Intranet System for Sales Management By Using Lotus Notes

By

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A Final Report of the Three - Credit Course
CE 6998 Project

TRANET SYSTEM FOR SALES MANAGEMENT
BY USING LOTUS NOTES

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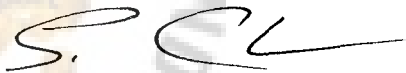A Final Report of the Three-Credit Course
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ABSTRACT

This project presents the study of Sales Department, Marketing Department, Finance and Accounting Department, and Warehouse Department in a company. The present operation of the company is a manual system and Local Area Network (LAN). The main objective of the project is to implement the Intranet System for Sales Management by using Lotus Notes that can coordinate and communicate within the company and with the customers. In this way, this project will focus on the Sales Department that is the heart of the company in making the gross benefit and enhance the effectiveness and the efficiency in the competitive market. .

This project is a new development of the Intranet System for Tanawat Information System Co, Ltd that will be the basic in the long run of the business. The project will cover all phases of system analysis and designs starting from gathering information requirements form the users. An existing system is studied and analyzed as well as the proposed system is designed to solve existing problems. New organization chart, Context Diagram and Data Flow Diagrams are also shown in this project.

The functions of the system are designed to be user friendly and utilities of the operating system make comfortable to the users. Furthermore, the economic cost comparison between the existing and the proposed systems are presented, and the implementation procedures are discussed.

ACKNOWLEDGEMENTS

St. Gabriel's Library

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I. INTRODUCTION

1.1 Background of the Project

Tanawat Information Systems Co., Ltd, one of the authorized distributors of Hewlett Packard (HP), has been established in 1984. The kind of business is to be distributor about Personal Computer (PC), Peripherals, Workstation, NetServer, Unix Server, DeskJet Printer, LaserJet Printer, Scanner and Supplies etc.

At this time, the company has encountered lack of competitive advantage, lack of good management about Information, and lack of good coordination within the company. The existing system is not suitable for the organization since it makes too costly such costs as those of documentation, waiting cost, telephone cost etc.

In the current economic situation, the way to survive of an organization is to increase customer satisfaction, reduce the cost, reduce the time consumption, reduce the manpower and increase the profit. Therefore, the Information Technology (IT) is the best way to overcome these problems.

As a result, the Intranet System is the most suitable choice to solve and handle these problems since it can help to reduce cost, reduce time consumption, reduce training cost etc. The Intranet System can help to utilize the existing resources in the most effective way, to increase the performance of Sales Representatives, Marketing Officers, Accountant, Financial Officers, and Schedulers within the company, to enhance the effective communication among staffs and customers.

1.2 Objectives of the Project

The objectives of the project on Intranet System are as follows:

(a) To study and analyze the existing system.

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(b)   To define the existing problems and design the system that can reduce and solve the problems

(c)   To design and simplify information flow by using the Intranet System that is suitable for communicate among Sales Representatives, Marketing Officers, Accountant, Financial Officer, Scheduler and other employees.

(d)   To reduce the cost of documentation, cost of training, cost of manpower and time consumption etc.

(e)   To enhance the effective and efficient communication among staff members and provide customer satisfaction.

(f)   To organize database by applying Lotus Notes Release 4.6 in order to verify and record the business transactions of the company.

(g)   To show the result in the implementation of the New System that can be crucial information that can help the top management to make a decision.

1.3 Scope of the Project

The scope of this project covers the following areas:

(a)   The project will cover Sales Department, Marketing Department, Finance and Accounting Department, and Warehouse Department.

(b)   The project has to collect the user requirement and discuss with Sales Representatives, Marketing Officers, Financial Officers, Accountant, Schedulers and other staff members as well as top management.

(c)   The new system will be designed as the Intranet System for Sales Management by using Lotus Notes Release 4.6.

(d)   The project has to serve the customer satisfaction in information and enhance good communication within the company.

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1.4 Deliverables:

(a) Screen Layout for user interface

(b) Intranet System

      (1)   Product Information

      (2)   Price list of Products

(c) Output Report

      (1)   Operational Report

      (2)   Management Report

(d) User Manual

1.5 Project Plan

Since there are many parts to develop, this system development project can be shown in Figure 1.1.

ID		Task Name	Duration
1		Finding the Title of the Topic	45 days
2		Planning	14 days
3		Preliminary Investigation	21 days
4		- Studying the Current System	7 days
5		- Investigation of Users Requirement	7 days
6		- Making Objectives and Scope	7 days
7		System Analysis and Design	42 days
8		- Drawing the Context Diagram	14 days
9		- Drawing the Data Flow Diagran	14 days
10		- Designing Process Specification	7 days
11		- Designing Input and Output Screen	7 days
12		Designing the System Configuration	28 days
13		- Hardware Requirement	14 days
14		- Software Requirement	14 days
15		Making the Cost and Benifit Analysis	14 days
16		Training the Users	14 days
17		Testing the New System	30 days
18		Implementing the New System	120 days

Project Plan.

II. LITERATURE REVIEW

At present, Information Technology is a vital part of all businesses. The person who has high technology will be the winner in a competitive situation. On the other hand, the person who has not high technology will be the loser and may be got rid of from the business. Lotus Notes is a flexible workflow automation tool that can help any organization, large or small, harness and manage virtually any kind of information such as Service customers and requests, organize financial information, manage sales accounts, and track product development.

Nowadays, business competition can force all employees to work with time consumption tasks such as external coordination and internal coordination. Therefore, they need to get an information at the right time and at the right place. This information can help in planning, making decision, solving problems and ordering at the right time. By the way, our company can make more profits and can win other competitors.

At this time, concurrent technology can help to support this requirement, that is, Workgroup Technology or GroupWare to communicate and to exchange the information in the same group as well as to communicate via electronic mail (e-mail).

Lotus Notes is a kind of GroupWare that has ability in Database Development in organization, communicate via electronic mail (e-mail) and organize workflow in the organization.

The advantages of Lotus Notes can be shown as follows:

(a) Online Information

The users can get online information updated and get the correct information from the original source.

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(b)   WorkGroup

The users can do group discussion database and also share information. That can help to save time and money from such activities as meeting and the following assignments.

(c)   Communication

The users can communicate via electronic mail (e-mail) that can help to faster response and enhance efficiency of all users in the organization. Moreover, it can be applied to the mailing list of employees and to access the remote information as well as electronic mail (e-mail) from outside the company.

(d)   Linkage to the Internet and the Extranet

Lotus Notes can link to the information system and database development for the Internet and the Extranet. By the way, it can help the organization to reduce data redundancy and to develop database in the same way.

(e)   Training

Lotus Notes can develop other databases and provide training courses for all employees at a reasonable price.

By the way, the users can learn the user interface by using only Lotus Notes Program. Only this program can be applied to all employees to monitor all kinds of databases or working on Lotus Notes Database.

The foremost endeavor of Lotus Notes is to literally replace paper documents with electronic documents. It is not a word processor with which you will wind up producing paper anyway. Fully replacing a paper document with an electronic version requires not only the means to create the document but also the means to move the document

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through a business environment as if it were a paper document. As a result, this process is the essence of Lotus Notes Workflow Automation. By creating and improving the circuit a document travels, workflow automation brings everyone a little closer to a paperless environment.

Unlike the traditional database, which requires you to break information into discrete data fragments such as last name or identification number, Lotus Notes uses the document as the fundamental unit of information. A Notes document can be as long, as complex, and as unstructured as any paper documents you already use. Like a word processing document, a Notes document can contain complex formatting, even images, In fact, a Notes document can store anything that you can digitize such as fax, an image, a video, a sound recording as well as your name. Unlike a word processing document, many people can read, revise, and respond to a Notes document. It won't be tossed away accidentally or lost in a file cabinet (Swedeen 1998).

Lotus Notes is a distributed client-server database application that enables groups of people to organize, track, access, and share information over a network. You might say to yourself, " Big deal. A lot of database applications allow me to do the same thing. Why should I use Notes?" First, Notes architecture — the way Notes structures, manages, and disseminates its data — differs from other distributed database applications in the way it links people together (Swedeen 1998).

The typical client-server application provides ways for people who are connected by a network to access data that is stored on a central server. However, in most cases everyone accesses the data in a one-size-fits-all way; all users see the information structured the same way, regardless of their unique needs. By contrast, Notes creates a working environment in which people can access the same database at the same time and then use the information to suit their individual needs.

Notes also allows you to share information with coworkers by communicating with them through its e-mail system. Like any e-mail system, Notes lets you send mail messages and file attachments to other people over a network. However, the information you can send through Notes mail is different from the information in a Notes mail message coming directly from a database, which itself can be accessed by many people at the same time. Notes is a multifaceted product. Accordingly, the next few sections examine Notes from several perspectives: Notes as groupware, Notes as e-mail, Notes as a document database, and Notes as a Web browser and publisher. First, however, we will turn to the client-server relationship because it stands at the center of all aspects of Notes (Swedeen 1998).

Figure 2.1. An Example of Lotus Notes.

Figure 2.2. An Example of Lotus Note Desktop.

From the starting point, we can deduce that Intranet can help to enhance and to develop Information Technology Resource to apply for our organization very well Moreover, it can be applied to planning and System Analysis (Figure 2.1 and Figure 2.2).

These steps to analyze a potential database application can be shown as follows:

(1)   Determine the purpose of the application.

(2)   Identify any existing documents and processes that can be used as a starting point. If the documents exist, evaluate their usefulness for the application.

(3)   Determine the application users and assess their skill levels.

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(4)　Determine the appropriateness of developing the application in Lotus Notes (The following section lists some considerations that might affect your decision to develop the application in Notes).

(5)　After deciding to use the Lotus Notes Program, outline the procedures for developing the application and sketch layouts for views (output) and forms (input).

We can determine the appropriateness of Lotus Notes as follows:

(a)　The type of data involved

The data includes large amounts of text, graphics and link or embedded object, then the Lotus Notes program is appropriate for your application. Lotus Notes program is a good medium of applications such as status report, discussion groups, and on-line meetings.

(b)　The level of security required

This is a vital thing to consider throughout the planning, developing, and implementing stages.

(c)　The frequency of replication

Replication is the process of synchronizing your replica information with that in the original database application on the server. Replication enables users in different geographic locations with different servers to access the same information in a similar format.

(d)　Special features that would be desirable

Lotus Notes electronic mail (E-mail) is a unique feature not commonly found in dedicated database programs. Having electronic mail in a database program can be advantageous, because it allows users to respond to or send information to one another from database applications without

leaving the Notes environment. With an electronic-mail feature, the employee can also design applications so those documents are automatically routed to the right person. For example, after an employee completed a credit request form, it would be automatically sent to a manager or top management for approval.

Lotus Notes is the appropriate application for these databases as follows:

(a)   Tracking work orders

Work orders can contain large amount of Text that might be needed to be mailed to other departments, and needed to be available to all involved (managers, the person requesting the work and the person completing the work order).

(b)   News announcements

By the way, News announcements generally contain large amounts of text and graphics, need to be available to a large number of people, and do not need to be updated frequently.

(c)   Policies and Procedures Manual

By the way, a policies and procedures manual containing large amounts of text and graphics needs to be accessible to everyone in an organization and once it is created, rarely needs to be updated.

Once our company chooses to use Lotus Notes as the appropriate database system, we must follow these planning steps:

(1) Who will be involved in designing the application? In the initial stages of planning a database, a Notes database will have a designer, Notes administrator, a manager (who might be the same person) and users. That is a good idea to begin by conducting a series of interviews with these persons.

From the personal interviews, we will be able to determine the type of information that is supplied and required, the source of data, the required views, and the necessary forms.

(2) What type of database will be used? Most Lotus Notes Applications will fall into one of 5 categories as follows:

    (a)   Tracking Applications, such as a project status-report database.

    (b)   Workflow automation applications, such as conference-room scheduling database.

    (c)   Discussion application, such as a brainstorming database.

    (d)   Broadcast applications, such as a company newsletter.

    (e)   Reference applications, such as policies and procedures handbook.

(3) What level of access will the users need? Obviously, before we can assign access levels to people, we must determine what level of access they need. We might use the structure of organization as a guide to determine the type of access that each user will need. At least two people should have Manager access to the database. Anyone involved in design changes should have Designer access. Most general users will have Author access. Give Editor access only to users who will need to edit other user's documents.

The Access Control Lists (ACL) is used to determine, in a broad sense which activities particular users can perform in a database. We can assign access levels in Database Access Control List dialog box to one group (set of users defined with a single name) or user at a time. Furthermore, Lotus Notes provides three standard group names in the ACL as follows:

(a) Default represents anyone who is not listed by name or group in the

ACL. If the database is open to anyone, then we can assign Reader or Author as the default access level. To restrict access to a few users, you can set the default to No Access.

(b) Local Domain Servers represents the servers in the same domain as the server you are using. This group name should be defined in the Public Name & Address Book (a special database containing a directory of Notes users: a copy of it resides on each server. It allows users to send mail between servers). A domain is a group of Notes servers that all use copies of the same Public Name & Address Book.

(c) Other Domain Servers represents the servers outside the domain of our server. This group name can also be defined in the Public Name & Address Book.

The first step in mapping a Notes database is creating an outline. Having a map of the database on paper can help us design it easily. Think about the following questions as our outline in application:

(1) What type of information will be stored in the application? (What is the database going to do?) To help you design an efficient application, you need to know the type of input we can expect from users and also the data that is required by the organization's guidelines. This information will determine the types of fields that we create the forms and which fields we display in each view, almost all the information in a form can be displayed in a view. There are two basic types of information in Notes applications:

(a) Static text remains constant. Examples of static text are labels that describe a particular field or boilerplate text such as the organization's standard salutation for a letter.

