system. Each system that receives the message checks the destination address in the message to see if the system should copy and process the message. Whether or not the system copies the message, it transmits the message and the busy token to the next system on the ring. When the message finally reaches the system that originally sent it, that system removes the message from the ring, changes the token back to a free token, and transmits only the free token to the next system on the ring. The free token then circulates around the ring again until another system wishes to transmit.

Error conditions might prevent a sending system from recognizing and being able to remove its message when the message comes back around to the originating system. To handle this, one of the systems on the ring is designated as a monitor. The monitor is responsible for detecting a busy token that is not being reset properly, removing it from the ring, and transmitting a new free token.

With the token-ring approach, each system is always guaranteed a chance to transmit a message within some predetermined period of time. The method allows for different priorities to be assigned to systems on the ring. High priority systems can be given the opportunity to transmit before lower priority systems. A system may also be allowed to send multiple message while it has the token. In this case, there is usually a time limit on how long a system can continue transmitting new messages. The principle disadvantages of the token-ring technique are the complexity of the algorithm and the overhead involved in token processing and monitoring.

#### 3.9.14 Networking software

For networking software, it was designed to use high-level networking software subsystems and architecture that use LAN data links.



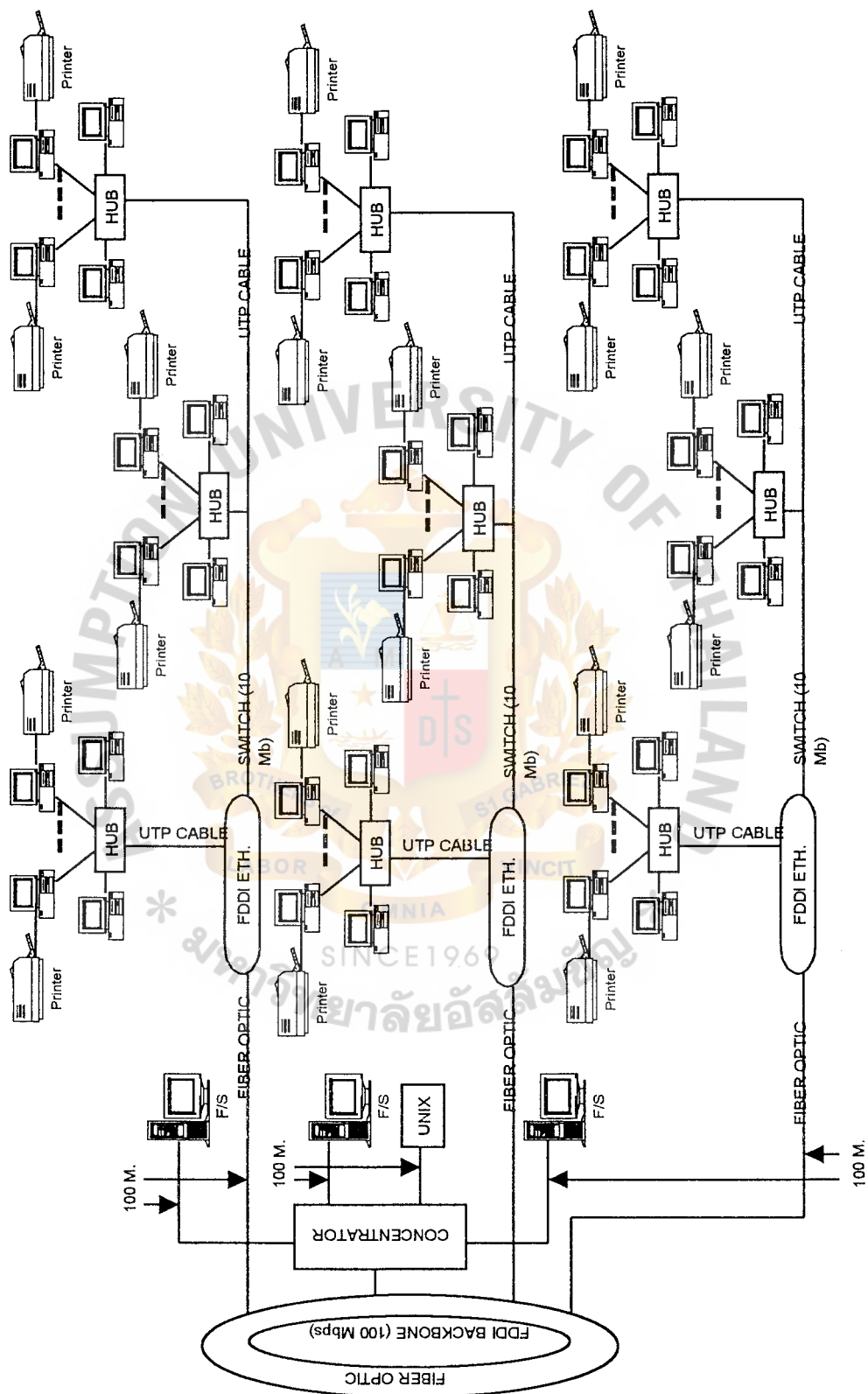


Figure 3.14. Network Configuration

### 3.10 Cost Comparison

The cost between automated application system and manual system will be compared as the automated system will take less cost than the manual system in the initially and automated can reduce the over all operation cost. It can improve quality of service, reduce operation time, cost and enormous quantity of factory paperless.

But in manual system, the cost will be increased every time. There are more expenses that growth allows member of workers.

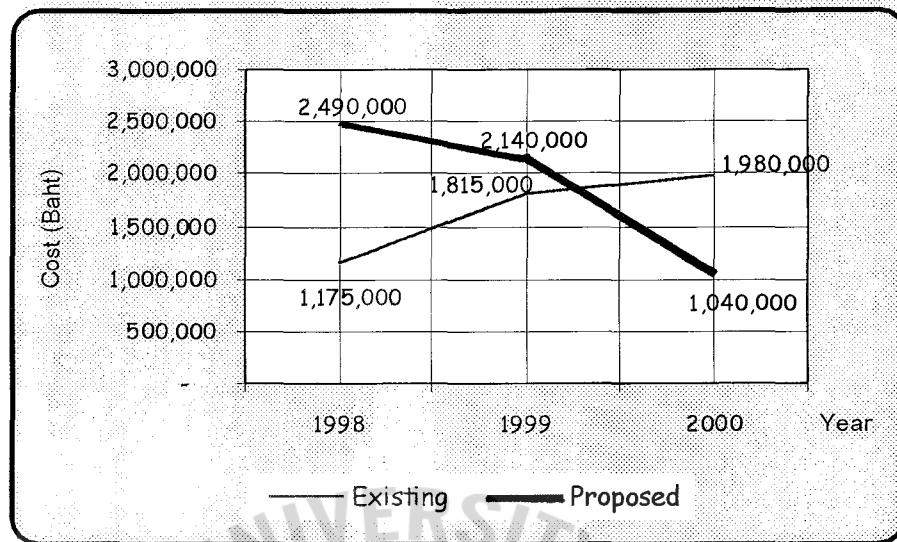
**Table 3.5. Cost Comparison - The Existing System VS The Proposed System**

#### The Existing System

	1998	1999	2000
<b>Consultant/Developer</b>	1,000,000	1,650,000	1,820,000
<b>Lotus Notes Application</b> (Maintenance & Services)	25,000	15,000	15,000
<b>Training course</b>	150,000	150,000	150,000
<b>Total</b>	<b>1,175,000</b>	<b>1,815,000</b>	<b>1,980,000</b>

#### The Proposed System

	1998	1999	2000
<b>Consultant/Developer</b>	2,000,000	1,650,000	550,000
<b>Training course</b>	150,000	150,000	150,000
<b>New Version 4.5 for Lotus Notes Application</b>	20,000	20,000	20,000
<b>Upgrade MS Office</b>	150,000	150,000	150,000
<b>Training Course</b>	150,000	150,000	150,000
<b>Maintenance &amp; Services</b>	20,000	20,000	20,000
<b>Total</b>	<b>2,490,000</b>	<b>2,140,000</b>	<b>1,040,000</b>



**Figure 3.15. Cost Comparison ( Existing and Proposed System )**

#### **PROPOSAL SUMMARY**

After studying the automated system case, we have some main objectives of performance which are more controlling improvement and solving the problems. The implementation in the new automated application system is more efficiency than the manual system in the long term. The budget that use in new system will be higher in the first stage of systems. But in long term, the new system will be less cost than the existing system within three years as table comparison above.

We get strongly performance in the new computerize system. Because we think that they have more benefit to come to our organization. In the future, the system will be comfortable to expand and implementation to other sites in Thailand.

## IV. SYSTEM DESIGN

### 4.1 Screen Design

In computer screen design, the display screens make it possible to present different sets of output simultaneously. The authorized readers of several departments/sections can use at the same time.

In the logical view of the new system, data flow diagrams are converted to physical model of screen designs. These screens are designed according to the user requirements and satisfaction. The screen design will achieve by designing the main menu divided by the important status (" *Complete* " status, " *On going* " status , or " *Reject* " status) and in each screen there are also data entry screens, information screens, and report screens. (Please see Figures 4.1 – 4.14)

### 4.2 Report Design

Each report begins with a report header or a report title that identifies the reports. Other identifiers, such as the date, the related persons or the specific levels are often included in the report header.

The body of the report is divided into an imaginary grid of columns and rows (or lines). Column headers near the top of each page or screen identify the field displayed in each column. Each row holds a single detail line that displays the appropriate field values from a single report file record. Because these CONFIDENTIAL standard job descriptions are specified by Human Resources Corporation.

The data are often viewed more than one fields which was generated in part of views and folders. The original departments/sections can also print the reports, if required, but Human Resources recommend to ignore printing in the reason of factory paperless support project. The hard copy of each job description will be only back-up data for history.

The accuracy and up-to-date information achieved through reports is the primary purpose of this system. The amount of information to be displayed on each report has been designed from the management point of view. (Please see Figure 4.15 – 4.21)



### 4.3 Project Testing & Implement

Implementation includes all the activities that take place to convert from the existing system to the new system. Implementation is the process of having systems personnel improve and approve the correctness of data together with the authorized reader group and put new equipment into use, introduce and guide the users for our new look of job description.

There are two main tasks to be performed in order to get the new system into operation.

- 1□ Test the system : for its functionality and complete support
- 2□ Implement the system : at this point, HR introduction for the basic operations and the usage of the system is required.

The applications are often used for many years. However, both the organization and the users will change, and the environment will be different over months and years. Therefore, the application will undoubtedly have to be maintained and developed with time. Modifications and changes have to be supported as the working meetness environment undergo continual changes, the information systems should keep pace. In this case, implementation is an ongoing process.

Evaluation of this system is performed to identify its strengths and weakness. The actual evaluation can occur along any of the following dimensions :

- 1□ Operational evaluation
- 2□ Impact on the organization
- 3□ User manager assessment
- 4□ Development performance





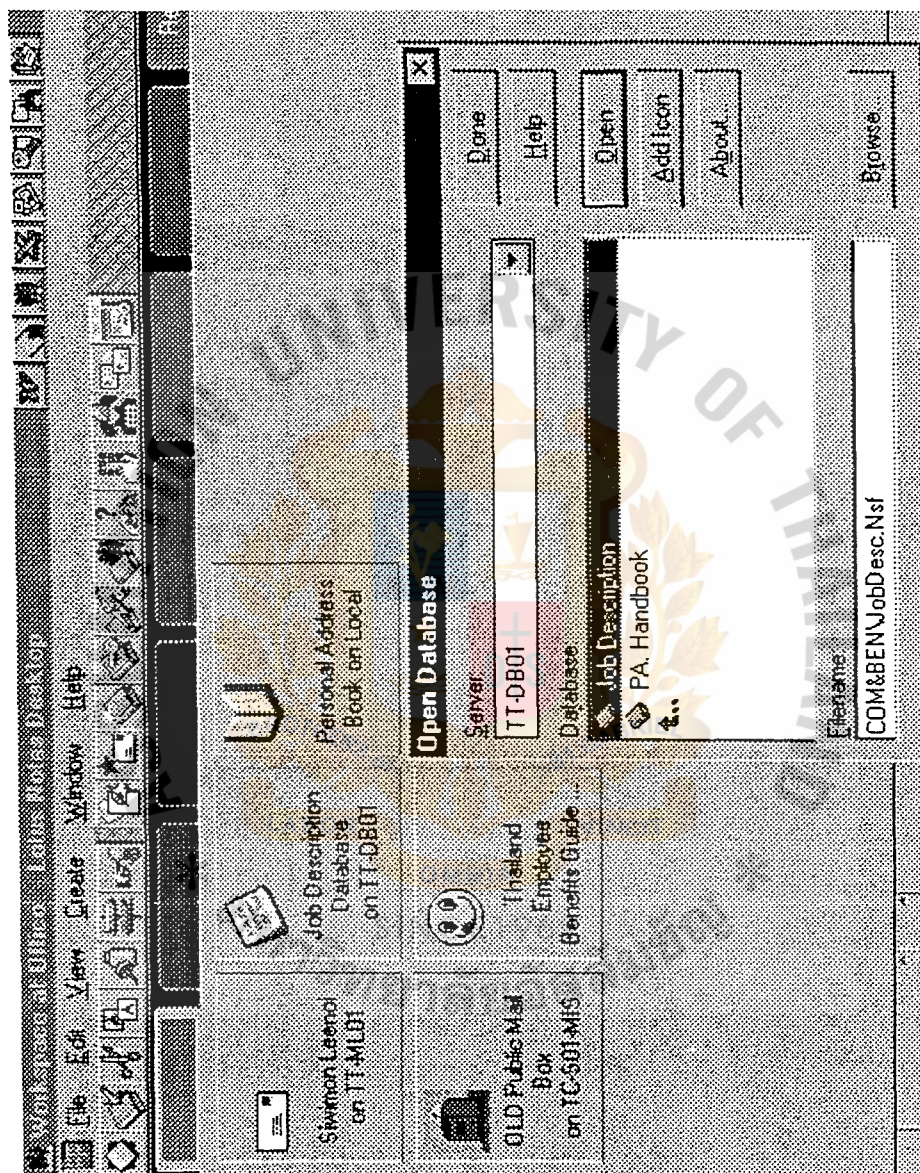


Figure 4.2. Choosing Server Job Description Database on Workspace



Figure 4.3. Shown Views & Folders with Various Job Description Status



**Job Description Database - Approved/V. By Reference code - L**

File Edit View Create Actions Window Help

New Job Description

Reference code	Department	Job code	Approved by
T-2100-E512-01	Quality Assurance	E512	Joe Bunya
T-2100-E700-02	Quality Assurance	E700	Joe Bunya
T-2100-E800-03	Quality Assurance	E800	Joe Bunya
T-2100-E800-04	Quality Assurance	E800	Joe Bunya
T-2100-E800-05	Quality Assurance	E800	Joe Bunya
T-2100-E800-06	Quality Assurance	E800	Joe Bunya
T-2100-E900-07	Quality Assurance	E900	Joe Bunya
T-2110-E512-01	Quality Assurance	E512	Visut Sorndetlont
T-2110-E700-02	Quality Assurance	E700	Visut Sorndetlont
T-2440-D111-01	IE & Facility Engineering	D111	Palapetch Na-Sorn
T-2440-D114-02	IE & Facility Engineering	D114	Palapetch Na-Sorn
T-2440-D211-03	IE & Facility Engineering	D211	Palapetch Na-Sorn
T-2440-D214-04	IE & Facility Engineering	D214	Palapetch Na-Sorn
T-2440-N211-05	IE & Facility Engineering	N211	Palapetch Na-Sorn
T-2440-N212-06	IE & Facility Engineering	N212	Palapetch Na-Sorn
T-2440-N212-07	IE & Facility Engineering	N212	Palapetch Na-Sorn
T-2440-N311-08	IE & Facility Engineering	N311	Palapetch Na-Sorn
T-2440-N313-09	IE & Facility Engineering	N313	Palapetch Na-Sorn
T-2440-N414-10	IE & Facility Engineering	N414	Palapetch Na-Sorn

Reference Code  
Department  
Position  
Job Code  
Approved Manager  
Edit

ED Office

Figure 4.4. Shown Views & Folders with 'Complete' Status

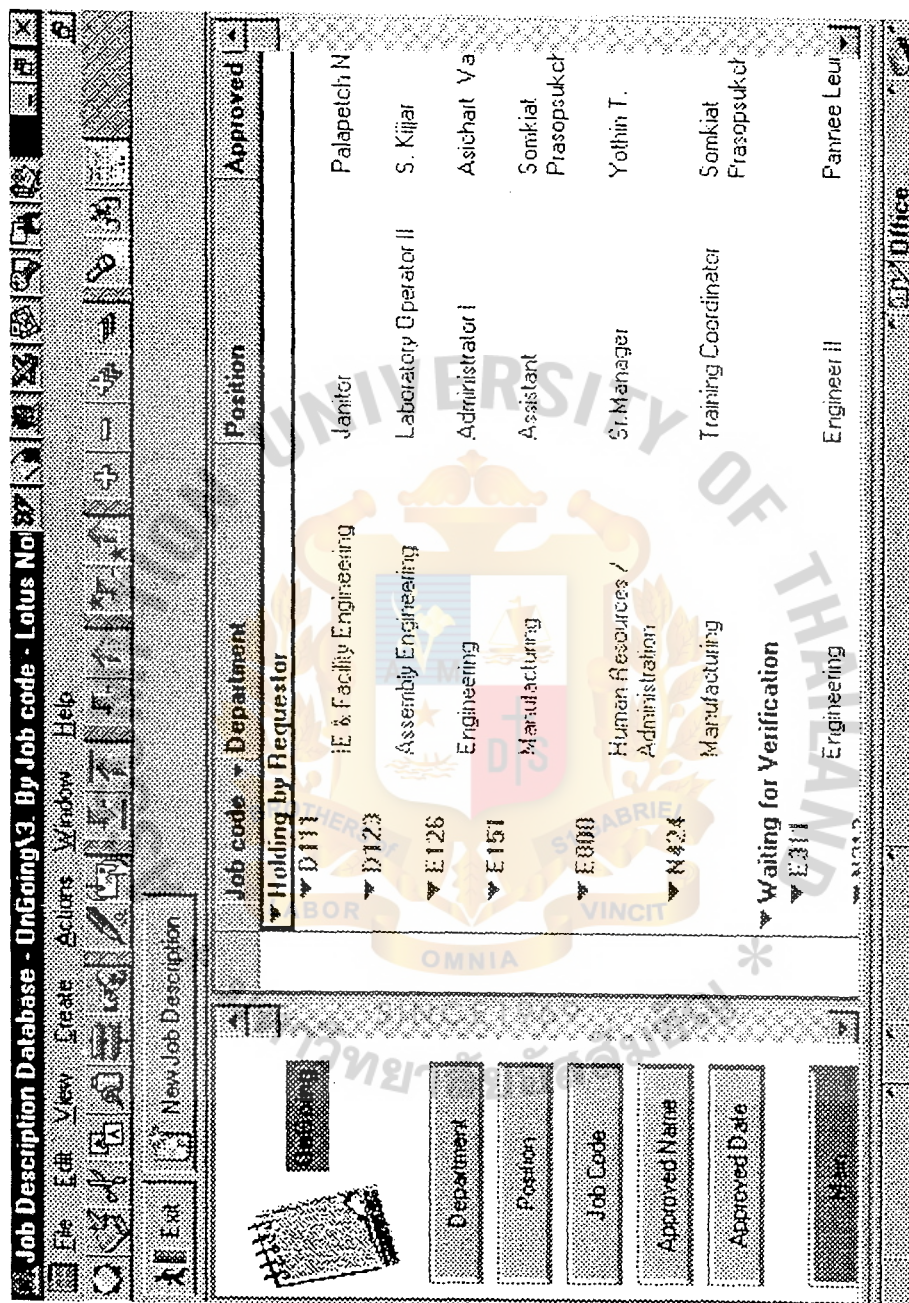


Figure 4.5. Shown Views & Folders with ' On Going ' Status



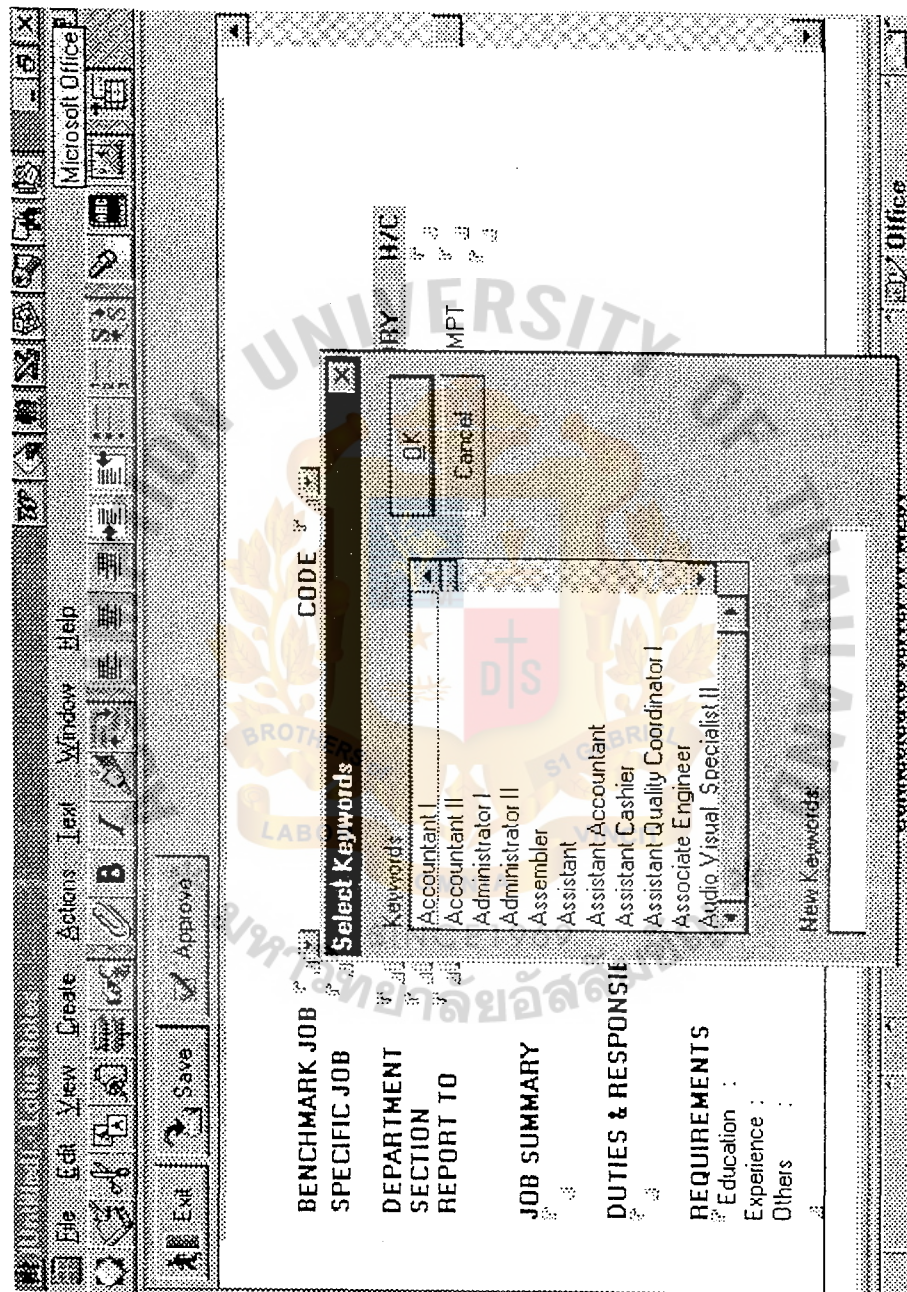


Figure 4.6. Creating New Job Description with Key Word

**(Untitled) - Lotus Notes**

File Edit View Create Actions Insert Window Help

Exit Save Approve

DEPARTMENT Human Resources / Administration SUPERVISOR CATEGORY H2C

SECTION All Sections Senior Engineer

REPORT TO

JOB SUMMARY

DUTIES & RESPONSIBILITIES

EXEMPT  
NON-EXEMPT  
DAILY

REQUIREMENTS  
Education :  
Experience :  
Others :