(b) Variable data changes from document to document, and includes things such as the contact name for a customer.

(2)   Who will enter the information? After determining the type of information, we need to consider who provides the data. The most common source of data is the user: the person who directly enters information into the forms. However, data can also be computed based on either the system or the user entry. For example, if we want to display the current date in a field, Notes can compute that field based on the system; the user is not involved in the computation.

(3)   How do you want to see the information in the database? After determining the type of information that is provided, the next step is to decide how you want to see the information in the database. This helps us to determine how many kinds of views (output) we need to design. We need to consider the users, the managers and any company guidelines or policies that might affect the output. Views enable us to view data from database documents in a concise, column format. Most of the information in a view is displayed from various fields in the documents. We can customize a view to include any type of information we wan to display or hide. Before we actually create a view in Notes, it is a good idea to sketch a design on paper based upon our output needs. Then, we can show our sketches to the people who will use the view and get comments and suggestions from them. In the early stages of design, it is important for the designer to receive feedback from the workgroup. For example, do you want to see all the information in the database or only certain pieces? (Swedeen 1998).

(4) How will information be entered in the database? After we design the

views, we are ready to design the forms that will be used to input the data

into the application. Use our research as a guide to help us determine how

many and what kinds of forms you need to design and the type of field each

form should contain. This is the outline form that must be considered as

follows:

(a)   What information will be static (text or graphics that will appear the

same in all documents).

(b)   What Information will be variable (the variable information will

correspond to the fields on the forms).

(c)   The order of importance of data.

(d)   The common information between forms.

(e)   The general flow of information as it is received.

Sketch a design for each form before you actually create it in the Notes program,

as we did with the views. Then, discuss our form designs with the people involved.

III. THE EXISTING SYSTEM

3.1 Background of the Organization

Tanawat Information System Company Limited was established in 1984 as a business technology-oriented company. Our company is one of the authorized distributors of Hewlett Packard (HP) in Thailand. The kind of business is to be distributor about Personal Computer (PC), Peripherals, Workstation, NetServer, Unix Server, DeskJet Printer, LaserJet Printer, Scanner and Supplies etc.

Our company has invested heavily in importing high quality and advanced technology products with cooperation from its Hewlett Packard (Singapore). Our distribution channel is to sell Hewlett Packard 's Product through corporate dealers, dealers and master dealers who will be representatives to sell products directly to customers in government and private sectors.

Moreover, the Company has invested heavily, in both time and money, to develop all staff with a hope they will also develop themselves. They are considered the most valuable asset and a driving force behind the company's glorious success. Their commitment to excellence and growth, both for the company and customer satisfaction, has contributed to the further development of society as a whole. The organization chart is shown on Figure 3.1.

Tanawat Information System Company Limited is a company of medium size that comprises of the following departments:

(a) Board of Directors

    (1)   Approve the company policy.

    (2)   Give suggestion of company vision

    (3)   Participate in the Board of Director Meeting.

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TANAWAT INFORMATION SYSTEMS COMPANY LIMITED

JANUARY 1, 1999

Board of Directors

President

General Manager

Sales Manager

Marketing Manager

Finance & Accounting Manager

Warehouse Manager

Management Information System Manager

Technical Support Manager

Human Resource Manager

Dealer Sales Representatives

Corporate Sales Representatives

Marketing Officer

Financial Officer

Accountant

Scheduler

Logistics

MIS Officer

Technical Officer

Human Resorce Officer

Organization Chart.

(b) **President**

    (1)   Plans the company policy.

    (2)   Makes the company vision.

    (3)   Makes the company's proceeding with management team.

(c) **General Manager**

    (1)   Plans the company policy with Top Management.

    (2)   Is responsible for business partners, customer satisfaction management team and staff

    (3)   Makes the company's proceeding with management team.

    (4)   Evaluates and Monitor business transaction.

    (5)   Manages Cash Flow.

    (6)   Monitors Income Statement and Balance Sheet.

    (7)   Approves business documents.

(d) **Sales Manager**

    (1)   Increases Sales Volume and Gross Margin.

    (2)   Manages Inventory Turnover.

    (3)   Manages Cash Flow.

    (4)   Monitors Sales Volume and Account Receivable as well as Account Payable.

    (5)   Approves business documents.

    (6)   Takes care of subordinators.

(e) **Marketing Manager**

    (1)   Creates Marketing Promotion.

    (2)   Is responsible for company training.

    (3)   Makes Purchase Request to Supplier.

(4)   Reports shipping status.

(5)   Analyzes the competitive situation, target market.

(6)   Takes care of corporate dealers, dealers and master dealers.

(7)   Makes exhibition and marketing activities.

(8)   Expands new channel and penetrate niche market.

(f) Finance and Accounting Manager

(1)   Is responsible for Cash Flow

(2)   Collects Account Receivable and pay Account Payable

(3)   Monitors credit status of corporate dealer, dealers and master dealers

(4)   Approves credit line of customers.

(5)   Informs all the accounting and finance concerned.

(g) Warehouse Manager

(1)   Is responsible for Inventory Turnover.

(2)   Is responsible for customer claims.

(3)   Is responsible for on-site service.

(4)   Informs all warehouses and logistics concerned.

(h) Management Information System Manager

(1)   Repairs and provides maintenance for Local Area Network (LAN) in

all departments.

(2)   Is responsible for all hardware, software and operating systems.

(3)   Updates Information Technology (IT) News.

(4)   Develops and maintains the system and network.

(i) Technical Support Manager

(1)   Is responsible for technical problems.

(2)   Is responsible for Installation and Helpdesk service.

(3) Concerns all technical support.

(j) Human Resource Manager

    (1)   Takes care of employee's affairs.

    (2)   Is responsible for employee attendance and salary.

    (3)   Is responsible for provident fund and social security fund.

3.2 Area under Study

Area under Study can be divided into 3 parts as follows:

3.2.1 General Information

The existing system activities are managed by using manual and Local Area Network (LAN). By the way, there are 4 departments that must coordinate in business process. These comprise of Sales Department, Marketing Department, Finance and Accounting Department, and Warehouse Department.

The process of the existing system starts when the customers send the purchase orders to the company, request for credit pick released products, delivery goods, collect money or cheque. This process will be finished when the customers have paid for their invoice. There are many steps to describe the existing procedure as follows:

(a)   Process 1: Request for Pricing and Receive Purchase Order

        This process is related to Sales Department, Marketing Department and Warehouse Department. By the way, it has to check the customer requirement such as pricing, stock available, credit status, terms of payment, delivery date and shipping instructions etc.

(b)   Process 2: Approve Purchase Order

        This process is related to Accounting and Finance Department. By the way, it has to check credit status, terms of payment, overdue payment and approve this request by Top Management

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(c)   Process 3: Pick released and deliver the product

This process is related to Warehouse Department and Finance and Accounting Department. The products have to be pick released and delivered to the customers as well as invoice.

(d)   Process 4: Get the payment

This process is related to Finance and Accounting Department. It has to clear invoices and bill to customers for the payment in cash and cheque.

3.2.2 Problem of the Existing System

After interviewing Sales Representatives, Marketing Officer, Accountant, Financial Officer, and Scheduler, and Top Management. The problems can be shown as follows:

(a)   Data and Document Redundancy

Because of business transactions, the company will have a lot of document files and paperwork in Sales Department, Marketing Department, Accounting and Finance Department, and Warehouse Department. Therefore, our company must pay a lot of money for office equipment, supplies and space shelves. There are many repetitive tasks between departments The existing information is not reusable.

(b)   Lack of Data Integrity

At present, we have many departments that must coordinate within and outside the company. The data will always change and then the staff must inform the other departments about business transactions. Furthermore, the information must be communicated and transferred to other departments. We encounter problems of missing manual process. These problems may make miscommunication within the company and

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customer may complains about services. Customer credit cannot be checked because the customer credit history is not recorded. The price is estimated without using the same standard and product information.

(c)   Time Consumption

Everyday, our company has many business transactions and many documents. We must call the Warehouse Department to check stock and product availability. We must call the Marketing Department for pricing and product information. We must call the Accounting and Finance Department for credit status. As a result, the process of each business transaction will consume more time and also create routine jobs. The scheduler must take time to count and to see the product available. The Sales Representatives and the Marketing Officer must take a long time to gather product information.

(d)   Information Inaccuracy

Nowadays, there are many business transactions and high workload. Therefore, we encounter the serious problem about information inaccuracy. It happens from human error and high workload. That is the cause of the error in Management Reports and Operational Reports. The Top Management needs information accuracy in making a decision at the right time and at the right place.

(e)   Inventory Control

In this situation, there are many errors in counting stocks and product information. We need vital information about Inventory turnover that will be useful in imported goods and also reduce risk at the right time.

3.2.3 Area for Improvements

After interviewing Sales Representatives, Marketing Officer, and Accountant, Financial Officer, Scheduler, Inventory Control and Top Management, there are 5 elements that have to be improved in the Intranet System for Sales Management by using Lotus Notes as follows:

(a)   Top Management

(b)   Sales Department

(c)   Marketing Department

(d)   Finance and Accounting Department

(e)   Warehouse Department

In this way, we deduced the area for improvement as follows:

(a)   Reduce Data and Document Redundancy

Intranet System is the suitable way that can help to reduce data and paperwork.

(b)   Enhance the Data Integrity

This method can help to reduce unnecessary jobs. Each department can record the data in the computer center and can share the database and information. It has more useful in eradicating human error and enhanceing customer satisfaction. That is to implement product information online by using Lotus Notes.

(c)   Reduce Time Consumption

Because Product Information Online can help to guarantee the accuracy of information, the Sales Representatives and the Marketing Officers have not need to spend time in double processing every procedure.

As a result, the information has to be centralized and the database easily retrieved in business transactions.

(d)   Enhance Information Accuracy

This is a suitable method to record, to store, to retrieve the database and product information such as Price list, Product Information Online, Brochure and Catalogue. The information can always be online and updated. Moreover, the employees can receive the data whenever they need.

(e)   Enhance the Inventory Turnover

The Intranet System can help the Top Management to accurately forecast the sales volume and know product status. What is the problem? What kind of products move quickly or slowly? That is the basic to benefit the management. Also, they can help to manage inventory by using the lowest cost and high gross margin.

There are 3 Local Area Networks (LAN) that we can apply to the Intranet System. It can show the information about the existing system as follows:

(1) Sales and Marketing Department Local Area Network (LAN)

In our company, Sales Department and Marketing Department will share the same Local Area Network (LAN) as the Existing System of Sales and Marketing Configuration as shown in Figure 3.2. It composes of many features as the follows:

(a) HP NetServer E30 Pentium Pro 200   1   set

(1)   Chip Intel Pentium Pro 200 MHz

(2)   RAM 64 MB

(3)   HDD Ultra./Wide SCSI 4.2 GB

(4)   LAN Card 10/100TX NIC

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(5)   HP Monitor 14" Display

(6)   Window NT 3.51 for Server and Client

(b) HP Vectra VE Pentium 100 MHz   12   sets

(1)   RAM 16 MB EDO

(2)   HDD 2.1 GB

(3)   LAN Card 10 Base-T

(4)   HP Monitor 14" Display

(5)   Window 95

(6)   Microsoft Office 97 Thai Edition

(c)   HP Tape Backup 8 GB External   1   set

(d)   NEC Dot Matrix   1   set

(e)   HP LaserJet IIIP   1   set

(f)   3 COM Hub 12 Ports 10 Base-T   1   set

This Local Area Network (LAN) uses the Genius Application to record and to store the data related to Sales Order, Sales Volume, Product Information Sales Report, Operational Report and Management Report etc. The database will be manually updated everyday. Therefore, it must use time consumption and can not avoid human error.

(2) Finance and Accounting Department Local Area Network (LAN)

In our company, Finance and Accounting Department have their own Local Area Network as the Existing System of Finance and Accounting Department Configuration as shown in Figure 3.3. It composes of many features as follows:

(a) HP NetServer E30 Pentium Pro 200   1   set

(1) Chip Intel Pentium Pro 200 MHz

    (2) RAM 64 MB

    (3) HDD Ultra./Wide SCSI 4.2 GB

    (4) LAN Card 10/100 TX NIC

    (5) HP Monitor 14" Display

    (6) Window NT 3.51 for Server and Client

(b) HP Vectra VE Pentium 100 MHz   11   sets

    (1) RAM 16 MB EDO

    (2) HDD 1.2 GB Ultra ATA

    (3) LAN Card 10- Base T

    (4) HP Monitor 14" Display

    (5) Window 95

    (6) Microsoft Office 97 Thai Edition

(c) HP Tape Backup 8 GB External   1   set

(d) NEC Dot Matrix   1   set

(e) HP LaserJet IIIP   1   set

(f) 3 COM Hub 12 Ports 10 Base-T   1   set

    This Local Area Network (LAN) uses Smart Stream Application to record and to store the data related to customer credit, credit line of customers, Account Receivable, Account Payable, Operational Report and Management Report etc. The database will be manually updated everyday. Therefore, it takes time to monitor each day in order to avoid human error.

Warehouse Department Local Area Network (LAN)

    In our company, the Warehouse Department has its own Local Area Network (LAN) as the Existing Warehouse Department, the configuration is shown in Figure 3.4. It composes of many features as follows:

(a) HP NetServer E30 Pentium Pro 200   1   set

 (1) Chip Intel Pentium Pro 200 MHz

 (2) RAM 64 MB

 (3) HDD Ultra./Wide SCSI 4.2 GB

 (4) LAN Card 10/100 TX NIC

 (5) HP Monitor 14" Display

 (6) Window NT 3.51 for Server and Client

(b) HP Vectra VE Pentium 100 MHz   12 set

 (1) RAM 16 MB EDO

 (2) HDD 1.2 GB Ultra ATA

 (3) LAN Card 10- Base T

 (4) HP Monitor 14" Display

 (5) Window 95

 (6) Microsoft Office 97 Thai Edition

(c) HP Tape Backup 8 GB External   1   set

(d) NEC Dot Matrix   2   set

(e) 3 COM Hub 12 Ports 10 Base-T   1   set

  This Local Area Network (LAN) uses Warehouse Application to record and to store the data related to Inventory Status, Product Information, Schedule Reservation, Delivery Report, Operational Report and Management Report etc. The database will be manually updated everyday. It takes time and must use a few staff members to monitor and to recheck the inventory each day in order to avoid human error.

Figure 3.2.   The Existing System of Sales and Marketing Department Configuration.

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Figure 3.3. The Existing System of Finance and Accounting Department Configuration.

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Figure 3.4. The Existing System of Warehouse Department Configuration.

IV. THE PROPOSED SYSTEM

4.1 User Requirements

In the process of gathering the information, we collect the information by interviewing the following persons in our company: Top Management, Sales Representatives, Marketing Officer, Accountant, Finance Officer, Scheduler, Product Control and other staff members. We deduced that they need the new system that can help to solve their problems, to enhance the performance of their jobs and to provide the customer satisfaction. As a result, we proposed the Intranet System for Sales Management by using Lotus Notes.

There are many requirements of the users that have to be accomplished by implementing the proposed system as follows:

(a)   To share and communicate the information to all departments.

(b)   To get the pricing, catalogue and product information online.

(c)   To get the Sales Information Status.

(d)   To get the Customer Information and Credit Status.

(e)   To get the Stock Status and Inventory Turnover.

(f)   To get Schedule Reservation Status.

(g)   To calculate the data accurately and quickly.

(h)   To get the Operational Report and Management Report for making the decision by Top Management.

(i)   To get the new system to measure the performance of the employees and each departments.

(j)   To provide user-friendly and Easy-to-use computer system.

(k)   To reduce human errors.

(l) To provide Training and User Manual

(m)   To get the maximum profit and reduce cost.

(n)   To eliminate the time consumption and waste of money.

4.2 System Design and Data Flow Diagram

It can be divided into 2 major parts as follows:

4.2.1 System Design

With User Requirement Information, we can design the proposed system to enhance the effectiveness and efficiency of their jobs. Therefore, we can generate the report or output of the system by using information, control and resources from the system. Moreover, the Data Flow Diagram, Database and Data Dictionary are designed to help the programmer to write the program to be used and implemented in the proposed system.

The proposed system will focus on the design of the Intranet System for Sales Management by using Lotus Notes Application. It will link the Old Local Area Network (LAN) of each department to the computer center in order to generate the central information and back up of all databases and business transactions. With this design, it can help each department to share product information online and other information online via the Intranet System. There are 6 elements that relate to this design as follows:

(a)   Sales Department

(b)   Marketing Department

(c)   Finance and Accounting Department

(d)   Warehouse Department

(e)   Top Management

(f)   Customers

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4.2.2 The Data Flow Diagram

The old system is considered not suitable for competitive situation. Therefore, we must have the new system that can help to enhance the competitive advantage. After we have gotten the user requirement and designed the new system that can help the company to attain goals, we have to design the Data Flow Diagram. That will be shown in Figures 4.1 — 4.6 as follows:

(1) Context Diagram of the Proposed System. It is shown in Figure 4.1. It is an Intranet System for Sales Management. It consists of 5 entities such as Marketing Department, Finance and Accounting Department, Warehouse Department, Top Management, and Customer. In each entity, there are many activities as follows:

(a)   Marketing Department

They must be responsible for Request for Price List and Catalogue, Ask for Marketing Programs and ask for Shipment Date. They must serve these requirements by using the Intranet System to send the Price List and Catalogue, Notify Shipment Date, send the Marketing Programs.

(b)   Finance and Accounting Department

They must be responsible for Requesting Credit Line, Type of Payment, and Check for Payment. They can serve these requirements by using the Intranet System to notify Credit Status, Credit Line and Terms of Payment.

(c)   Warehouse Department

They must be responsible for Request for Stock Status, Check Schedule Reservation, Notify Daily Problem etc. They have to serve

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Figure 4.1.   Context Diagram of the Proposed System.

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Data Flow Diagram Level 0.

Data Flow Diagram Level 1 of Process 1.

Data Flow Diagram Level 1 of Process 2.

Data Flow Diagram Level 1 of Process 4.

Schedule Reservation

Check schedule

Get reservation note

4.1 Check available date

Select schedule

4.2 Reserve delivery

Send product

Customer

Inform delivery problem

4.3 Get delivery problem

Send Delivery Problem Report

Top Management

these requirements by using the Intranet System to notify Stock

Status, Schedule Reservation and Daily Problem etc.

(d)   Top Management

They must be responsible for Approved or Not Approved

Request Form from each department. Moreover, they can view and

check the Operational Report and Management Report.

(e)   Customer

After they got the Price List and Product Information, they open

the Purchase Order (PO) and also specify the Terms of Payment.

In case of Non-Register Customer, our company will send the

application form to prospective customers. For regular customer, they

will receive the quotation to confirm the price.

(2) Data Flow Diagram Level 0. It is shown in Figure 4.2. It consists of 5

processes as follows:

(a)   Process 1: It is concerned with Requesting for Pricing and Catalogue

by linkage to Product Information Database.

(b)   Process 2: It is concerned with Verifying Customer Purchase Order

and Credit Status by linkage to Customer Information Database.

(c)   Process 3: It is concerned with Picking Released products and

Opening Invoices.

(d)   Process 4: It is concerned with Reserving Delivery that has to be

checked from Schedule Reservation.

(e)   Process 5: It is concerned with getting the Payment.

(3) Data Flow Diagram Level 1 of Process 1. It can be shown in Figure 4.3. It

consists of 4 processes as follows:

(a) Process 1.1: It is related to checking Customer Information that directly links to Customer Information Database.

(b) Process 1.2: It is related to sending Application Form to Non-Register customer.

(c) Process 1.3: It is related to checking Pricing and Stock Status that directly links to Product Information Database.

(d) Process 1.4: It is related to making a quotation in order to confirm pricing and stock status.

(4) Data Flow Diagram Level 1 of Process 2. It is shown in Figure 4.4. It consists of 4 processes as follows:

(a) Process 2.1: It is related to verifying customer Purchase Order by checking from Customer Information.

(b) Process 2.2: It is related to verifying credit line by request to Finance and Accounting Department.

(c) Process 2.3: It is related to notifying Rejected Purchased Order to the customer.

(d) Process 2.4: It is related to opening Sales Order. After we got the Accepted Credit Purchase Order, we can open Sales Order.

(5) Data Flow Diagram Level 1 of Process 3. It is shown in Figure 4.5. It consists of 5 processes as follows:

(a) Process 3.1: It is related to receiving Sales Order.

(b) Process 3.2: It is related to checking product status from Product Information Database.

(c) Process 3.3: It is related to picking released products and updated stock status.

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(d)   Process 3.4: It is related to opening invoices and printing. After we got the pick-released document, we can print the invoices.

(e)   Process 3.5: It is related to informing a car reservation. This process must have invoices and delivery note in order to make the reservation. It has to be linked to Customer Information Database also.

(6) Data Flow Diagram Level 1 of Process 4. It is shown in Figure 4.6. It consists of 3 processes as follows:

(a)   Process 4.1: It is related to checking available date in Schedule Reservation Database.

(b)   Process 4.2: It is related to informing delivery in order to send products to customer.

(c)   Process 4.3: It is related to informing delivery problems to Top Management.

4.3 Design of Database and Entity Relationship Diagram

It can be divided into 2 major parts as follows:

4.2.3 Design of Database

When we analyze and design the Intranet System for Sales Management by using Lotus Notes completely, we are ready to begin building our database in Notes It composes of 3 features as follows:

(a)   Creating the database

(b)   Creating the forms

(c)   Creating the views

We are ready to start creating our new Notes Database. At first, we must decide on which page of the workspace we want our database icon to be. We can base our new database on an existing database. There are many features as follows:

(a)   Price List and Credit Status Tracking. It provides price list from Marketing Department to Sales Department and credit status from Finance and Accounting Department to Sales Department.

(b)   Customer Tracking. It can help to know the activities between our company and customer as well as prospective customers such as account activity, action items and contact lists to Sales Department.

(c)   Schedule Reservation. It is concerned with reservation of cars in order to deliver the goods to customers. That is created by Warehouse Department and sent to Sales Department

(d)   Status Report. It is concerned with Operation Report and Management Report. The top management can track the daily problems, sales volume, stock status, price list, and credit status of the customers that can help to make a decision in business transactions.

(e)   News. It is concerned with distributing news throughout an organization. Everybody can get all the information that our company wants them to know such as meeting, agenda, training course by using electronic mail (e-mail).

4.2.2 Entity Relationship Diagram

There are 5 major entities that the system has to maintain their data as follows:

(a)   Product Information, which is identified by Item.

(b)   Schedule Reservation, which is identified by Reservation Number and Customer Number.

(c)   Customers, which is identified by Customer Number and Customer Name.

(d)   Purchase Order, which is identified by Purchase Order Number and Customer Number.

Product Information

N

Send By

M

Schedule Reservation

N

Make

M

Customer

N

Make

M

Purchase Order

N

Create

M

Sale Order

Item
Description
On Hand Quantity
Locator
Warehouse
Request Date
Promise Date
Price List
Price Adjustment
Reserved Quantity

Shipping Instructions
Packing Instructions

Reservation No
Customer No
Customer Name
Customer Address
Invoice No
Warehouse
Promise Date
Request Date
Schedule Date
Packing Instructions
Shipping Instructions

Customer No
Customer Name
Customer Address
Contact
Ship to
Bill to
Payment Terms
Discount
Credit Limit
Statement Cycle

Purchase Order No
Customer Name
Customer Address
Vendor No
Vendor Name
Vendor Address
Order Date
Shipment Date
Request Date
Item
Order Quantity
Payment Type
Ship to
Bill to

Sale Order No
Customer No
Customer Name
Contact
Order Type
Sales Representatives
Order Date
Purchase No
Item
Order Quantity
Selling Price
Warehouse
Reserved Quantity

Shipping Instructions
Packing Instructions
Request Date
Promise Date

Figure 4.7. Entity Relationship Diagram of the Proposed System.

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(e) Sales Order, which is identified by Sales Order and Customer Number.

The Entity Relationship Diagram (ERD) of the proposed system can be drawn as the Diagram in Figure 4.7.

4.4 Hardware and Software Requirements

It can be divided into 2 parts as follows:

4.4.1 Hardware Requirement

It can be summarized as follows:

(1) HP NetServer LH4 Model 1 Pedestal (D7103A)   2   sets

    (a)   Chip Intel Pentium **III** Xeon 500 MHz with cache 512 KB

    (b)   Memory 256 MB 5Ons ECC Buffered EDO DRAM

            expandable to 4 GB

    (c)   Dual Integrated Ultra 2 SCSI Controller

    (d)   1 MB Video Memory upgradable to 2 MB

    (e)   Total Slots: 8 PCI (1 slot occupied by preinstalled

            10/100TX NIC) 5 32-bit PCI; 2 64-bit PCI; 1 32 bit PCI (shared)

    (f)   Integrated HP Remote Assistant

    (g)   CD-ROM 32X EIDE

    (h)   HP HotSwap 9.1GB Ultra/Wide SCSI

            Hard disk (D6106A)   6   sets

    (i)   HP SureStore DAT 24*6 Autoloader External

            Tape Backup (6 * 24 GB DAT) (C5677A)   1   set

    (j)   HP Monitor 15 SVGA Display (D2827A)   2   sets

(2) 3 COM SuperStack **II** 1100/24 Switched Hub   1   set

(3) Back UPS Pro 1000 VA for HP NetServer   5   sets

    and Old Sever 30 — 45 minutes (BP 1000I)

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(4) HP LaserJet 4050N Printer (C4253A)   2   sets

    (a)   16 ppm

    (b)   Resolution 1200 dpi

    (c)   RAM 8 MB expandable to 200 MB

    (d)   Interface: Parallel, serial and InfraRed

    (e)   HP JetDirect Card 10/100 Base-TX Internal Print Server

    (f) Tray 1: 100 sheet multipurpose input tray

    (g) Tray 2: 500 sheet tray

(5) Upgradable RAM 16 MB EDO in Old Personal Computer 30 sets

(6) Back Bone Coaxial Network for Intranet System   1   set

    with UTP Cable System with RJ 45 Ports

4.4.2 Software Requirement

The software requirements can be summarized as follows:

(1)   Microsoft NT 4.0 Full Pack with 5 License   2   sets

(2)   Microsoft NT 4.0 per license   20   sets

(3)   Lotus Notes for Server Release 4.6   1   set

(4)   Lotus Notes Release 4.6 for PC per License   30   sets

(5)   McAfee Total Virus Defend (TVD) for Server and PC   35   sets

Intranet System Proposed Network Configuration.