Reader & Revise

Holding by Requestor	Approved by	Verified by	Title Manager	Date
			Title Compensation Manager	Date

Title of Immediate Supervisor

Connected to server IT.MLD1 Office

Figure 4.7. Creating New Job Description with Workflow System Support

**New Group - Lotus Notes Desktop**

File Edit View Create Actions Text Window Help

Close Save

## GROUP

**Basics:**

Group name: \* Wellgrow Managers

Group type: \* Multi-purpose

Description:

Members:

► **Administration**

Group name (multiple names can be separated by commas)

Office

Figure 4.8. Creating New Job Description with Authorized Readers & Revises Group



(Untitled) - Lotus Notes Desktop

File Edit View Create Actions Tool Window Help

Accept Save Reject Complete (for transfer data)

JOB DESCRIPTION		REFERENCE CODE
BENCHMARK JOB	Clerk	CODE N212
SPECIFIC JOB		
DEPARTMENT	Human Resources / Administration	SUPERVISE
SECTION	All Sections	CATEGORY
REPORT TO	Sr.Engineer	EXEMPT
JOB SUMMARY		NON-EXEMPT
DUTIES & RESPONSIBILITIES		DAILY
REQUIREMENTS	Name and signature of Compensation Manager, Date	
	Found 'simmon'	Office

Figure 4.9. Shown Top Screen with 'Accept' or 'Reject'

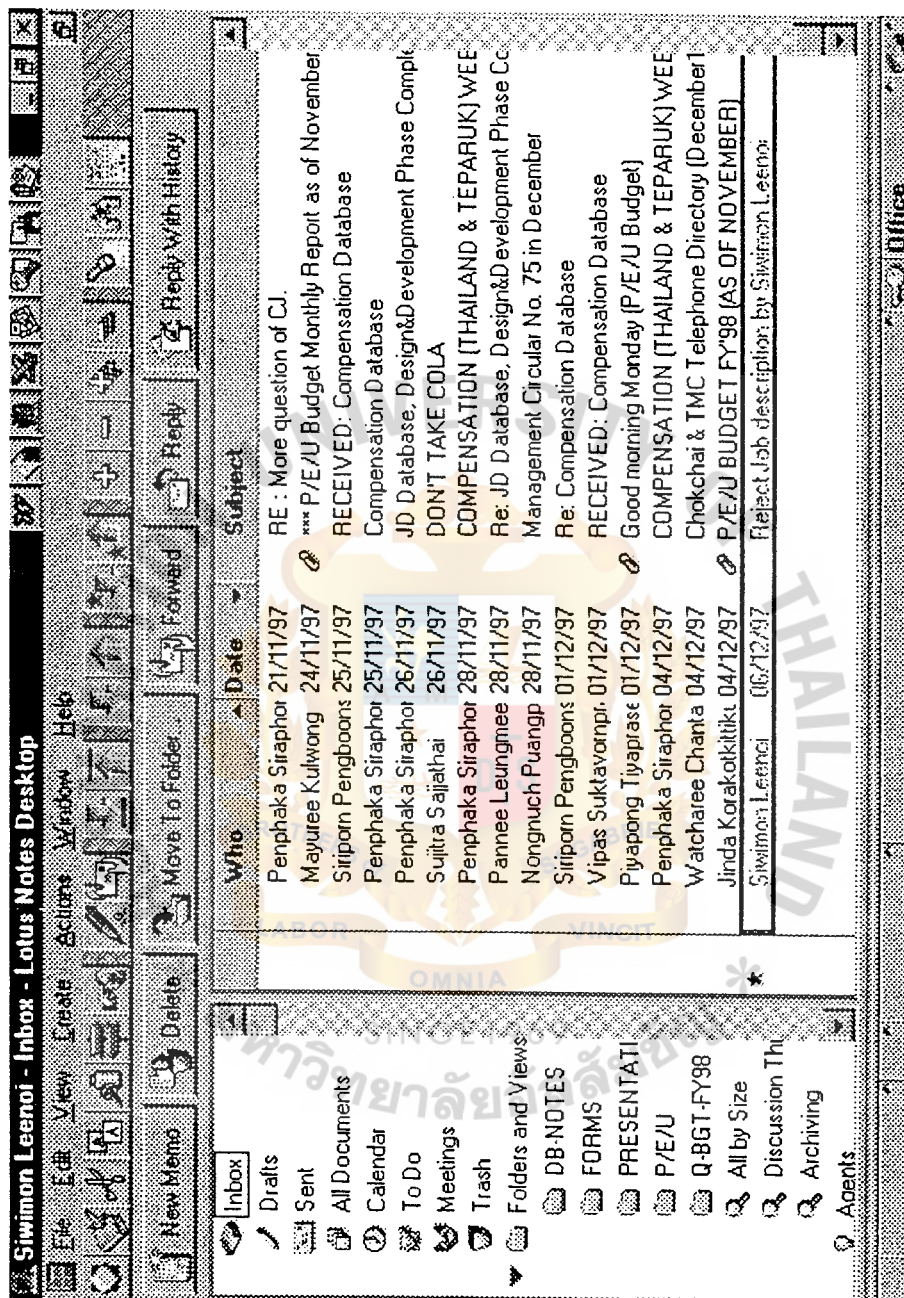


Figure 4.10. Shown Approval Workflow for 'Reject'



Figure 4.11. Shown Approval Workflow for 'Reject' mail Information and Doc-Link



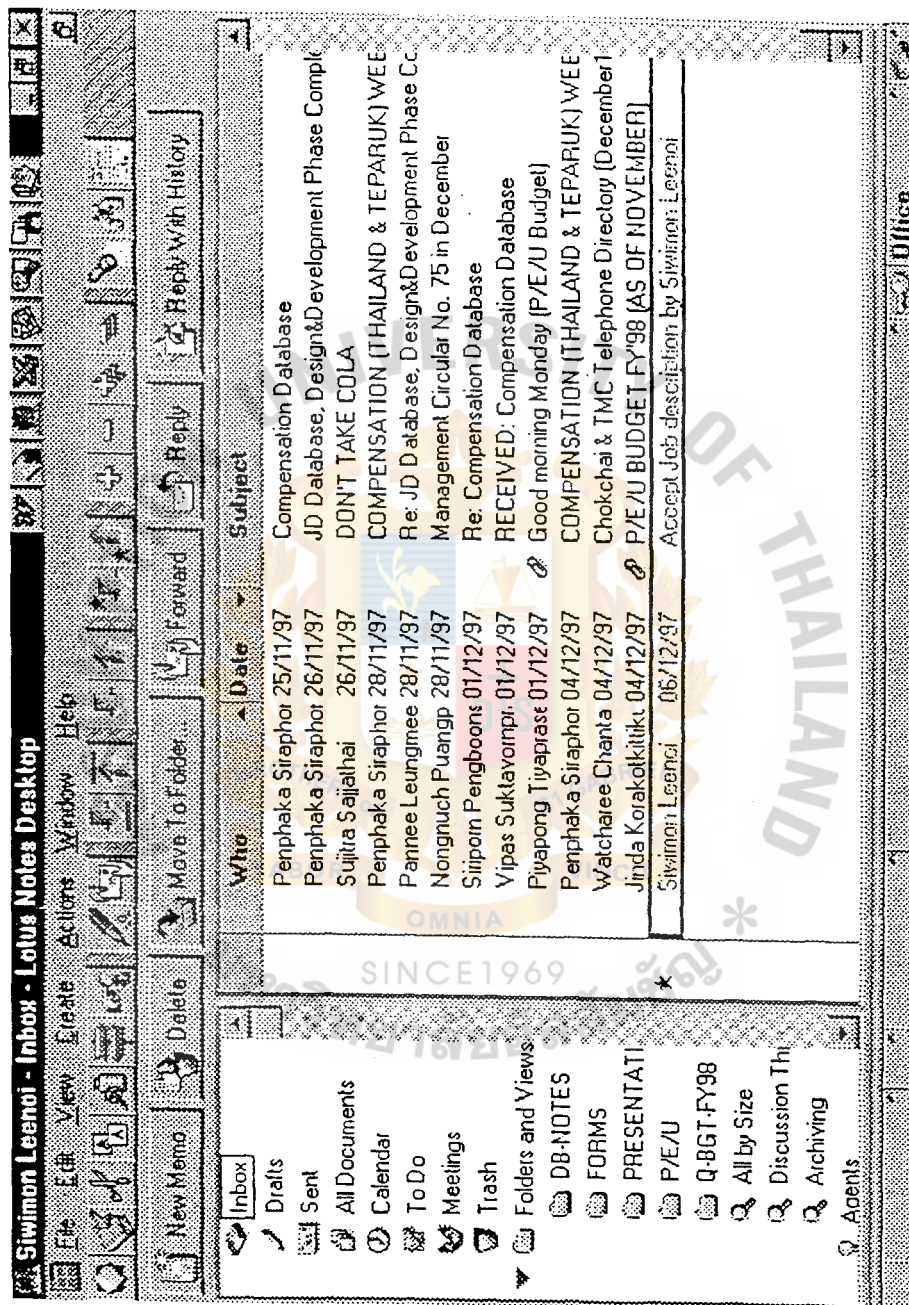


Figure 4.12.. Shown Approval Workflow for ' Accept '



Figure 4.13. . Shown Approval Workflow for ' Accept ' mail Information and Doc-Link

(Untitled) - Lotus Notes Desktop

File Edit View Create Actions Text Window Help

Complete (for transfer data)

Exit Save Approve

JOB DESCRIPTION		REFERENCE CODE
BENCHMARK JOB	CODE	
SPECIFIC JOB	SUPERVISE	
DEPARTMENT	CATEGORY	H/C
SECTION	EXEMPT	
REPORT TO	NON-EXEMPT	
	DAILY	
JOB SUMMARY		
DUTIES & RESPONSIBILITIES		
REQUIREMENTS		
Generic job title Ex Engineer I		

Office

Figure 4.14. Shown Top Screen with 'Approve'

**JOB LEVEL ( Exempt / Non-Exempt / Daily Employees )**  
**For Management Level Only**

JOB LEVEL	JOB TITLE	DIRECT / INDIRECT	HEADCOUNT
E211	ENGINEER I	I	120
E311	ENGINEER II	I	80
E411	ENGINEER III	I	50
E511	LEAD ENGINEER	I	25
E611	SR ENGINEER	I	18
E711	STAFF ENGINEER	I	12
E800	SR MANAGER	I	8
E999	VICE PRESIDENT	I	2
N511	SR TECHNICIAN	D	200
N211	TECHNICIAN I	D	450
N313	TECHNICIAN II	D	700
N412	TECHNICIAN III	D	800
D131	PROD OPR I	D	3000
D232	PROD OPR II	D	2000
D310	LEAD PROD OPR	D	1200

**Figure 4.15. Job Level ( Exempt / Non-Exempt / Daily Employees )**



## JOB GROUPING ( ENGINEER POSITION )

For Management Level Only

JOB LEVEL	JOB TITLE	DEPARTMENT
E211	ENGINEER I	ENGINEERING IE & FACILITY QA PRODUCTION MATERIAL HR/ADMIN I.T.
E311	ENGINEER II	ENGINEERING IE & FACILITY QA PRODUCTION MATERIAL HR/ADMIN I.T.
E411	ENGINEER III	ENGINEERING IE & FACILITY QA PRODUCTION MATERIAL HR/ADMIN I.T.
E511	LEAD ENGINEER	ENGINEERING IE & FACILITY QA PRODUCTION MATERIAL HR/ADMIN I.T.

Figure 4.16. Job Grouping ( Engineer Position )

**Department Headcount  
For Management Level Only**

Reference Code	Department	Job Level
T-2100-E512-01	Quality Assurance	E512
T-2100-E700-02	Quality Assurance	E700
T-2100-E800-03	Quality Assurance	E800
T-2100-E800-04	Quality Assurance	E800
T-2100-E800-05	Quality Assurance	E800
T-2100-E800-06	Quality Assurance	E800
T-2100-E900-07	Quality Assurance	E900
T-2100-E512-01	Quality Assurance	E512
T-2100-E700-02	Quality Assurance	E700
T-2100-N411-03	Quality Assurance	N411

COST CENTER : 2100	
TOTAL HEADCOUNT	10
TOTAL JOB JODE	
E512	2
E700	2
E800	4
E900	1
N412	1

**Figure 4.17. Department Headcount**



JOB DESCRIPTION			
BIG BEAR APPLIANCES (THAILAND) LIMITED			REFERENCE CODE T-2200-E312-05
<b>BENCHMARK JOB SPECIFIC JOB</b>	Secretary I Secretary I	<b>CODE</b>	E312
<b>DEPARTMENT SECTION REPORT TO</b>	Materials Administration Senior Director	<b>SUPERVISE</b>	<b>CATEGORY</b> EXEMPT NON-EXEMPT DAILY
<b>JOB SUMMARY</b> Provides a wide variety of secretarial and clerical services in support the administrative work in he department, makes decision, solves some problems within the scope of authority as well as co-ordinates the budget schedule within the department and controls spending for office supplies.			
<b>DUTIES &amp; RESPONSIBILITIES</b> 1. Performs routine clerical, administrative and secretarial duties where assignments are well-defined and require minimum interpretation, judgement or discretionary actions. 2. Co-ordinates travel arrangement. 3. Deals with routine business correspondence. 4. Co-ordinates the budget and controls spending in the department. 5. Maintains the appointment calendar and files, keeps records, prepares schedules, complies report and processes document of a routine nature. 6. Performs related work as required.			
<b>REQUIREMENTS</b> Education Experience Others		BA / BS 2 - 4 years Excellent in perosnal computer skills, fluent in English communications.	
<b>READER &amp; REVISE</b> Reader Name		Name for revise data	

Figure 4.18. Standard Job Description

## **JOB SUMMARY (ENGINEER I POSITON)**

### **For Management Level Only**

<b>Job Level</b>	<b>Job Title</b>	<b>Job Summary</b>
E211	ENGINEER I	Responsible for all production process in functional production line, material used, manufacturing procedure and deviation, document included the major functions are to improve process, and support technical issue to manufacturing.

**Figure 4.19. Job Summary**

## JOB DUTIES & RESPONSIBILITIES (ENGINEER I POSITON)

### For Management Level Only

Job Level	Job Title	Job Duties & Responsibilities
E211	ENGINEER I	<ol style="list-style-type: none"><li>1. Performs technical support activities related to manufacturing with engineering approach to effectively respond to each work request in term of productivity, quality, and cost.</li><li>2. Releases, adds, and changes process instruction.</li><li>3. Establishes appropriate performance report.</li><li>4. Performs manufacturing yield and process monitoring, improvement, and problem solving.</li><li>5. Supervises technicians in responsibility to accomplish job in the most effective way.</li><li>6. Performs related work as required.</li></ol>

Figure 4.20. Job Duties & Responsibilities

<b>JOB MATRIX (PRODUCTION DEPARTMENT)</b>			
<b>For Management Level Only</b>			
<b>Job Level</b>	<b>Job Title</b>	<b>Education</b>	<b>Experiences</b>
D1	PROD OPERATOR I	SECONDARY SCHOOL	+ 4 YRS.
D2	PROD OPERATOR I	SECONDARY SCHOOL	+ 1 - 3 YR
D3	LEAD PROD OPERATOR	HIGH SCHOOL	+ 5 YRS.
N1	PERSONAL DRIVER	SECONDARY SCHOOL	+ 4 - 5 YR
		VOCA. / HIGH SCHOOL	
N2	TECHNICIAN I	CERT / TECH SCHOOL	+ 4 - 5 YR
N3	TECHNICIAN II	DIP / TECH SCHOOL	+ 4 - 5 YR
		CERT / TECH SCHOOL	+ 7 YRS
N4	TECHNICIAN III	DIP / TECH SCHOOL	+ 6 YRS
		CERT / TECH SCHOOL	+ 9 YRS
N5	SENIOR TECHNICIAN	DIP / TECH SCHOOL	+ 8 YRS
		CERT / TECH SCHOOL	+ 11 YRS
E1	SUPERVISOR I	BA/BS	+ 4 - 6 YRS
		DIP / TECH SCHOOL	+ 7 YRS
		CERT / TECH SCHOOL	+ 9 YRS
E2	SUPERVISOR II	BA/BS	+ 5 - 7 YRS
		DIP / TECH SCHOOL	+ 7 - 9 YRS
		CERT / TECH SCHOOL	+ 9 - 12 YRS
E3	SUPERVISOR III	BA/BS	+ 6 - 8 YRS
		MA/MS	+ 4 - 5 YR
E4	LEAD SUPERVISOR I	BA/BS	+ 7 - 9 YRS
		MA/MS	+ 5 - 6 YRS
E5	LEAD SUPERVISOR II	BA/BS	+ 8 - 9 YRS
		MA/MS	+ 6 - 7 YRS
E6	SENIOR SUPERVISOR	BA/BS	+ 9 YRS
		MA/MS	+ 8 YRS
E7	SECTION MANAGER	BA/BS	+ 11 YRS
		MA/MS	+ 9 YRS
E8	SENIOR MANAGER	BA/BS	+ 12 YRS
		MA/MS	+ 10 YRS
E9	DIRECTOR	BA/BS	14 UP
		MA/MS	

**Figure 4.21. Job Matrix**

## **V. CONCLUSION & RECOMMENDATIONS**

### **5.1 Conclusion**

This system is implemented and shared information among users in the site and plan to distribute the same concept/direction to other sites in the future. This is different from the existing system which is the PC stand alone basis. The new system will save time and provide the impetus for more activities within the division.

The proposed Standard Job Description on Database Notes System for Human Resources Development Department, Big Bear Appliances (Thailand) Limited, is the first step towards computerization and systematic. The new system is improved to account for additional user requirements. It is developed to be the promptness of information in order to play the first impression, to be quick services, to provide internal and external customer satisfaction, to produce various types of complete planning reports for management decision making and the process improvement as objective requirements. HR department can solve some manual problems by using computerized system for providing consistent, accurate timely, relevant information, and less time to processing and can also collect history record that all document support for auditing purposes. The database stored the enormous existing job description all positions of all departments with complete approval by using workflow. About security restriction, the system can support to the authorized reader group only which can guarantee security better than using password in Excel against password changing or telling (Please see more details in appendix B) in order to support corporate policy, to control stages of processing such as requested by who, received or done by who, or edited documents by who, etc. It is the best method to keep transaction logging of revision of job description (schedule every 6 months). The screens are designed according to the users requirements for ease of use and understandability.

Considering the various benefits of this project how to support management decision making, the project can support HR Development Planning to set up the appropriate training course for career development planning in the suitability of each job level. It can guide the organizational career growth, career stage, job dimension, and evaluate organizational career path. It can analyze demand forecast, supernumerary, organizational labour flux rate, labour movement, turnover rate then merge to productivity and cost comparison. It can support compensable factors, salary survey, wage compression, bootleg wages, green horn wage for related industrial group. It can control fiscal year budget calculation granted with department headcount. It can be standard recruitment

function for occupational classification, redeployment, job rotation, chain of command or headcount distribution with supervisors and subordinates also easily to control headcount quota new replacement or additional process, job rotation, job overlap of each departments/sections, etc. It can refer to job description reference code. The job matrix can guide departments/sections in case of promotion/upgrade requirement. It will be useful for further planning for goal setting and performance evaluation. It can conform ISO 9002 & 14000 (factory paperless for environment) standard requirement and support audit purposes, the corporate HR policy for security restriction access included completely review/verify/approve signatures.

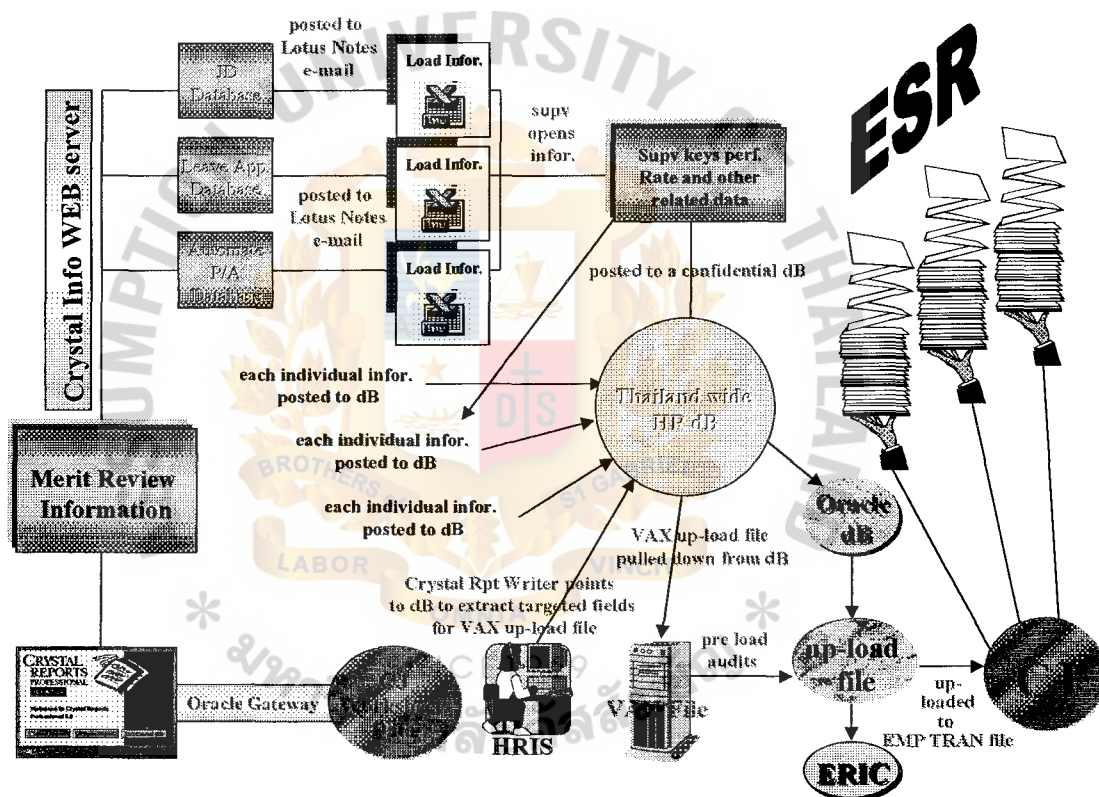
After implement the system, HR introduced and guided the users how to use the new look for Standard Job Description Database on Lotus Notes System in basically. We got very useful feedback and comments from management level. 85% of management level are satisfy in our documentation and record-keeping in secure, consolidates, record and maintain information; in our communication effectively and accurately; in efficiency apply current developments within area responsibility; in good planning for current and future work; in our innovation & creativity to develop ideas for improving services. While 15% of management level provided us the comments and recommendation such as some problems occurred during accessing data, some authorized reader group does not update because the status of management level always change in case of transfer to other sites, promotion to be upper level, and others over HR control. Sometimes some managers whose names shown more than one site could not access the database. Some managers recommend that HR should allow them to access not only their related departments/sections but also access all Teparak departments/sections. For HR management level recommendation, HR responsible staff misunderstand the original concept, HR could not know well about the new coming job description because of no automated mail setting.