Figure 4.9.   Sales and Marketing Department Proposed Network Configuration.

Figure 4.10. Finance and Accounting Department Proposed Network Configuration.

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Dot Matrix Printer

Dot Matrix Printer

File Server

U.P.S.

Warehouse Department Proposed Network Configuration.

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4.5 Cost and Benefit Analysis

This part is a vital part of the Intranet System for Sales Management by using Lotus Notes.

4.5.1 Cost Analysis

There are 3 categories of Cost Analysis in calculating the total cost of the proposed system.

    (a)   The Investment Cost

    (b)   The Implementation Cost

    (c)   The Annual Operation Cost

The detail of each cost can be discussed as follows:

(a) The Investment Cost

    The Investment Cost can be shown as the following:

(1) HP NetServer LH4 Xeon 500 Model

    Pedestal (D7103A)   2   sets

    @ 350,000 * 2 =   700,000 **bahts**

    OPTIONS for HP NetServer

    (a)   HP HotSwap 9.1 GB Ultra/Wide SCSI (D6106A) **6**   sets

        @ 30,500 * 6   =   183,000 **bahts**

    (b)   HP SureStore DAT 24*6 Autoloader

        External Tape Backup (C1559B)   1   set

        @ 104,000 * 1 =   104,000 **bahts**

    (c)   HP Monitor 15" SVGA Display (D2827A)   2   sets

        @ 8,000 * 2   =   16,000   bahts

    (2) 3 COM SuperStack **II** 1100/24 Switched Hub

| | 24 ports 10/100 (3C16950) | 1 | set |

@ 35,000 * 1   =   35,000   bahts

(3)   Back UPS Pro 1000 VA (BP 1000I)   5   sets

for HP NetServer LH 4 and Old Server

@ 9,200 * 5   =   46,000   bahts

(4)   HP LaserJet 4050N Printer (C4253A)   2   sets

@ 65,000 * 2   =   130,000   bahts

(5)   Upgrade RAM 16 MB EDO in Old Personal Computer   30   sets

@ 1200 * 30   =   36,000   bahts

(6)   Microsoft NT 4.0 Full Pack with 5 License   2   sets

@ 26.500 * 2   =   53,000   bahts

(7)   Microsoft NT 4.0 per License   20   sets

@ 1,650 * 20   =   33,000   bahts

(8)   Lotus Notes for Server Release 4.6   1   set

@ 30,000 * 1   =   30,000   bahts

(9)   Lotus Notes per License   30   sets

@ 3,000 * 30   =   90,000   bahts

(10)   McAfee Total Virus Defend (TVD) for Sever and PC   35   sets

@ 2,500 * 35   =   87,500   bahts

(11)   Back Bone Network

for Intranet System   =   500,000   bahts

(12)   Installation Hardware   =   50,000   bahts

(13)   Installation Software   =   67,000   bahts

Total Hardware Cost   =   1,800,000   bahts

Total Software Cost   =   360,500   bahts

| Total Investment Cost | = | 2,160,500 | bahts |

(b) Implementation Cost

(1)	System Development Cost	=	175,000	bahts
(2)	User Training Cost	=	20,000	bahts
(3)	Documentation Cost	=	5,000	bahts
	Total Implementation Cost	=	200,000	bahts

(c) Annual Operation Cost

The Annual Operation Cost comes from Maintenance Cost, Salary of Employees, Space Rental, Office Supplies, Utility Expense and Miscellaneous Expense. The operation cost is a variable cost, which occurs continuously until this system has already been changed.

(1) Maintenance Cost will be increased by 15 % per year.

(2) Salary of Employees will be increased by 10 % per year.

(3) Space Rental will be increased by 10 % per year.

(4) Office Supplies will be increased by 10 % per year.

(5) Utility Expense will be increased by 10 % per year.

(6) Miscellaneous will be increased by 10 % per year.

The different between the Annual Operation Cost of the Existing System is shown in Table 4.1 and the Annual Cost of Proposed System in Table 4.2.

(a) The Annual Operation Cost of the Existing System can show the result as follows:

(1)	Year 1	=	6,750,000	bahts
(2)	Year 2	=	7,426,500	bahts
(3)	Year 3	=	8,606,475	bahts

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(4)   Year 4   =   8,989,946   bahts

(5)   Year 5   =   9,891,222   bahts

Total Annual Operation Cost of an Existing System is 41,664,143 bahts

(b) Annual Operation Cost of the Proposed System can show the result as follows:

(1)   Year 1   =   5,030,000   bahts

(2)   Year 2   =   5,546,500   bahts

(3)   Year 3   =   6,116,675   bahts

(4)   Year 4   =   6,746,196   bahts

(5)   Year 5   =   7,441,349   bahts

Total Annual Operation Cost of the Proposed System is 25,850,720 bahts.

4.5.2 Benefit Analysis

The Benefit of the proposed system can be divided in to 2 parts as follows:

(a) Tangible Benefit

This method can help to apply in Cost Reduction. There are many things that can be shown as follows:

(1) Reduce of Manpower

The Number of staff can be reduced by 11 persons

Staff Salary per month   =   15,000 bahts

11 staff salary (11*15,000*12 months) =   165,000 bahts

Year 1 Cost Saving   =   1,980,000 bahts

Year 2 Cost Saving   =   2,178,000 bahts

Year 3 Cost Saving   =   2,395,800 bahts

Table 4.7   Annual Operation Cost of the Existing System.

	Maintenance	Salary	Space Rental	Office Supplies	Utility	Miscellaneous	Total
Year 1	30,000		840,000	70,000	40,000		
Year 2	34,500		224,000	77,000			
Year 3	45,626				53,240		8,170,875
Year 4		8,433,216					
Year 5	52,470		1,229,844		58,564		

Table 4.8   Annual Operation Cost of the Proposed System.

	Maintenance	Salary	Space Rental	Office Supplies	Utility	Miscellaneous	Total
Year 1							5,030,000
Year 2	310,500		224,000	71,500			
Year 3		4,573,800	1,016,400				
Year 4							
Year 5	472,232						

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Reduced of Manpower.

	Old Salary	New Salary	Saving
Year 1			
Year 2			2,178,000
Year 3			
Year 4			
Year 5	8,433,216	5,534,298	
Total		23,077,278	

Reduced of Office Supplies.

	Old Office Supplies	LNew Office Supplies	
Year 1			
Year 2	77,000		5,500
Year 3			
Year 4	93,170		7,320
Year 5			
Total			

Year 4 Cost Saving	=	2,635,380	bahts
Year 5 Cost Saving	=	2,898,918	bahts
Total Manpower Saving	=	12,088,098	bahts

(2)   Reduce Office Supplies

Year 1 Cost Saving	=	5,000	bahts
Year 2 Cost Saving	=	5,500	bahts
Year 3 Cost Saving	=	6,050	bahts
Year 4 Cost Saving	=	6,655	bahts
Year 5 Cost Saving	=	7,320	bahts
Total Office Supplies Saving	=	30,525	bahts

(b) Intangible Benefits

There are many benefits that can be shown as follows:

(1)   Easy to monitor Sales Management and Cost Control.

(2)   Smooth operation flows.

(3)   Enhance the level of service quality of company.

(4)   Up to date and get accurate information for top management to easily make decision.

(5)   Improve decision process by providing faster access to information.

(6)   Enhance efficiency in planning and controlling.

(7)   Enhance good communication within the company.

(8)   Improve employee job satisfaction and good morale.

(9)   Reduce workload of employees and human errors in operation

(10)   Streamline the information system to users

(11)   Serve the expansion capability in the future.

4.5.3 Payback Period

From this formula, it can help to know the exact amount of time required for the firm to recover the initial investment. We can know from the cash flow and after taxes pay back period.

P $=$ Payback period

I $=$ Initial Investment or Total Investment (HW + SW + Implementation)

R = Annual saving

T $=$ Corporate Tax Rate in percent (30 %)

The Payback Period of the proposed system can be calculated as follows:

P $=$ I / (1 — T) * R

$=$ (1,800,000 + 360,500 + 200,000) / (0.7) * 2,069,565

$=$ 2,360,500 / 1,448,695.5

$=$ 1.62 years

From this point, we deduce that the payback period will be 1.62 years. Furthermore, we can analyze the Annual Cost Comparison and Break Even Analysis by using these tables and Figures as follows:

(a) Annual Cost Comparison

The year by year costs of the proposed system and the existing system (Table 4.5) can be analyzed. Cost saving in each year can be calculated from the cost of the existing system per year — the cost of the proposed system per year. Therefore, from Table 4.5, the cost saving in each year can be calculated and summarized as follows:

Year 1 $=$ 1,720,000 bahts

Year 2 $=$ 1,880,000 bahts

Year 3 $=$ 2,054,200 bahts

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Year 4	=	2,243,750	bahts
Year 5	=	2,449,875	bahts
Average annual saving	=	2,069,565	bahts

(b) Breakeven Analysis

It can analyze the point of cost that is invested in the first year compared with that of the existing system year by year (Table 4.6 and Figure 4.12).

(1) The Existing System can show the accumulated result as follows:

Year 1	=	6,750,000	bahts
Year 2	=	14,176,500	bahts
Year 3	=	22,347,375	bahts
Year 4	=	31.337,327	bahts
Year 5	=	41,228,543	bahts

(2) The Proposed System can show the accumulated result as follows:

Year 1	=	7,390,500	bahts
Year 2	=	12,937,000	bahts
Year 3	=	19,053,675	bahts
Year 4	=	25,799,971	bahts
Year 5	=	33,241,219	bahts

Table ... Annual Cost Comparison.

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
The Existing System						
Maintenance Cost (10,000*3 LAN) + 15% yearly						
Salary (15,000*32*12 months) + 10% yearly)						
Space Rental (70,000 *12 months) + 10% yearly)						
Office Supplies Expense(70,000/year +10% yearly)						
Utility Expense (40,000+ 10% yearly)						
Miscellaneous Expenses (10,000/year + 10% yearly)						
Total the Existing System						41,228,543
The Proposed System						
Maintenance Cost (270,000 + 15% yearly)						
Salary (15,000 * 21 staffs*12 months) +10% yearly)						
Space Rental (70,000*12 months +10% yearly)						
Office Supplies Expense (65,000 + 10% yearly)						
Utility Expense (65,000 + 10% yearly)						
Miscellaneous Expenses (10,000 + 10% yearly)						
Total the Proposed System					7,441,348	30,880,719
Total Annual Cost Saving			2,054,200			
Average Annual Cost Saving						

Breakeven Analysis.

	Year 1		Year 3	Year 4	Year 5	Total
The Existing System						
Maintenance Cost (10,000*3 LAN) + 15% yearly						
Salary (15,000*32*12 months) + 10% yearly						
Space Rental (70,000 *12 months) +10% yearly)						
Office Supplies Expense(70,000/year + 10% yearly)						
Utility Expense (40,000+ 10% yearly)						
Miscellaneous Expenses (10,000/year +10% yearly)						
Total Accumulated the Existing System			22,347,375		41,228,543	
The Proposed System						
Hardware and Installation Cost (1,800,000)/5 years						
Software and Installation Cost (360,500)/5 years						
Implementation Cost (200,000)/5 years						
Maintenance Cost (270,000 + 15% yearly)						
Salary (15,000 * 21 staffs*12 months) + 10% yearly						
Space Rental (70,000 *12 months) + 10% yearly)						
Office Supplies Expense (65,000 + 10% yearly)						
Utility Expense (65,000+ 10% yearly)						
Miscellaneous Expenses (10,000 + 10% yearly)						
Total Accumulated the Proposed System					33,241,219	

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4.6 System Security and Control

One of the most important considerations in the system development is security. Since a user-friendly interface is created, anyone can access the program anytime they want. We need to be extremely careful at this point.

By this way, one of the fundamental purposes of Lotus Notes is to enable groups of people to work together more effectively. This intended purpose might imply an open and unsecure environment.

There are 3 basic rules that can be applied to a Lotus Notes network as follows:

(a)   Granting access

(b)   Deny access

(c)   Controlling how much a user can do once access has been granted

The security methods used for the Intranet System are passwords and Access Control List (ACL). In the planning stages of our database, we can determine an Access Control List. The ACL has 3 main functions as follows:

(a)   To determine whether a particular user has access to the database

(b)   To designate which functions a user can perform, such as reading and writing documents and/or editing documents composed by others

(c)   To define the database role of each user, which in turn controls which forms and views the user can see and use

Therefore, Lotus Notes Administrator and Real Users have the right to change their passwords can access the program and database. After the user has connected to the system, additional levels of password have to be used to prove that the user has authorization. The Authorization Level and the Access Control List (ACL) can be applied in order to restrict the right of users to read only or to read and to modify the

database. As a result, the password will limit the function or activity that the user can use in the system.

Training is a vital part for security. The users and the other personal are trained in the area for which they are responsible for their job. They don't have to study all of the system.

Moreover, there must be an error message and a retrieval program for investigation of errors to determine if the hardware, software, network and users of the system caused these errors. Therefore, this system must have an automated computer check for validity of various messages.

In order to consider safety first, Uninterruptible Power Supply (UPS) is recommended because it can help to alleviate the problem of unstable power supply voltage that can not be forecast in advance. It can help to reduce the chance of losing vital database and damage to hardware devices. Furthermore, the most popular way to safe the vital database is to backup everyfile everyday by using a tape backup. This is the best way to avoid the disaster of database.