Regarding with the previous problems, management comments and feedback, the system Development project should be distributed to the other sites in order to be the same directions/concepts that can solve data-accessing problems. The planning development for generic job description should be considered in the future which will allow all management levles to access the generic job description both related and non-related information. Our project development committee and the IT consultant team is now considering the problems, feedback and comments for project improvement, but it depends on the various reasons such as the strictly corporate policies and notes applications procedures that all Big Bear employees should be hold on our strictly policies and procedures.



## 5.2 Recommendations

Our project development committee is serious in supporting closely with 12 main departments or approximate 73 sections for internal customers satisfaction and our 4 sites in order to provide system innovation and creativity for improving more services. The project development committee organized by the various representative from other departments and I.T. consultants to support our organizational needs, manpower & office equipment utilization for cost saving and re-engineering procedures during the period of down economics. The project development committee consider many further planning and then search the best method how to enhance the effectiveness in the work place with the lowest cost. Finally, the various system development projects will be submitted to Site Vice President and Corporate Cognizant Representative for consideration and approval.



**Figure 5.1. Future Planning Guidelines for HR System Development Project**

Presently, the system development projects were implemented primary to assist users in centralize system. Enhancement to the system included areas which interact with both inside and outside the division. Other further plans for HR system development project are also granted for improving and developing to be more efficiency. The extensions are expected to include for the following functions :-

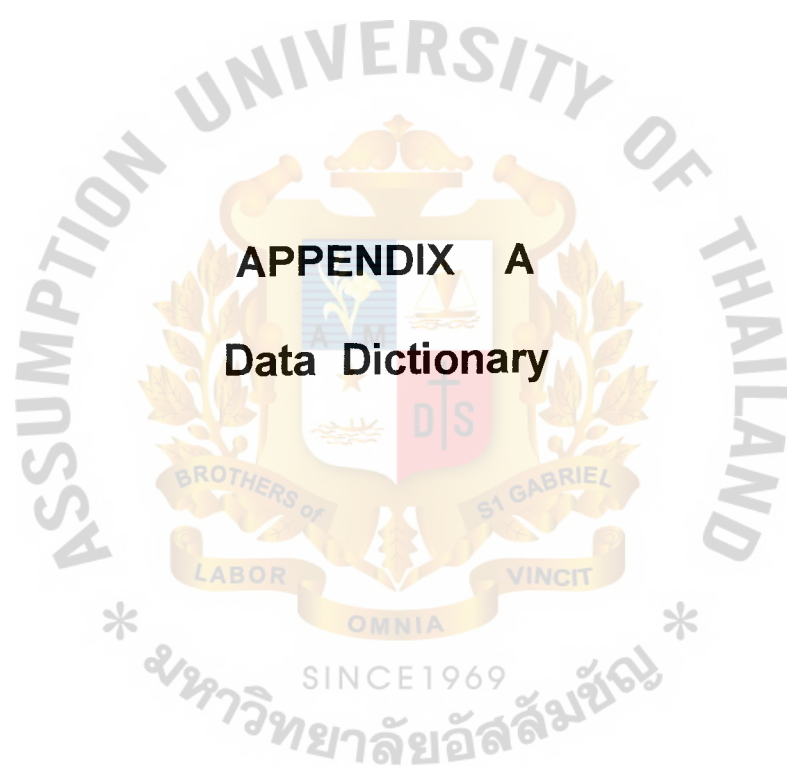
1. Managing the standard job description database for goal setting and performance evaluation

2. Evaluating the existing automated performance appraisal database for evaluation semi-annual merit review
3. Monitoring the existing leave application/leave balance database for working attendance consideration
4. Merging the existing CJ system for employee history record-keeping in Human Resources Information System to the previous databases



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## APPENDIX A

### Data Dictionary

## DATA DICTIONARY

action plan	=	*information about management decision-making to accomplish goals and objectives for business need*
authorized managerial group	=	*information maintained about each authorized managers* @manager-details + job code + cost center + department/section
budget	=	*amount of money calculation for department distribution* *units : baht*
certification-name	=	*the name of faculty graduation, e.g., "Bachelor of Arts"* **
cost centers	=	*the reference number assigned to each department; a typical cost center number is TT-9520* "T" + site-name + {numeric-digit}
courtesy-title	=	*the prefix in front of a person's first name* [ "Mr."   "Mrs."   "Ms."   "Miss"   "Dr." ]
DEPARTMENTS	=	{department}
department	=	*information maintained about each department* @dept-name + section-name + cost-centers
department headcount	=	*total number of employees in each department during a fiscal year period* **
dept-name	=	*the name of a department, e.g., "QA"* **



educational-background	=	*an individual information about the highest graduation of employees* @certification-name + major-subject + graduate-date
emp-categories	=	*type of employee* ["Exempt"   " Non-exempt"   " Daily "]
Employee Status Report	=	*input document to effect changes in HR employee database submitted whenever any salary action, transfer, change of job status, etc. occurs* **
experience requirements	=	*the amount of related working experience till the effective date of promotion/upgrade process* **
first-name	=	*a person's first name* **
FY HR planning	=	*HR management decision-making to support organization accomplishment during fiscal year* **
graduate-date	=	*the date on which the employees' graduation* **
HR DEPARTMENT	=	{Human resources department}
Human Resources department	=	*the name of a department* **
I.T. DEPARTMENT	=	{Information Technologies department}
information	=	*conditions for new job description arrangement* @educational-background + experience requirement + time-in-grade

INFORMATION SUPPORT = {information}

Information Technologies department

= \*the name of a department\*  
\*\*

JD = {job description}

JD reference code = \*a numeric code the identifies each job description;  
a typical reference code is T-9520-E213-10\*  
@ site-name + cost-centers + job titles + {numeric-digit}

job code = \*the code to indicate what job level of the employees\*  
3 {numeric-digit}

job description = \* the details for job's duties, responsibilities and level of work\*

job grouping = \*jobs are grouped together based upon level of complexity and the amount of knowledge and experience requirement.\*  
\*\*

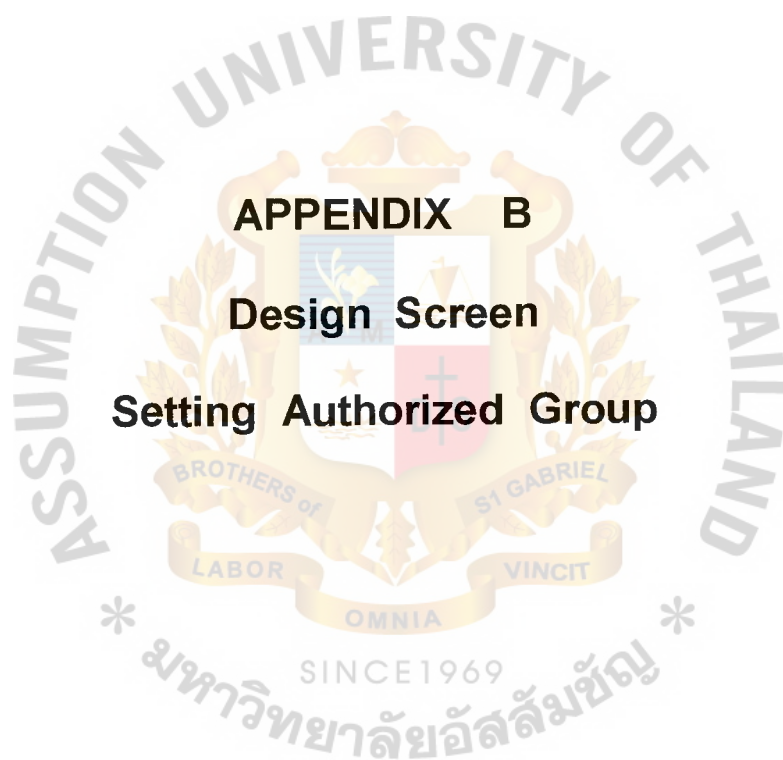
job level = \*the corporate code to indicate the positions\*  
\*range: 0-9\*

job matrix = \*the standards of performance with background and experiences requirements to provide specifications about the job for recruitment and selection processes\*  
\*\*

job summary = \*the overall job for which not describe individual employees\*  
\*\*

job titles	=	*the full title of a job position* @emp-categories + job level + job code
last-name	=	*a person's last name* **
major-subject	=	*the name of major subject graduation, e.g., "English"* **
MANAGEMENT	=	{management level}
management level	=	*managerial staff* @manager-details + job level + job titles
manager-details	=	courtesy-title + first-name + last-name
memo justification	=	*reasonable explanation to management decision-making support for promotion/upgrade cases* **
performance appraisal form	=	*the factors format for performance evaluation* **
performance evaluation	=	*the process of determining the relative value of jobs within a defined salary structure and the method is referred to as Marketing Pricing and other major processes* **
position	=	*the name of a position, e.g., "Engineer"* **
promotion/upgrade	=	*the career growth planning to be the next career step in higher salaries, higher grade, and increasing in job responsibilities* **

reports	=	*report for management consideration and approval for which management decision-making support* ["FY action plan"   "Department planning"   "FY HR planning"   "Recruitment planning"   "Training development planning"   "Quarterly JD"   "ISO requirements"]
section-name	=	*the name of a section, e.g., "Quality support"* **
security restriction workgroup	=	*the authorized group who can access JD database Notes about Notes database security* @manager-details + job code + job level
site-name	=	*the name of a site* ["Teparak"   "Korat"   "Chokchai"   "Wellgrow"   "Rayong"]
system support	=	*Lotus Notes applications to support database system* **
time-in-grade	=	*the period requirement in current position* **
training development	=	*information about training development* **