4.7 Y2K Problem

Year 2000 compatibility is a concern because some computer hardware and software use a two-digit format for coding the year, running from 00 up to 99 and not a four-digit representation running form 0000 to 9999. With a two-digit representation, there is no notion of century and the computer clock may roll from 1999 to 1900 instead of to 2000. This would cause problems for date dependent applicant programs

Y2K Problem is the crucial problem that our company has to solve as fast as possible. We have to make the planning as follows:

(a) To study and to collect the information about Y2K Problem that will have an effect on operating systems such as Lotus Notes 4.6 , Window NT 4.0, Microsoft Office 97 etc.

(b) To find out the way and method to solve the Y2K Problem.

(c) To disseminate the vital information that may affect employee working and to find out the best way to avoid or solve the Y2K Problem.

(d) To solve the Y2K Problem

We can divide group of problems that have to be solved as follows:

(a) Networking System: We have to check and to test Local Area Network (LAN) and Intranet System between departments. Furthermore, we have to request the document from the vendors about Networking Year 2000 Compliance.

(b) Intranet System: We need to check our database and test Intranet System by using Lotus Notes, Electronic Mail (e-mail), Warehouse System, Accounting and Financial System.

(c) NetServer and Personal Computer (PC): We have to check and to upgrade Real Time Clock (RTC), BIOS and Operating System (OS). It must process date data accurately from, into and between the twentieth and twenty-first centuries. It must be able to correctly perform date operations that operate on, or result in, leap years. At last, it must properly exchange date data with application software.

(d) The origin of Y2K comes from

Year

2 == 2

K = Kilo that is equal to 1000

As a result, it can be combined as Year 2 * 1,000 = Year 2000.

Our Computer hardware and software which is year 2000 ready utilizes 4-digit years and therefore deals gracefully with the turn of the millennium. As a result, it can help to make confidence in the Intranet System for Sales Management by using Lotus Notes.

V. SYSTEM IMPLEMENTATION AND TESTING

5.1 Overview of System Implementation

After our company sets up the proposed system, the vital part of the Intranet System is to implement the proposed system. This implementation process chooses to use parallel concept. Since this concept will help our company to take low risk in waste time and money. By the way, this process will work on both the existing system and the new system for the number of business transactions until the result of the new system is approved and used in our company. For this point, this method has takes a lot of time and makes double jobs.

5.2 Stages of Implementation

This implementation composes of 5 stages as follows:

5.2.1 System Programming

Lotus Notes will be written in order to perform the database and business transactions.

5.2.2 System Testing

Our company must test Lotus Notes Database and load the existing data into the database. With this concept, it can prove that the proposed system works with our business transactions. If it can not work with our business transactions, it must be sent back to adjust and modify this database again. This testing activity can check everything that make up the system such as hardware, software, network, operating system and Lotus Notes application.

System testing can be divided into 2 parts as follows:

(1) Testing with Example Data. In the first stage of the testing program, the programmer must write the programs according to the user and the top management requirement. In order to confirm that this proposed program can run smoothly with the existing system, it requires having example data to be used in this process. The aim of this system testing is to get all the valid hardware, software, input, process, and output.

(2) Testing with actual data. The second stage of testing the program must be on the actual data. Since it is actual or real data that must be sent to the process and to record through the existing system. Testing with actual data can help to enhance the effectiveness and the efficiency of the proposed system. We believe that the proposed system will work properly after implementations.

5.2.3 System Installation

At this stage, the whole system is started and runs the program, interfaces with other database and different data by using the Intranet System. The user can access and update the information.

5.2.4 Training

At this stage, our company must make sure that all persons in the organization will be ready for the Intranet System for Sales Management by using Lotus Notes. Therefore, the top management and the users must be trained as follows:

(1) General Staff must be trained the basic of computer and Lotus Notes in order to be familiar with the New system.

(2) Operational Staff should be trained the basic of computer and Lotus Notes concerned with the procedure of the new system.

(3) Top Management should be trained how to overview the new system by using Lotus Notes with an emphasis on the Operational and Management Report.

The users can use the new system correctly when they can understand very well. They must study the function of Lotus Note Application by lecture training program. A training program consists of this topic is as follows:

(1)   Objectives and Purpose of the new system

(2)   Differences between the existing system and the new system.

(3)   Overview of the system operation and process.

(4)   Duties and Responsibilities of the users

(5)   Demonstration of the new system

(6)   Teach step-by-step of each function keys in the new system.

(7)   Give the practice to the users with actual data.

(8)   Answer the questions of the users

(9)   Deduce the crucial function keys for users

5.2.5 Documentation

The documentation is the Workflow Diagram and Data-Dictionary that can help the programmer and Notes Administrator to develop and to maintain the system as well as to continue the future development. Moreover, the documentation will have the user-guide which describes the method to prepare and how to use the program.

VI. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The company recognizes the existing problem about lack of data integrity, data redundancy, time Consumption, missing Communication and human error etc. Therefore, we must have the proposed system to solve these problems. The objective of this system development is to study, analyze, design, and implement the Intranet System for Sales Management by Using Lotus Notes. The scope of this project composes of 4 departments as the follow: Sales Department, Marketing Department, Finance and Marketing Department, and Warehouse Department.

Intranet System is a part of the attempt to improve the efficiency and effectiveness of our company. It has designed and simplified information flows within the organization and enhances customer satisfaction. It can be applied to Sales Management, is developed and linked to the database online for use within the company as well as recovery the payback period in short term. Therefore, it must have a tool as Lotus Notes to organize the database in each department in order to monitor and record customer problems. It can help to save time, money, and also generate Operational Report and Management Report. Moreover, it can reduce paperwork, redundant job and employees.

By using this proposed system, the Top Management can closely monitor business transactions and can respond to all problems at the right time and at the right place. This system will help the company to reduce cost, to gain the market share and maximize profit. The result in the implementation of the new system will be crucial information that can help the Top Management to make a decision and attain goal.

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6.2 Recommendations

In the future, I think that our company should expand the Intranet System to be the Internet System in order to enhance competitive advantage and improve customer satisfaction of our company.

Furthermore, I think it should hire the Web Developer to analyze and to design Company's Web Browser in order to implement E-commerce that is the best way of doing business electronically. In this way, it can help to accommodate every aspect of conducting business on the Internet. This concept can be applied to enhance businesss transaction efficiency between Business-to-Business and Business-to-Consumer via the Internet. It can help to increase the potential for immediate revenue increases, collect cash in on the growth of online shopping worldwide, requires small investment that can be affordable for virtually every business.

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APPENDIX A

PROCESS SPECIFICATION

Process Specification

Process No: 1.1

Process Name: Check Customer Information

Description: Check the Customer Information whether they are registered on

                     our

                     Company or not.

Input: Customer No

                     Customer Name

Output: Verify the customer

Process: (1) Accept the customer requirement

                     (2)   Inform Non-Register customer or perspective customers

                     (3)   Delivery application form

Attachment: None

Process Specification

Process No: 1.2

Process Name: Send Application Form

Description: Deliver Application Form for Non-Register customers or

                     perspective customers.

Input: Customer NO

                     Customer Name

                     Address

                     Tel.No

Output: Register Customer

Process: (1) Inform Non-Register customer

                     (2) Delivery application form

Attachment: Process 1.1

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Process Specification

Process No:	1.3
Process Name:	Check Pricing and Stock Status
Description:	Request for Pricing and Product Available
Input:	Item
	On Hand Inventory
	Locator
	Price List
	Price Adjustment
	Selling Price
Output:	On Hand Inventory
	Price List
	Price Adjustment
	Selling Price
	Marketing Promotion
Process	(1) Get Product Information
	(2) Receive Pricing and Marketing Promotion
	(3) Request for Stock Status
	(4) Receive Stock Status
Attachment:	Process 1.1

Process Specification

Process No: 1.4

Process Name: Make a quotation

Description   Delivery a quotation by using Fax

Input: Customer Name

                   Tel.No

                   Fax. No

                   Item

                   Description

                   Quantity

                   Price List

                   Total Price

Output: Completely quotation

Process: (1) Receive confirm on pricing and stock status.

                   (2)   Typing the quotation

                   (3)   Fax the quotation

Attachment: Process 1.3

Process Specification

Process No: 2.1

Process Name: Verify customer Purchase Order

Description: Monitor customer Purchase Order and Verify Register customer

Input: Purchase Order

Output: Send Verify Purchase Order

Process: (1) Receive customer Information

                     (2) Send Purchase Order

Attachment: None

St. Gabriel's Library

Process Specification

Process No:	2.2
Process Name:	Verify Credit Line
Description:	Check the Credit Line and Credit Status
Input:	Customer Name
	Customer No
Output	Accepted Customer Credit Line
	Not Accepted Customer Credit Line
	Inform Customer Credit Status
Process	(1) Monitor Request for Credit Line and Credit Status
	(2) Notify Credit Line and Credit Status
Attachment:	Process 2.1

Process Specification

Process No: 2.3

Process Name: Notify Rejected Purchase Order

Description: Inform Rejected Purchase Order

Input: Rejected Purchase Order

Output: Terminate this Purchase Order

Process: (1) Call to customer

                     (2) Give the reason for Rejected Purchase Order

Attachment: Process 2.2

Process Specification

Process No:	2.4
Process Name:	Open Sales Order
Description:	Receive the Verify Purchase Order and open Sales Order
Input	Customer No
	Customer Name
	Customer Address
	Tel.No
	Purchase No
	Terms of Payment
	Payment Type
	Shipment Date
	Request Date
	Item
	Order Quantity
	Selling Price
	Warehouse
Output	Completely Sales Order
Process	(1) Make Sales Order
	(2) Get Product Information
Attachment:	Process 2.2

Process No: 3.1

Process Name: Receive Sales Order

Description: Get Sales Order

Input: Item

                     Inventory

                     Locator

Output: Accepted Sales Order

                     Shipping Instructions

                     Packing Instructions

Process: (1) Key in Item and Inventory

                     (2) Check stock status

Attachment: None

Process Specification

Process No: 3.2

Process Name: Check Product Status

Description: Check stock available and product status

Input: Item

                  Item Description

                  Warehouse

                  Locator

Output: Confirm on Sales Order and Locator

Process: (1) Key in Item and Item Description

                  (2) Receive product status and product information

Attachment: Process 3.1

Process Specification

Process No: 3.3

Process Name: Pick Released product and Updated Stock Status

Description: Pick up product and inform stock status

Input: Item

                     Inventory

                     Locator

                     On Hand Quantity

                     Order Quantity

Output: Packing Instructions and Serial Number

Process: (1) Pick released the products

                     (2)   Key in serial number of goods and Confirm list of

                           products

                     (3)   Printing Pick released document

Attachment: Process 3.2

Process Specification

Process No:	3.4
Process Name:	Open Invoice and Printing
Description:	Create Invoice
Input:	Customer No
	Customer Name
	Purchase Order
	Sales Order
	Warehouse
	Terms of Payment
	Due date of Payment
	Payment Type
	Sale Representatives
	Item
	Description
	Amount
	Selling Price
	Total Price
Output:	Completely invoices
Process:	(1) Key in Details of Sales Order
	(2) Printing invoices
Attachment:	Process 3.3

Process Specification

Process No: 3.5

Process Name: Make car reservation

Description: Reserve car for delivery goods

Input: Completely invoice

                     Delivery Note

                     Customer Information

Output: Schedule Reservation

Process: (1) Make delivery note

                     (2) Send reservation note

Attachment: Process 3.4

Process Specification

Process No: 4.1

Process Name: Check Available Date

Description: Check Schedule Reservation

Input: Invoices

                     Request Date

                     Promise Date

                     Packing Instructions

                     Shipping Instructions

Output: Time Available documents

Process: (1) Monitor time available in schedule

Attachment: None

Process Specification

Process No: 4.2

Process Name: Reserve Delivery

Description: Get the time available to deliver goods

Input: Time available documents

                     Invoice

Output: Reserved document

                     Invoice and Bill

Process: (1) Sign on time available documents

                     (2)   Delivery goods

                     (3)   Collecting money or cheque

Attachment: Process 4.1

Process Specification

Process No: 4.3

Process Name: Get delivery problems

Description: Notify delivery problems

Input: Date

                     Customer Name

                     Item

Output: Sales Order Status Form

Process   (1) Create Sales Order Status Report:

                     (2)   Inform Sale Representatives and Top Management

                     (3)   Contact to customer

Attachment: Process 4.2

APPENDIX B

DATA DICTIONARY

DATA DICTIONARY

Address	=	House No + Street + Province + Zip Code + Country
Amount	=	Amount
Bill to	=	The name and address of customer to pay taxes
Confirm Purchase Order	=	Dealer or Customer confirm the Purchase Order
Customer No	=	identification number of customer
Customer Address	=	Customer Address
Customer Name	=	first name + last name
Customer	=	CUSTOMER
Customer Detail	=	Customer No + Name + Address
Credit Line	=	amount of available credit for the Customer at that period of time
Credit Status	=	amount of available credit for the at that period of time.
Credit Limit	=	Amount of money that will be extended to customer that are not prepaid
Customer Credit Term	=	The credit of each customer in terms of day.
Contact	=	Name of the customer
Cheque	=	A kind of Payment by cheque.
Customer Requirement	=	The purpose when customer calls in or