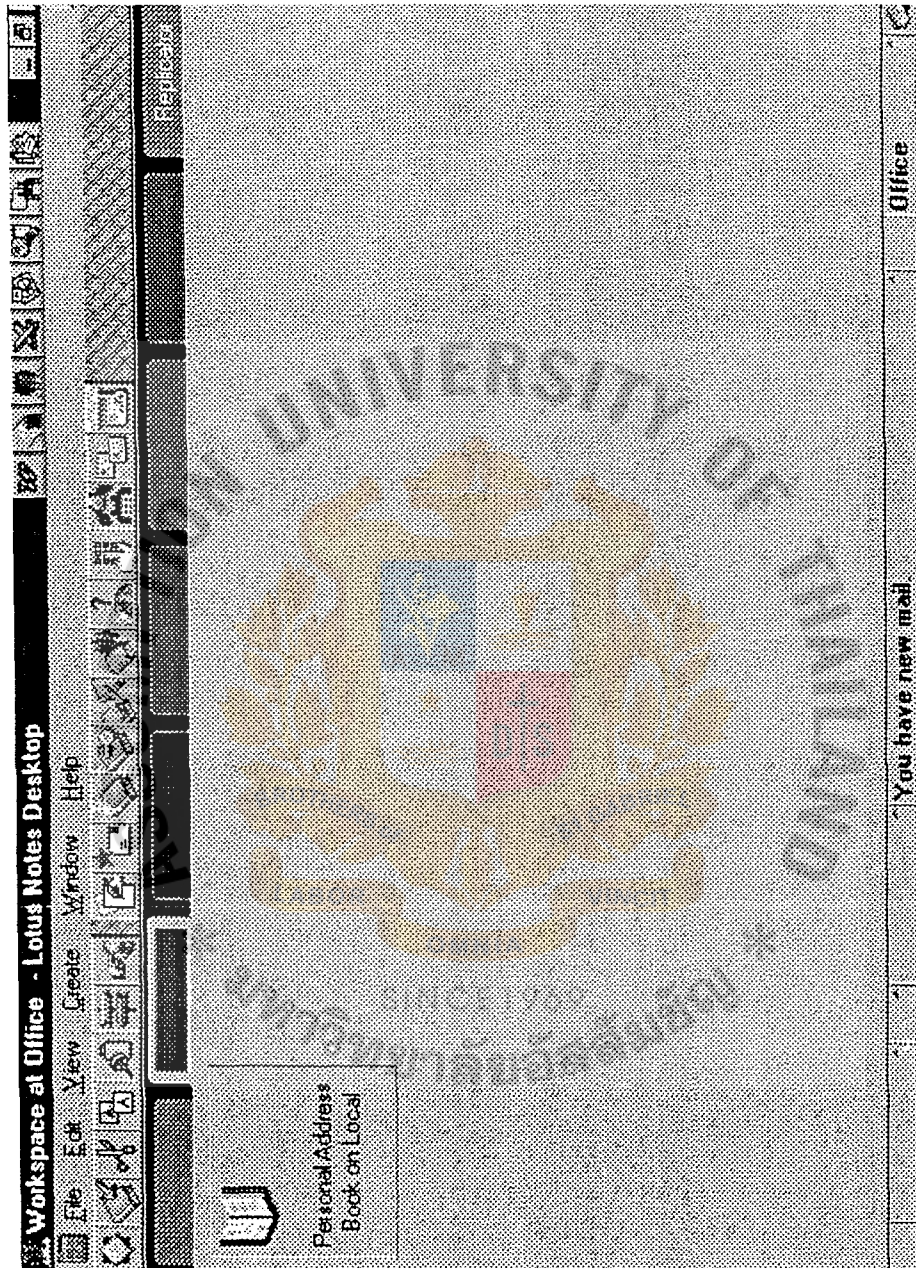


Figure B.1: 1st Step - How to Create Workgroup for Authorized Persons

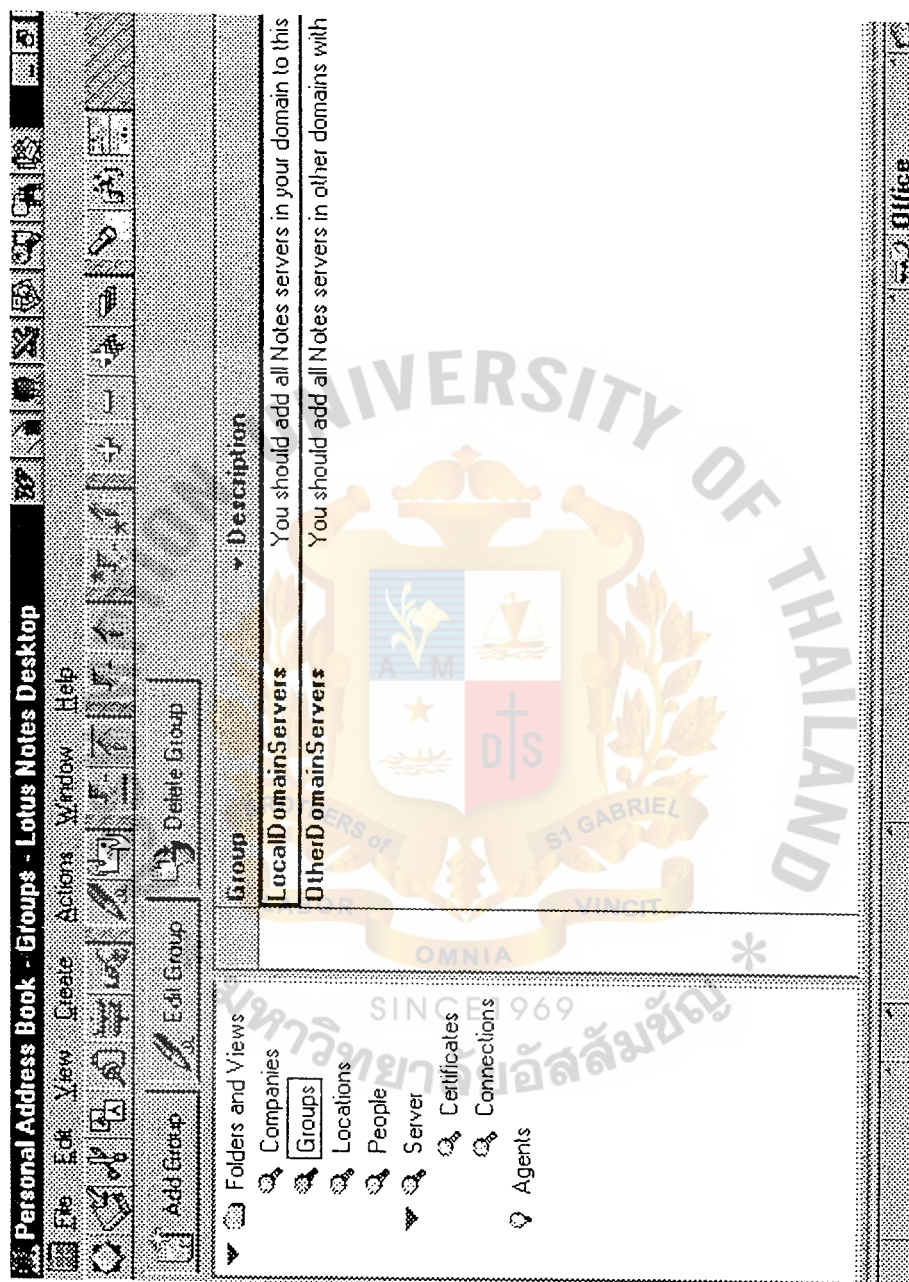


Figure B.2• 2nd Step - How to Create Workgroup for Authorized Persons



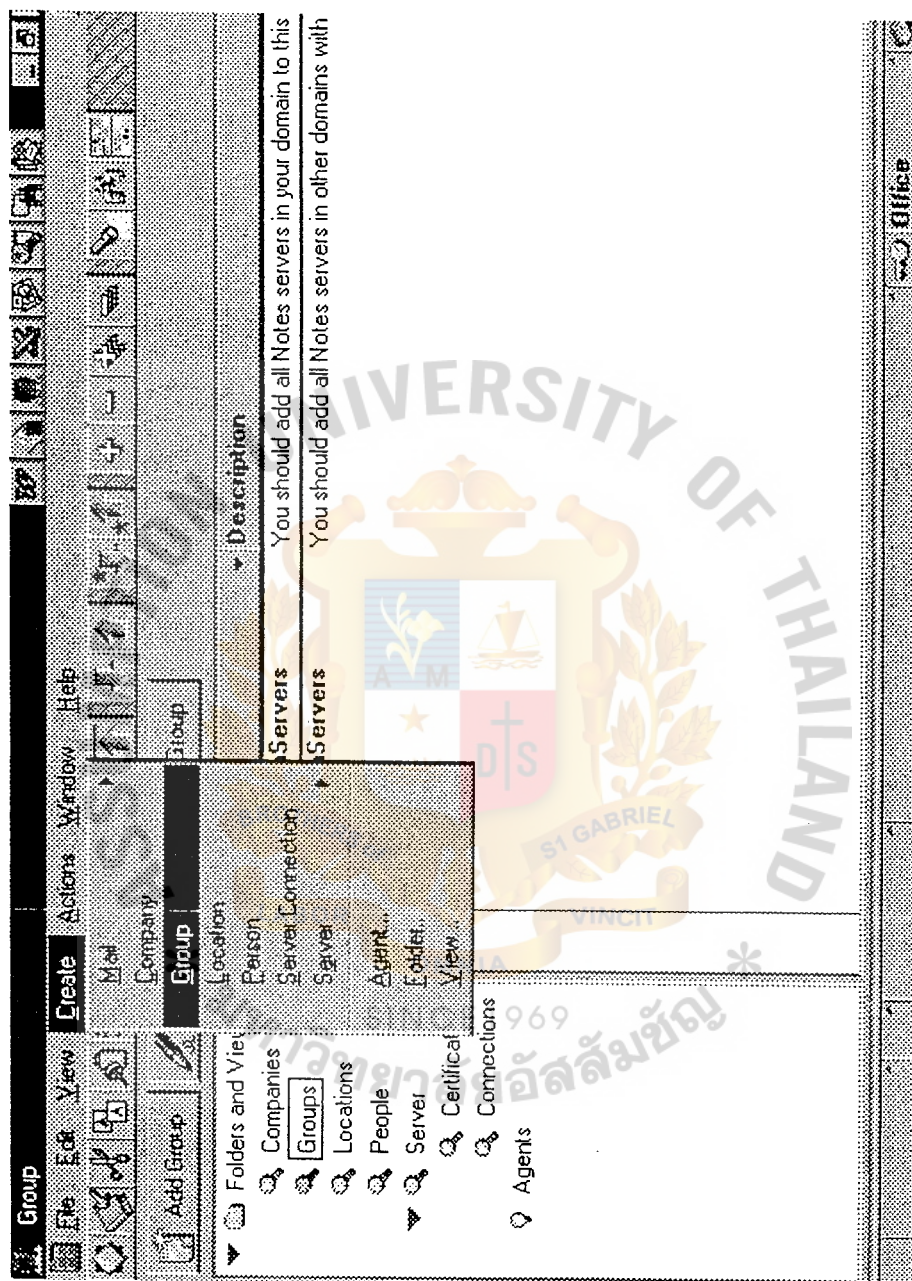


Figure B.3. 3rd Step - How to Create Workgroup for Authorized Persons

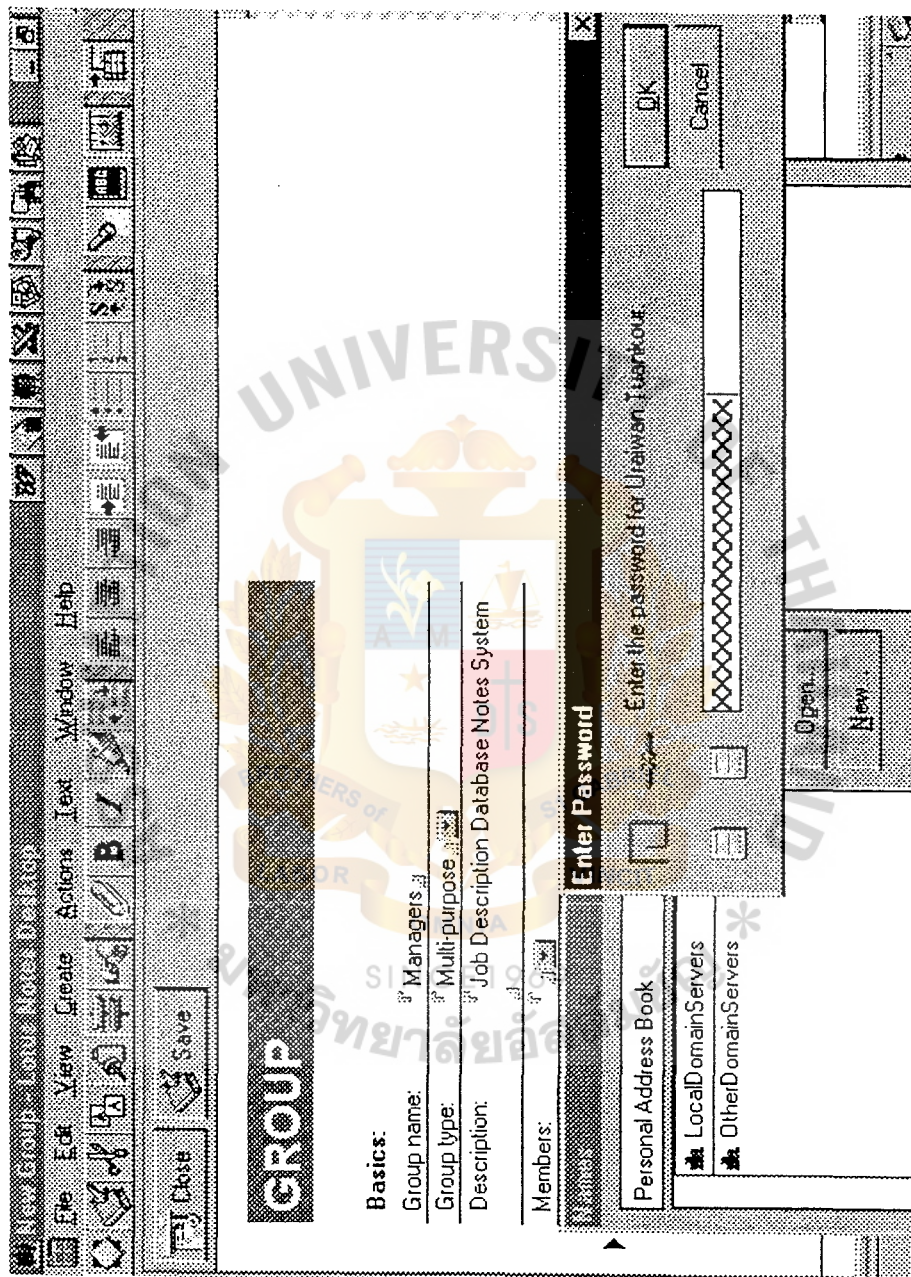


Figure B.4. Enter Password



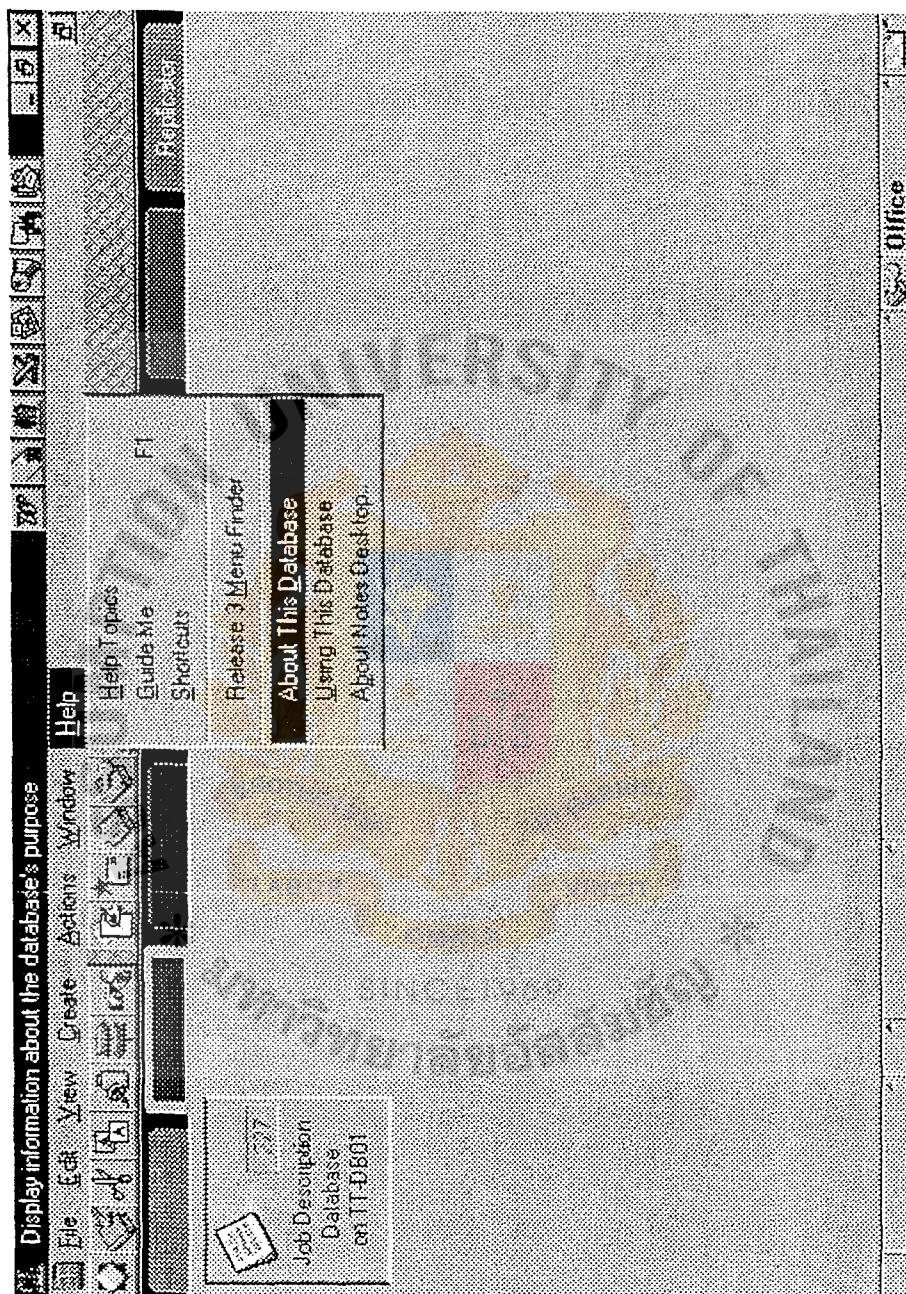


Figure B.5. How to Use 'ABOUT THIS DATABASE'



## About Job Description Database

### Job Description Definition

Job Description is a written statement describing the objectives of a job, the work to be performed, the skills needed, the responsibilities involved, the relationship of the job to other jobs, and its working conditions.

### User Information

- All managers are welcome to access all job descriptions under THEIR SECTIONS up to MANAGERIAL LEVEL. And ALL DIRECTORS can access all job descriptions under THEIR DEPARTMENTS up to DIRECTORIAL LEVEL.