90

		walks in
Date	=	Contact Date by the customer
Discount	=	Discount in payment
Delivery Note	=	The document that identifies the delivery of goods
Description	=	Description of goods
PO Number	=	Purchase Order Number
Payment Terms	=	The kind of Payment
Invoice	=	The document issued when sales and Delivery goods
Invoice No	=	Invoice Number
Item	=	Goods or Product
Inventory	=	Goods or Commodities
Invalid Customer	=	Invalid customer information
Invalid Customer No	=	Invalid customer number
Invalid Sales Order	=	Invalid Information in order
Invalid Product	=	Invalid Product in database
Instructions	=	Command
Locator	=	Location of Stock
On Hand Quantity	=	Product Available
Order Quantity	=	The amount of goods
Quotation	=	Quotation
New Customer	=	New Customer
New Customer Name	=	New Customer Name
New Customer Information	=	New customer information that

		comprises of Customer No + Customer Name + address +Telephone + Fax
Packing Instructions	=	Packing Instruction to delivery goods
Payment Type	=	The kind of Payment such as Cheque or cash
Promise Date	=	Promise Date to delivery goods
Price List	=	Price of product categories
Price Adjustment	=	Price changed
Purchase Order No	=	Purchase Order Number
Order Date	=	Order Date
Request Date	=	Request Date
Reserved Quantity	=	Reserve the product
Reserved No	=	Reserved Number of goods
Sales Order	=	Sales Order
Sale Representatives	=	Sale Representatives or Salesman
Schedule Date	=	Schedule Date for Car Reservation
Selling Price	=	the selling price for one unit of the order line.
Serial No	=	Serial Number of goods
Shipping Instruction	=	Shipping Instructions to delivery goods
Ship to	=	The destination of delivery goods
Statement Cycle	=	Cash in and Cash Out
Total Price	=	The total selling price of the order
Tel. No	=	Contact Telephone Number of the

customer

VAT	=	Value Added Tax is based on the tax status, customer, customer sites, and items on the order
Vendor No	=	Vendor Number or Supplier Number
Vendor Name	=	Vendor Name or Supplier Name
Warehouse	=	Location of Stock

APPENDIX C

SCREEN LAYOUT

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Address....   Save As Draft   send   nid And File   Delivery Options—

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rrowoveoNno"%wA0N0**WNio"No**
410 07/10/99 09:52

To:
cc:
bcc:
Subject:

List of primary people to send memo.

Office

Figure C.1. New Memo.

Figure C.2. Lotus Notes Database.

Lotus Notes Desktop - New Document

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ilolAfkalialo (Title) :

Iowa-Ii (Message Content) :

:   ľ tuidu4-1 (Sales Order)   เลขที่: _____
         ）ｆ) (Invoice)   เลขที่: _____
         tamornit (Cr.Note)   เลขที่: _____
    ľ   (Dr.Note)   เลขที่: _____
    ľ.11,01.1.ľthlu (Receipt)   เลขที่: _____

         Other

Required: description of this document

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Figure C.3. Coordination Form.

Figure C.4. Sales Order Problem.

Lotus Notes Desktop - (Untitled)

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Request Date : 09/10/99

Request By :
Staff ID :   User Name :   Ext :

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Sales Order No. :
Invoice No. :
RMA No. :
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Office

Figure C.5. Return of Product.

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r 1,,,,ismti(Dr.Note)
n   (Receipt)

Office

Figure C.6. Delivery Problem.

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Save   Edit Document   Exit   Help

User Information

Request Date : 09/10/99
Request By :

seie **j**

Staff ID :   User Name :   Ext :

Sale Order Information

**tamili Sales
Order:**

sloatiffoarnsanniu SaleOrder

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Figure C.7. Borrow for Sales Order.

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	A	B	C	D	E	F	G	H	I	J	K	O

Hewlett-Packard Thailand Ltd

Priced Configuration Guide

Effective 23 Aug,ust,1999

All Product Changes
Information Storage Products Price Guide
LFP Products Price Guide
Mobile Computing Products Price Guide
NetServer Products Price Guide
Network Products Price Guide
PC Products Price Guide
Peripheral Products Price Guide

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Price,.Quide

Split Price Guides	Creates a separate spreadsheet for each price guide.
Create Text File	Creates a tab delimited text file containing product information from all price guides,

NCG-COVEIV THAIC5CH ZIEJAICGIS TTA1E721:   Tki:AICE MC   THA

Ready   NUM

Figure C.B. Price List Menu.

102

File • Edit view trtsert Foru.at loch Data Window Help

423 =1 881431

| Show Terms | Print Price Guide | Menu | Find | Find Next |

15 Hewlett-Packard Thailand Ltd

10' **All Product Changes**   Effective : 23 Augt

lii t Number	Description	Currency	curet List Price	Previous List Price
191				
20 2A418	HP ThinLAN Transceiver	THE	9,182.00	9,108.00
21 2.2683A	HP Fiber-Optic Transceiver	THE	19,236.00	19,080.00
'22 216858	HP EtherTwist Transceiver	THE	6,104.00	6,055.00
23 •38143J	!HP 4.8GB Rewritable M-O Cartridge	THB	4,634.00	4,814.00
24 , 88145J	HP 4.8GB Write-Once M-0 Cartridge	THB	4,634.00	4,814.00 I
25 881463	HP 5.2GB Write-Once M-O Cartridge	THE	4,634.00	4,814.00 I
26 !08147J	HP 5.2GB Rewritable M-O Cartridge	THB	4,634.00	4,814.00 I•
27 ;92279F	HP 2.3GB Rewritable Optical Disk 512 bytes per sector	THB	3,291.00	3,261.00
28 !92280F	HP 2.3GB Rewritable Optical Disk 1024 bytes per sector	THE	3,291.00	3,261.00
2992289F	HP 2.3GB WORM Optical Disk 512 bytes per sector	THE	3,291.00.	3,261.00
JO :92290F	HP 2.6GB WORM Optical Disk 1024 bytes per sector	THB	3,291.00	3,261.00
31 2111521K	HP SureStore 5000 External DAT Drive	THB	27,903.00	30,415.00 I
32 1C1526K	HP SureStore 5000 Internal DAT Drive	THE	21,979.00	23,957.00 l'
33 C1559B	HP SureStore DAT 24:6 e External Autoloader	THE	116,688.00	121,836.00 I
34 jC1.579A	HP SureStore Tape DLT40e External Tape Drive (40GB)	THB	115,326.00	127,104.00 I
35 :C3164A	HP LaserJet 4V/4MV 135 Tray, 250 sheets	THE	5,880.00	
36 C4210A	HP DIMM Hardware Solution, Euro Symbol	THE	2,270.00	
37 :04211A	HP SIMM Hardware Solution, Euro Symbol	THB	2,270.00	
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Ready   iCAPS NMI

Figure C.9. Price List.

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Tips & Tricks

Folders and Views

-‡ 1.Product Group

2.New Product

3.Product Promotion'

t:-)4 4.Distributors

9 Agents

1157.[Turt ul7srpsana~ Su   enotunarilmcp"

❚ Hardware

k• Software

Solutions

Figure C.10. Product Information Menu.

Product Infor nation Onlines

Hewlett-Packard HP 0ieskje1 7100

▉Ma:AMA

Purpose
• Home
Color
• Color (PhotoREII)
Key Benefits
Photo-quality printer for the home
• Brilliant photo-quality on any paper
• Fast, easy printing
• Affordable photo-quality
Print Speed
• Black   Up to 6 ppm
• Color   Up to 3 ppm
Recommended Max_ Monthly Output
• 1,000 Pgs
Ave Pages Per Cartridge
• Large Black   833 Pgs (P/N51645A)
• New Black   415 Pgs (P/N51645G)

⁴¹66 Office

Figure C.12. Product Information Online.

Figure C.11. The Kind of Product Information.

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flew (demo   Delete   Move To Folder...   Forward   Reply   Reply With History

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       R ungtaweesuk/S V OAITH@Atom, Manit Wanitchachokchai/S V OA/T H@Atom, Pirom B uranaprasertsuk/S V 0A/T H@Atam, Sudarat
       Youyunyong/SVOA/TH@Atom, Wanna Kawinanurakkul/S V 0A/T H@Atom, Wanna Kungunyadee/S V 0A/TH@Atom, Wanlapa
       Paramorntat/S VOA/TH@Atom, Somjai Trisirsiri/S VOA/TH@Atom, Sathien Puangthong/SVOA/T H@Atom, Patsamon
       Thongprasom/S V OA/T H@Atorn; Kanokporn Sirihongsuwan/S V 0A/T H @Atom, V ilai Jongjaroenkunnawut/S V OA/T H@Atom, Piyanart
       Piewpuak/S V OATT H@Atom, Supat V itchurattikorn/S V 0A/T H@Atom, Suneerat T hongkurnnoilS V 0A/T H @Atom, Wantanee
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Subject linal5F1 ho 24/8/99

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Figure C.13. File Attached of Schedule Reservation.

107

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6		ˉ1ᴺᵛ61.111.119114ₐ9 IAittlFt2r	12017105	
7		L2G17 Ttrii	12017102	
	4	Iltt4 YI ˆ1ˆ1 W817479144	12017103	
	5		12017097	
	6	L U1 1alkstinfliriuttua	12017098	
11	7	tosa Ql.q⁴4	12017064	
12	8	1416i	12017092	
3				
14	13			

OA s TANAWAT   TANAWAT   SYSTEM   SY8Tii ɪ¡

Ready,-

Figure C.14. Schedule Reservation.

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Eile Ldit, View   e ate,•Actin? ns Attachment Window Help

j New Memo   Delete   Move To Folder..   '±8 Forward   Reply   Reply With History

Sakda Kongvattanekul
20/09/99 10:53

To: Pimpawan Khieobang/SVOA/TH@Atorn, Soraya Sae-sung/SVOA/TH@Atom, Use
Promon/SVOA/TH@Atom, Prawee Hirunlikitkul/SVOA/TH@Atom, Suthisa
Burapornnusorn/SVOA/TH@Atom, Sutisa Kimsawat/SVOA/TH@Atom, Ekchai
Khunthongek/SVOA/TH@Atom, Atapong Akapopyotin/SVOA/TH@Atom, Monwipha
Chumard/SVOA/TH@Atom, Sirirak Rakmanee/SVOA/TH@Atom, Kanchit Chumboon/SVOA/TH@Atom
cc:
Subject: iees Scanner fialmi

Hi,
Attached file ittilnialjaultniiii Scanner 3300 oar. 6300 ihivilival HP
eilu Brochure atilu Pnook/Brochure   ij

Compare.doc   SJ_Sale.doc final.doc

I 2 unread docurnent(s) remaining   o): Office

Figure C.15. Product Catalogue.

File   Edit   View   Create   Actions   Window   Help

New Memo   Delete   Move To Folder...   Forward   Reply   Reply With History

To: Every Notes-Mail Member
cc:
Subject: collAtflAwctii

ma4Liuirmni541Wiluvilsma4

4416iiakiaA'Aga
-n4am,n4i lafi Walk]   PDC 45 1u Ci4ii
1. u.i.faiilaiu Au1114artualuri
2. u.tplauaaarriïnbia4mia4la
3. u.luuī5
4. ulafi
5. u.gulunil5su
6. umaarrnma5l.aaittau4
7. u. VITA
8. u.t.allain
        kuaa
10. u.filu
11.u.i.TurnluriTriq
12. u.latamarla 'Neu
13. u.ilai4(artni)

2iunreadidocurnent(s) remaining   Office

Figure C.16. Customer Credit.

Lotus Notes Desktop - nrihefiatJ

FHe   Lj.t   View   Create Adions   Vy'indow • Jfie1p

.1rtS;40

low Memo | Delete | Move. To Folder... | Forward | Reply | Reply .NA History

Boontuen Thongsasanthea
10/09/99 09:11

To: Every Notes-Moil Member
cc:
Subject yAiiiinfiEq;1

IA gm ilumvutniitfra tutim Doi
59/6 opilm 42141:111144 fiRD41010

211Ind   59/5-6 v.opsir 42 n.vpiti
11111 4117111114
ni4rptwi

2 urife d docoment(s) rerivain!rig   Office

Figure C.17. Customer Changed Address.

Die ,Edit Vieav   Create Actions Window 1:11p

Sjt

rsiewt.dern   Delete   Move To Folder...   Forward. A) Reply   Reply With History

• Chalermporn Ruekhit   13/08/9914:24

To: Atapong Akapopyotin/SVOA/TH@Atom
cc: Vira Intanate/SVOA/TH@Atom, Sompon Ekteerajit/SVOA/TH@Atom, Tawit Prasitvut/SVOA/TH@Atom,
    Chitsupha Thangthongtae/SVONTH@Atom, Vanida Singhasontibutr/SVONTH@Atom, Shestha
    Thummawan/SVOA/TH@Atom, Rung nape Ogas/SVOA/TH@Atom
Subject: kilflgid (51n '3'5'5'0

ci

111-14e111,41 til91,1:01440,14;a1

ill11511Fffiltvw 1,,ali tiifi432199:   104 /99 4114'11,161.4

21,175.00 11111

1,11 q1Aill141114g1,411D 2 IthoFimiarl.6i.Aiu

1101412129903410

2 unread document(s) remaining   Office

Figure C.18. Customer's Cheque Returned.

APPENDIX D

OPERATIONAL REPORT

Daily Sales Report.

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Weekly Sales Report.