### How to Use This Database ?

- Instruction could be found in Help, Using Job Description Database



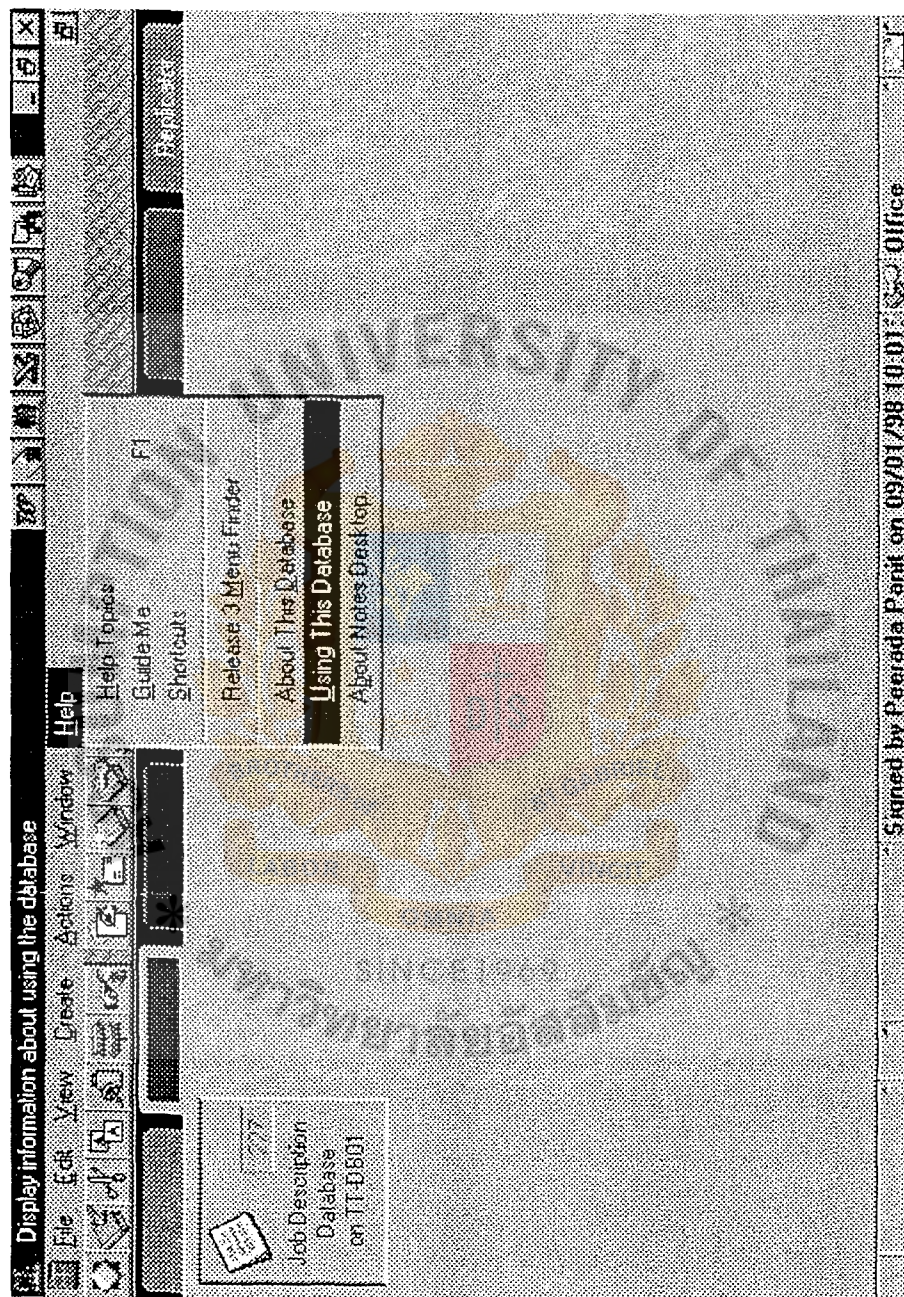


Figure B.6. How to Use ' USING THIS DATABASE '

## Using – Job Description Database

### Database Inside

There are 3 main views :-

1. **COMPLETE** ALL VERIFIED standard job descriptions are kept in this part.
2. **ON GOING** ALL PENDING for verified / NEW CREATED job descriptions are kept here.
3. **REJECT** For the created job description which the position / requirement cannot be approved by any reason.

### Screen Design

- ◆ Feel free to create YOUR OWN SCREEN by using the menu option of REFERENCE CODE, DEPARTMENT, POSITION, JOB CODE, APPROVED MANAGER

### Easy keyword for your convenience

- ◆ When contacting with HR, please use **REFERENCE CODE** number (appeared at the right hand-side corner of each job description) to support your various purpose.

### When to create new job description

- ◆ When it is not available.
- ◆ When the existing one is not valid.