Date	Customer No	Sales Order	Invoice No	Item Code	Item Description	Rev. Amt.
02-Aug-99	8746	12012702	12129901317		MBP-19BII BUSINESS CALCULATOR	
02-Aug-99	8746	12012702	12129901396	CD-ROM	INT. 36X SPEED CD-ROM DRIVE.	2,200
02-Mar-99	2154	12012718	12129901396	rr)	3COM PCI 10/100TX LAN CARD BUL	
02-Aug-99			12119900486	I 51604A	HP BLACK PLAIN PAPER PRINT CAR	
02-Aug-99			12119900459	OZV)	HP TRI-CHAMBER	3,120
03-Aug-99	1934	12012202	12129901062	51625A	HP TRI-CHAMBER	
03-Aug-99	1934	12012236	12129901089	51625A	HP TRI-CHAMBER	
03-Aug-99	1934	12012640	12129901349		HP TRI-CHAMBER	
	1774	12012299	12119900327	N	HP BLACK INK	
05-Aug-99			12119900328	N	HP BLACK INK	
05-Aug-99	2569	12012396	12129900349	N	HP BLACK INK	47,040
05-Aug-99	1534	12012412	12119900350	51626A/P	HP BLACK INK	
05-Aug-99	2960	12012529	12119900376	N	HP BLACK INK	94,080
06-Aug-99	8338	12012717	12119900433	N	HP BLACK INK	
06-Aug-99	1934	12012236	12129901089	N	HP BLACK INK	4,800
06-Aug-99		12012266	12129901100	N	HP BLACK INK	
06-Aug-99	1527	12012282	12129901125	In	HP BLACK INK	9,800

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	Sales Order Status

User In rmation			
Date			
User Name		Staff ID	Ext

Sales Order Infornzation

Customer Name

Sales Order No.

Product Detail

Item	**Description**	**Order Quantity**	**Selling Price**

Problems

Finance and Accounting	Credit Hold	
	Wrong Terms of Payment	
	Wrong Address	
	Others	
Warcliousc Department	Defect Goods	
	Expired Goods	
	Others	
	Not Delivery Goods	
Cancel	Some Items	
	All Items	
	Others	

Solution			
Conclusion			

Figure D.3. Sales Order Status Report.

APPENDIX E

MANAGEMENT REPORT

Product Number	Description	Currency	Current List Price
	HP DesignJet ColorPro Series		
C7777A	HP DesignJet ColorPro CAD	THB	56,865.00
	Color, Fast Large Format companion, 600dpi black & color, Up to and including B+/A3+ (13"x19") sheets, 44MB RAM (Up to 76MB), HP-GL/2 & HP PCL 3 enhanced, Windows and AutoCAD drivers, parallel interface, 400 sheet dual input trays, 150 sheet output tray		
C7778A	HP DesignJet ColorPro GA.	THB	76,654.00
	Color, Fast Large Format companion, 600dpi black & color, Up to and including B+/A3+ (13"x19") sheets, 4MB RAM (Up to 68MB), Adobe PostScript 3 & drivers, 10/100Base-T NIC, 400 sheet dual input trays, 150 sheet output tray.		
	HP DesignJet Memory		
D3648B	32MB (2x16MB) EDO SIMM Accessory	THB	5,460.00
	For use in HP Vectra VL 5/xx series4 PCs and Vectra XA PC Series. Contains 2 x 16MB Modules		
	HP DesignJet Ink Supplies		
C4844AA	HP No. 10 Large Black Ink Cartridge	THB	1,719.00
	Smart ink cartridge for the HP 2000C Color Printer. Available in Asia Pacific only.		
C4841AA	HP No. 10 Cyan Ink Cartridge	THB	1,719.00
	HP No. 10 Cyan Ink Cartridge, AP Smart ink cartridge for the HP 2000C Color Printer. Available in Asia Pacific only.		
C4842AA	HP No. 10 Yellow Ink Cartridge	THB	1,719.00
	HP No. 10 Yellow Ink Cartridge, AP Smart ink cartridge for the HP 2000C Color Printer. Available in Asia Pacific only.		
C4843AA	HP No. 10 Magenta Ink Cartridge	THB	1,719.00
	HP No. 10 Magenta Ink Cartridge, AP Smart ink cartridge for the HP 2000C Color Printer. Available in Asia Pacific only.		

Price List Report.

Date	Customer No	Customer Name	Sales Order	No		Item Description	Unit Price		Rev. Amt.	Sales Representatives
02-Aug-99	8746	IDVAII.1¶(1996) iNn.	12012702	12129901396	cj	INT. 36X SPEED CD-ROM DRIVE,	0		2,200	×
02-Aug-99	8746	A C6	12012702	12129901396		3COMPCI 10/100TX LAN CARD BUL				
02-Mar-99	2154		12012718	12119900486		PAPER PRINT CAR / HP BLACK PLAIN	345	8		
02-Aug-99			12012689	12119900459	51625A	HP TRI-CHAMBER	1,040	M		
03-Aug-99	1934		12012202	12129901062		HP TRI-CHAMBER		N	2,100	
03-Aug-99	1934		12012236	12129901089	51625A	HP TRI-CHAMBER		N		
03-Aug-99			12012640	12129901349	51625A	HP TRI-CHAMBER				
04-Aug-99			12012299	12119900327		HP BLACK INK	930	O	46,500	94¶11J11)
04-Aug-99			12012295	12119900328	51626A/P	HP BLACK INK		O	O	
05-Aug-99	2569		12012396	12119900349		HP BLACK INK	941	O	2	
05-Aug-99			12012412			HP BLACK INK	931	O		
05-Aug-99	2660		12012529	12119900376		HP BLACK INK	941	O	94,080	
06-Aug-99			12012717	12119900433		HP BLACK INK		7,-	3,842	rtartu.on,
06-Aug-99	1578		12012174	12129901055		HP BLACK INK			0	
06-Aug-99		A	12012236	12129901089	51626A/P	HP BLACK INK		r)	4,800	
		Weekly Total Sales Volume	392,268							

Weekly Total Sales Volume Report.

Invoice Date	Customer No.	Sale Order	No	E	Unit Price	COGS	bo	a	Rev. Amt.	Item Description	Customer Name
September 1999											
04-Sep-99	3197	12000229	12129800154	4C714A					114,480	HP DesignJet 430, A1	
	2056	12000522	12129800350	C4715A						HP DesignJet 450C,A1	ri
14-Sep-99		12000690	12119800135	C4716A	00	126,508			128,000	HP DesignJet 450C,A0	
17-Sep-99	2056	12000522	12129800350	C4717A	7,470				7,470	HP Roll Feed Kit	ci
17-Sep-99	2056	12000522			7,480				7,480	HP Legs Kit	
	2344	12000229	12129800154							HP DesignJet STAND	
		Monthly Sales Volume			357,340	Baht					
		Cost of Goods									
					3.35 %	Baht					

Monthly Total Sales Volume and Margin Report.

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APPENDIX F

USER MANUAL

USER MANUAL

(1) Introductions

Lotus Notes System will record and store the data in the form of Document Database. This data will be classified into groups. Some kinds of Lotus Notes are used for communication. We call "Notes Mail". Therefore, the users must have their own database with supporting individual mail.
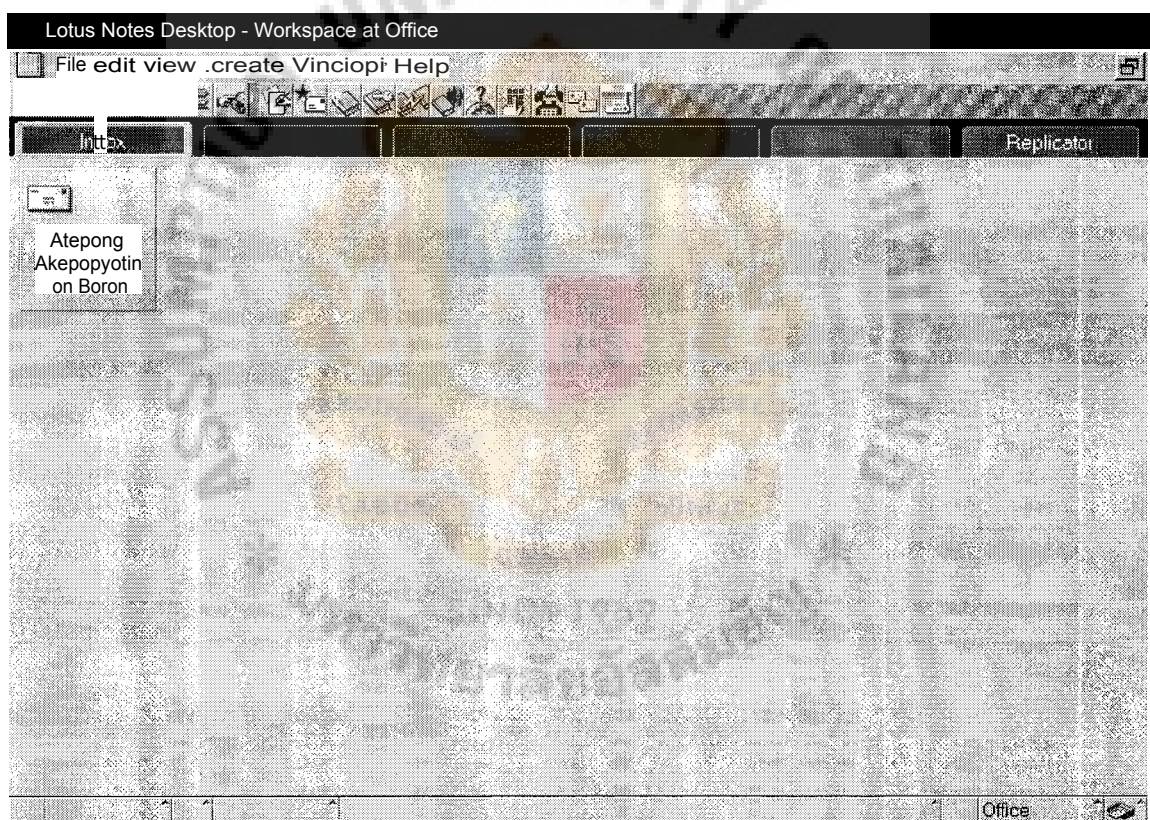

Figure F.1. Lotus Notes Workspace at Office.

It notifies the user's name database for example Atapong Akapopyotin on Boron that can show in Figure F.1. Moreover, it tells about the address of the database, where located on, and what server? There are many options for Notes Mail as shown below:

(1)   Memo

(2)   Reply

(3)   Reply with history

(4)   Forward

Application Mail on Lotus Notes, the users must have name address in the system notes and already installed the Notes Program in the computer (Nowadays, Notes can support this application such as Window 95, OS/2, Macintosh, which are shown in the feature of Graphic User Interface (GUI)).

(2) How to use the database mail?

Notes is similar to other applications. Its use is by selecting on the database and entering or pressing the double-click (Left mouse button) in order to open the database. It can show in Figure F.2.

Before we used Notes Mail, we should be familiar with the screen layout and the meaning of the database Notes Mail as the following pictures show:

At first, we start to open the database, and here appears the topic "About Database" which describes the functions of the database and what it can be applied to?

(a)   The next line is "Smart Icon", called " Action Bar". There will be sub-functions to use in each button.

(b)   In the left pane, you have "Folder" and "View" to select and to store a message in the classification of groups as follows:

    (1)   "Inbox" where the message from the other senders will be stored.

    (2)   "Drafts" where the message that is not promptly send will be stored.

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(3) "Sent" is the original copy, which we have delivered.