### Writing tips

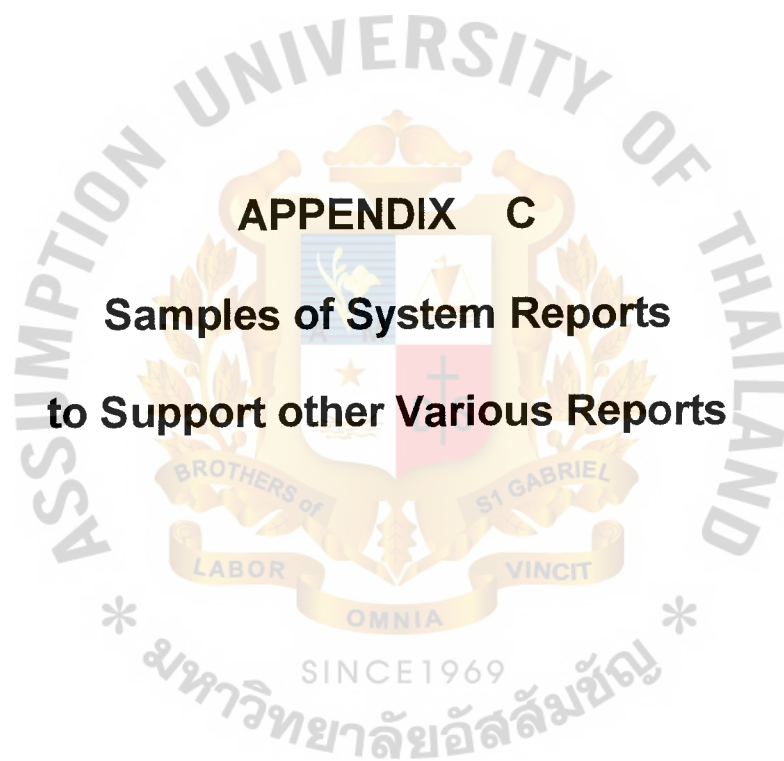
- ◆ 4 C (Concise, Clear, Complete, Correct)
- ◆ Sequentially
- ◆ Brief and to-the-point statement
- ◆ Do not attempt to set down every detail of the job
- ◆ Begin each sentence with action verb
- ◆ Use Present Tense

### How to create new job description

- ◆ Select “ **New job description** ” button at the top of your left hand-side.
- ◆ Fill up the detail in each field (**HELP MANUAL** will be also available at the bottom line.)
- ◆ Select “ **SAVE** ” button for **DRAFT** saving if it is **NOT READY** to be sent yet, then it will go into **ONGOING MENU AT HOLDING BY REQUESTER** or select “ **APPROVE** ” button if it is **READY** to be sent to HR then it will go into **ONGOING MENU AT WAITING FOR VERIFICATION**.

## **APPENDIX C**

**Samples of System Reports  
to Support other Various Reports**





**Table C.1. Salary Report by Position**

No.	Cat.	Position	TT		TK		TC&TW		TR		STTH (TOTAL)			
			H/C	AVG	H/C	AVG	H/C	AVG	H/C	AVG	H/C	AVG	MIN	MAX
1	N2	TECHNICIAN I	31				1		1				6,405	98,653
2	N3	TECHNICIAN II	182		262		10		322				3,290	11,774
3	N4	TECHNICIAN III	118		59		4		122				8,464	13,695
4	N5	SR TECHNICIAN	71		9		1		48				41,285	18,956
5	N2	CLERK I	10		4		1		27				10,506	9,877
6	N3	CLERK II	13		23		3		17				5,780	11,774
7	N4	SR CLERK	13		4		4		32				6,285	15,896
8	E1	SUP I	18		193		20		123				9,267	17,984
9	E2	SUP II	23		19		11		86				9,700	23,659
10	E3	SUP III	24		7		3		44				12,862	28,963
11	E4	LEAD SUP I	13		6		5		25				14,766	34,569
12	E5	LEAD SUP II	4		6		2		6				20,800	43,696
13	E6	SR SUP					1		9				28,163	53,698
14	E1	TECH SUP I	17		7		10		16				32,026	24,563
15	E2	TECH SUP II	5		4		4		11				11,263	28,777
16	E3	TECH SUP III	1		3		1		13				13,854	34,569
17	E4	LEAD TECH SUP I	3		1		1		5				22,658	41,070
18	E5	LEAD TECH SUP II							1				47,158	14,569
19	E6	SR TECH SUP												
20	E2	ENG I	43		29		6		55				15,698	23,654
21	E3	ENG II	36		20		3		47				18,562	28,963
22	E4	ENG III	22		12		6		39				22,659	35,412
23	E5	LEAD ENG	20		6		5		29				29,666	43,658
24	E6	SR ENG	21		7		2		38				31,568	55,698
25	E1	ASST ACCT	22		8				10				10,478	18,624
26	E3	ACCT I	18		7				18				15,698	28,741
27	E5	ACCT II	10		1				4				28,412	41,236
28	E6	SR ACCT	1		1				4				34,566	54,231
29	E1	BUYER I							1				10,256	15,232
30	E3	BUYER II			2				2				15,478	26,874
31	E5	BUYER III							2				24,563	33,698
32	E6	SR BUYER							1				33,214	43,555
33	E1	PLANNER I	1						1				10,257	19,877
34	E3	PLANNER II	3						4				15,632	25,633
35	E5	PLANNER III	4		1				4				23,654	39,541
36	E6	SR PLANNER							3				33,124	46,555
37	E1	HR ASST	10		15		1		10				12,365	19,024
38	E3	HR SPECIALIST	14		7		1		22				25,698	25,444
39	E5	HR OFFICER	8		11		1		9				32,541	42,555
40	E6	SR HR OFFICER	5		2				6				23,654	49,633
41	E7	SECTION MGR	26		24		7		50				85,963	80,123
42	E8	SR MGR	28		6		1		30				59,632	148,555
43	D1-3	DAILY EMP												



**Table C.2. Turnover Rates**

Level	H/C During Special Month														Resigned H/C In Specified Months												Turnover Rates			
	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Sum	Avg	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	YTD	Monthly	YTD	
N2	2	2	3	2	1								10	2													0	0.00%	0.00%	
N3	317	321	318	324	344								1624	325		4	3	5	1	3							16	0.31%	4.93%	
N4	92	94	102	98	100								486	97		1		1	1	1							3	1.02%	3.09%	
N5	45	43	45	45	48								226	45		1											1	0.00%	2.21%	
Total	456	460	468	469	493	0	0	0	0	0	0	0	2346	117		5	4	5	2	4	0	0	0	0	0	0	0	20	0.43%	10.23%

Level	H/C During Special Month														Resigned H/C In Specified Months												Turnover Rates			
	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Sum	Avg	Apr-97	May-97	Jun-97	Jul-97	Aug-97	Sep-97	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	YTD	Monthly	YTD	
N1	11	11	12	11	11								56	11													0	0.00%	0.00%	
N2	128	163	163	167	164								785	157		1	3	2		3							9	0.00%	5.73%	
N3	404	410	407	411	429								2061	412		4	4	6	1	3							18	0.24%	4.37%	
N4	150	151	160	155	157								773	155		1	1		1	1							4	0.65%	2.59%	
N5	47	45	47	47	50								236	47		1											1	0.00%	2.12%	
NE Total	740	780	789	791	811	0	0	0	0	0	0	0	3911	326		7	8	8	2	7	0	0	0	0	0	0	0	32	0.25%	9.82%

**Table C.3. Wages by Position**

Position	Min.	Max.	Monthly Paid	Avg.	HC	%
JANITORWORKER	203.00	236.00		219.50	3	0.02
LAUNDRY WORKER	163.00	260.00		211.50	61	0.44
QA I	163.00	242.00		202.50	238	1.73
COPY OPTR	191.00	191.00		191.00	1	0.01
LAB OPTR	199.00	199.00		199.00	1	0.01
QA AUDIT	163.00	200.00		181.50	15	0.11
PROD I	163.00	266.00		214.50	12548	91.33
CMC OPTR	215.00	242.00		228.50	7	0.05
PP OPTR	212.00	252.00		232.00	17	0.12
PREP OPTR	163.00	183.00		173.00	7	0.05
BAY BOY	178.00	238.00		208.00	20	0.15
PROD II	212.00	254.00		233.00	26	0.19
CALIBRATE OPTR	192.00	192.00		192.00	1	0.01
ASSEMBLER	195.00	259.00		227.00	18	0.13
LAUNDRY WORKER II	248.00	248.00		248.00	1	0.01
QA AUDIT II	202.00	251.00		226.50	8	0.06
LAB OPTR	193.00	251.00		222.00	15	0.11
TECH MAINT OPTR	194.00	256.00		225.00	33	0.24
LEAD JANITOR	239.00	253.00		246.00	6	0.04
ENG OPTR	207.00	244.00		225.50	4	0.03
LEAD FAC WORKER	232.00	247.00		239.50	6	0.04
TECH TEST OPTR	191.00	256.00		223.50	13	0.09
QA II	198.00	262.00		230.00	21	0.15
PROD II	193.00	265.00		229.00	403	2.93
DATA ENTRY	211.00	247.00		229.00	8	0.06
LEAD PP	234.00	239.00		236.50	1	0.01
LEAD PROD	263.00	256.00		259.50	145	1.06
LEAD QA	246.00	265.00		255.50	18	0.13
TECH TEST OPTR II	204.00	253.00		228.50	73	0.53
TOOL MAINT OPTR	225.00	234.00		229.50	14	0.10
LEAD QA AUDITOR	257.00	281.00		269.00	2	0.01
LEAD QA AUDITOR	237.00	273.00		255.00	3	0.02
AUTOMATION OPTR	235.00	262.00		248.50	2	0.01
<b>TOTAL</b>	<b>6,821.00</b>	<b>8,057.00</b>		<b>7,439.00</b>	<b>13,739.00</b>	<b>100.00</b>

**Table C.4. Wages by Category**

Category	Min.	Max.	Monthly Paid	Avg	HC	%
D1	163	266		186.04	12918	94.04
D2	191	265		235.87	564	4.11
D3	204	281		254.49	255	1.86
<b>TOTAL</b>	<b>163.00</b>	<b>281.00</b>		<b>189.36</b>	<b>13,737.00</b>	<b>100.00</b>

**Table C.5. Range Position & Comparative Ratio**

Category	T1			T2			T3			OVER MAX			TOTAL			RANGE		COMP
	AVG	HC	%	AVG	HC	%	AVG	HC	%	AVG	HC	%	AVG	HC	%	POSITION	RATIO	
NON-EXEMPT	5,448	1	0.40			0.00	8,226	4	19.05			5		9				
	6,435	74	29.72	7,500	63	17.17	9,426	6	28.57			143		212				
	7,643	189	67.87	8,929	180	49.05	10,765	5	23.81			354		539				
	9,500	2	0.80	10,667	105	28.61	12,546	6	28.57			113		224				
	11,330	3	1.20	13,233	19	5.18	15,698	0	0.00			22		41				
TOTAL-NON-EXEMPT		249	100.00		367	100.00	56,661	21	100.00			637		1025				
EXEMPT	11,307	172	56.95	14,987	29	9.67	20,145	16	9.25			217		262				
	14,372	55	18.21	21,815	49	16.33	25,478	33	19.08			137		219				
	17,736	39	12.91	26,813	71	23.67	31,256	31	17.92			141		243				
	22,129	9	2.98	33,013	37	12.33	38,956	23	13.29			69		129				
	26,647	12	3.97	41,068	33	11.00	49,874	19	10.98			64		116				
TOTAL-EXEMPT	33,519	6	1.99	53,849	36	12.00	64,789	24	13.87			66		126				
	44,123	4	1.32	56,987	25	8.33	105,236	19	10.98			48		92				
	67,779	5	1.66	85,963	20	6.67	24,569	8	4.62			33		61				
		302	100.00		300	100.00	360,303	173	100.00			775		1248				