File Edit View Create Action3 Window Kelp

New Memo	Delete	Move To Folder.	LA Forward !A) Reply	Reply WithiHiitory

'r1n box
Drafts
Sent
al All Documents
C" Calendar
To Do
Meetings
/ Trash
t LjFolders and Views
Discussion Threads:i
(4, Archiving
Q Agents

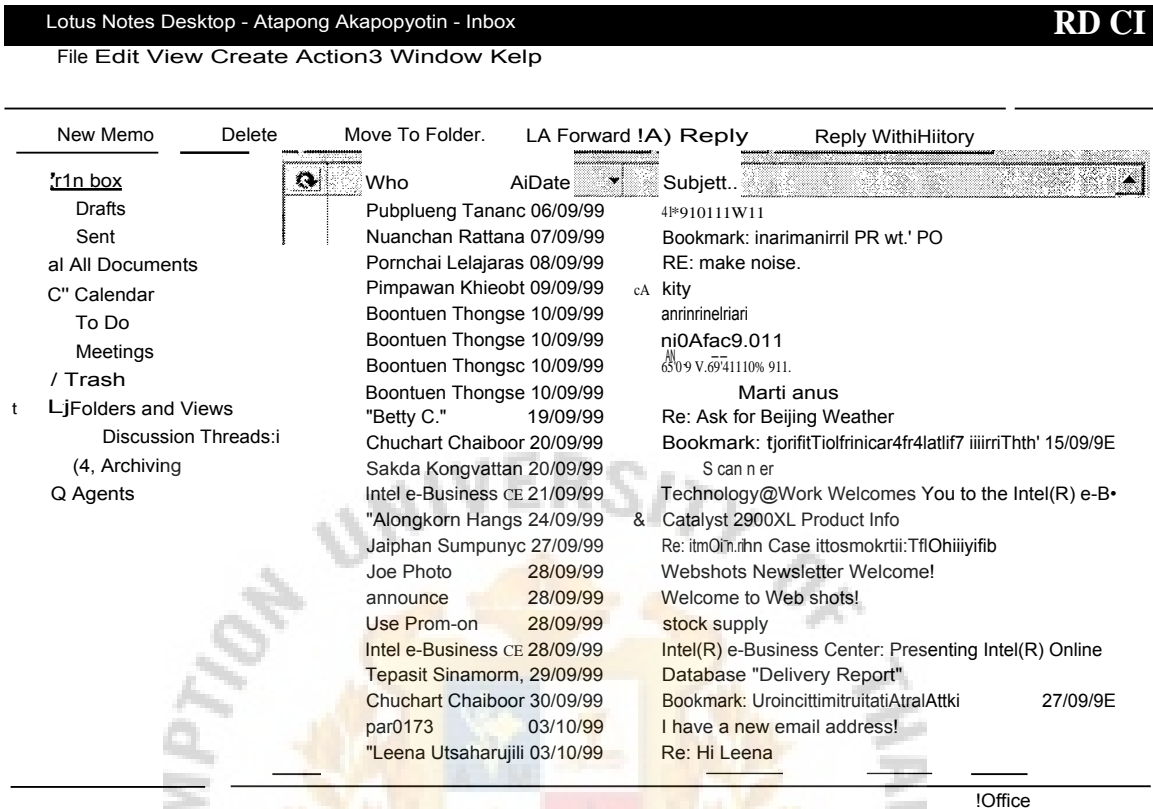| Who	AiDate	Subjett..
Pubplueng Tananc	06/09/99	4I*910111W11
Nuanchan Rattana	07/09/99	Bookmark: inarimanirril PR wt.' PO
Pornchai Lelajaras	08/09/99	RE: make noise.
Pimpawan Khieobt	09/09/99	cA kity
Boontuen Thongse	10/09/99	anrinrinelriari
Boontuen Thongse	10/09/99	ni0Afac9.011
Boontuen Thongsc	10/09/99	65'0'9 V.69'41110% 911.
Boontuen Thongse	10/09/99	Marti anus
"Betty C."	19/09/99	Re: Ask for Beijing Weather
Chuchart Chaiboor	20/09/99	Bookmark: tjorifitTiolfrinicar4fr4latlif7 iiiirriThth' 15/09/9E
Sakda Kongvattan	20/09/99	S can n er
Intel e-Business CE	21/09/99	Technology@Work Welcomes You to the Intel(R) e-B•
"Alongkorn Hangs	24/09/99	& Catalyst 2900XL Product Info
Jaiphan Sumpunyc	27/09/99	Re: itm0i'n.rhn Case ittosmokrtii:TflOhiiiyifib
Joe Photo	28/09/99	Webshots Newsletter Welcome!
announce	28/09/99	Welcome to Web shots!
Use Prom-on	28/09/99	stock supply
Intel e-Business CE	28/09/99	Intel(R) e-Business Center: Presenting Intel(R) Online
Tepasit Sinamorm,	29/09/99	Database "Delivery Report"
Chuchart Chaiboor	30/09/99	Bookmark: UroincittimitruitatiAtralAttki 27/09/9E
par0173	03/10/99	I have a new email address!
"Leena Utsaharujili	03/10/99	Re: Hi Leena

!Office

Figure F.2. Lotus Notes Desktop Inbox.

(4)   "All Documents" used for view all documents in our database.

(5)   "To do" where to store the documents to remind us of our transactions

or store a document which to be send to the other users.

(6)   "Trash" which stores the erased documents or not used documents.

(7)   "Folders and Views" which stores the documents which we classify on

each topic. It can create new folders or users the standard folder.

(8)   "Agents" which help to install the functions and automatic document

or the Form of Schedule.

(c) In the right pane, will arrange the documents to view from the folder & view in the left such as selecting the documents from "In box" will produce three level columns of documents such as from whom, what date and subject.

(3)   At the beginning

The topic that will be used on Notes electronic mail (e-mail). It will have the main topics such as Memo topic and other topics for electronic (e-mail) system.

The reading method must use the document method such as Notes Database. It is to select the topic document that can view and make double-click (left mouse) in order to read the documents.

(4)   Create Memo

The beginning of Electronic Mail System (e-mail) is to study how to write a letter and send to others. It can show in Figure F.3, F.4 and F.5.
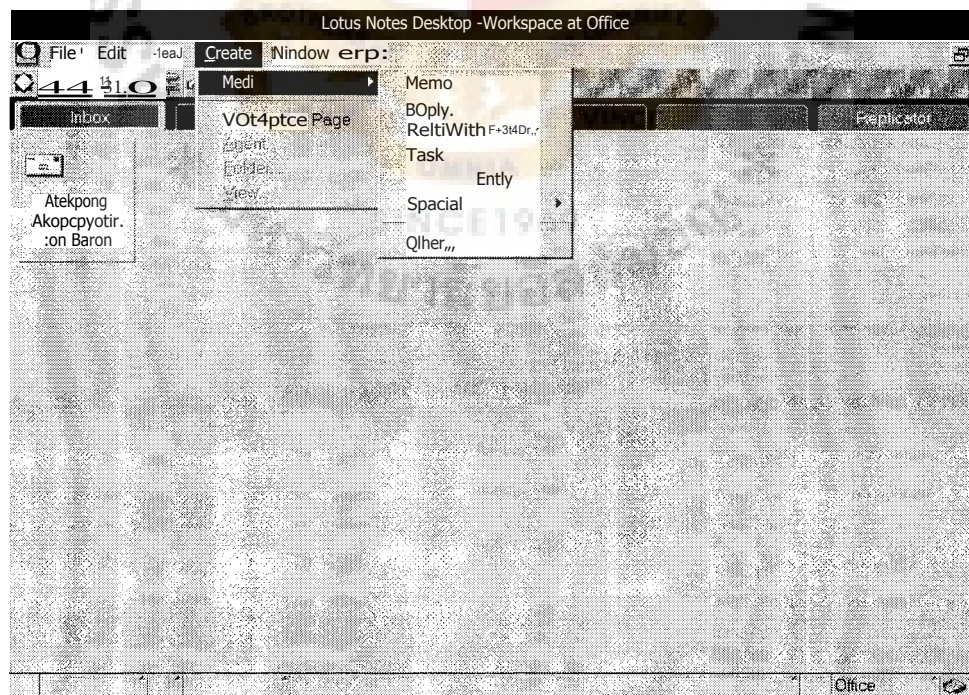

Figure F.3. Lotus Notes Create Mail.

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(1) Create. Creation and Writing Memo when we go to the Notes System we

     can select 3 ways as shown below:

    (a)   Select at Menu bar in the function of

        Create -> Mail -> Memo

    (b)   Select at Status bar in the sign of envelope and
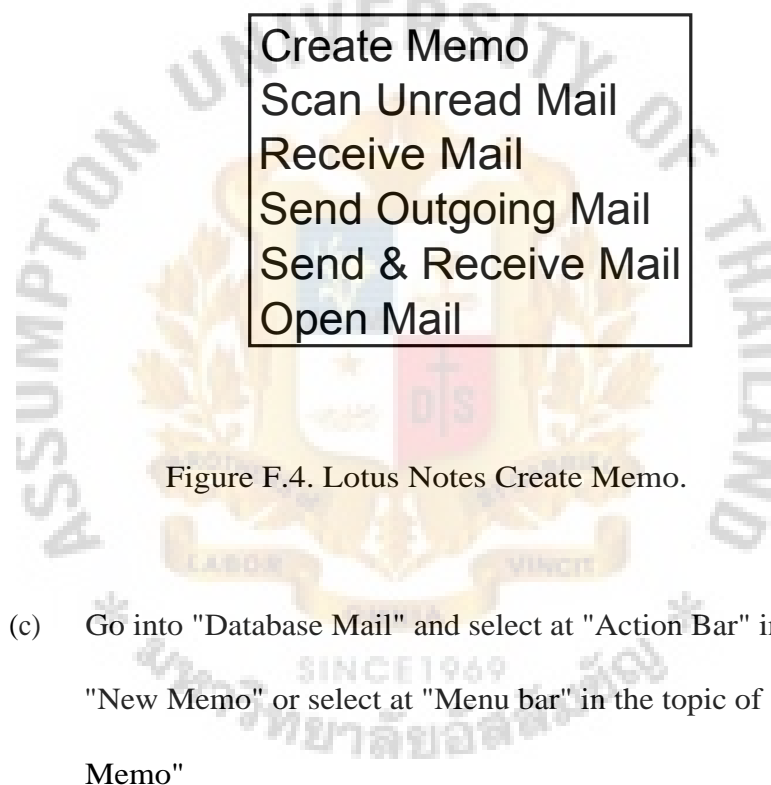
        Select "Create Memo"

```
Create Memo
Scan Unread Mail
Receive Mail
Send Outgoing Mail
Send & Receive Mail
Open Mail
```

Figure F.4. Lotus Notes Create Memo.

    (c)   Go into "Database Mail" and select at "Action Bar" in the topic of

        "New Memo" or select at "Menu bar" in the topic of " Create->

        Memo"

After that it will go into a letter form composed of the following features:

(1)   "Heading" appeared a picture called "Letterhead" and the name of the

       sender together with the date and the time.

(2)   "Addressing" composed of Field of name of receiver (To:) and attached

       receiver (cc:) and concealed receiver (bcc:) and topic of letter (subject:).

(3)   "Body" is the main point of the letter that is a field next to subject.

File Edit View Qreaie -Anions   Window Help

Address...   6a.vets Draft   SeuctArici   Delivery Options..

Atapong Akapopyotin
ieWaroWswouNiroNii
• **13/10/99 14:19**

To:
cc:
bcc:
Subject:

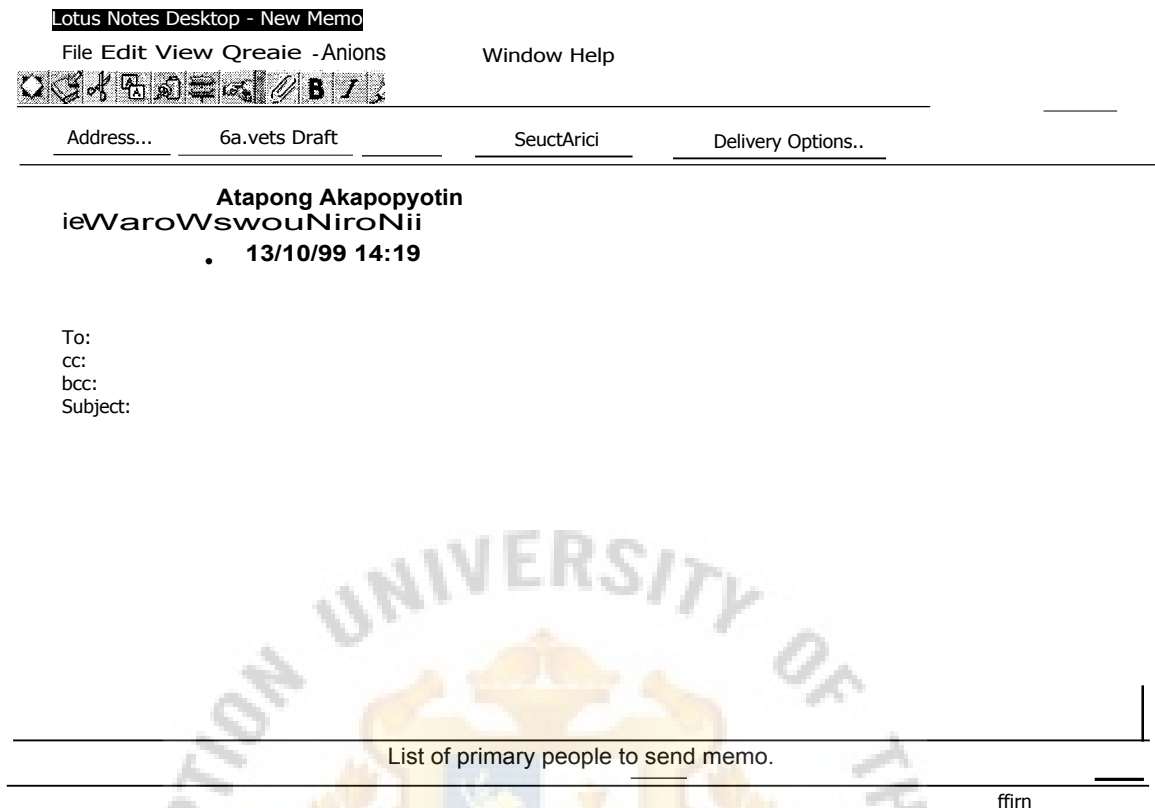List of primary people to send memo.

ffirn

Figure F.S. Lotus Notes New Memo.

(4) "Address" can be divided into 2 ways as shown below: It can show in

Figure F.6.

(a) Specific Name of Receiver (to:, cc:, bcc:) by "key —in" spelling the

receiver name. For example, I want to send the document to Atapong

Akapopyotin. We type each alphabet on the name selection, which

sorts from the first alphabet. For example, at first we type "A" it will

show "Aa..." first. If you do not see that name that you want to

contact you may try to type the next alphabet. After you type the first

name of the receivers then press the "END" button and then press ", "

(comma), you can select the next receiver name. In case of the

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deletion of receiver is name, press " Delete" or "Backspace" button (it

always has a sign ", " (comma) between name).

(b) The selection of Receiver selects the topic "Address" at "Action bar"

will show the list of the authorized person or Access Control List

(ACL) in the "Address Book" then select the name and select the
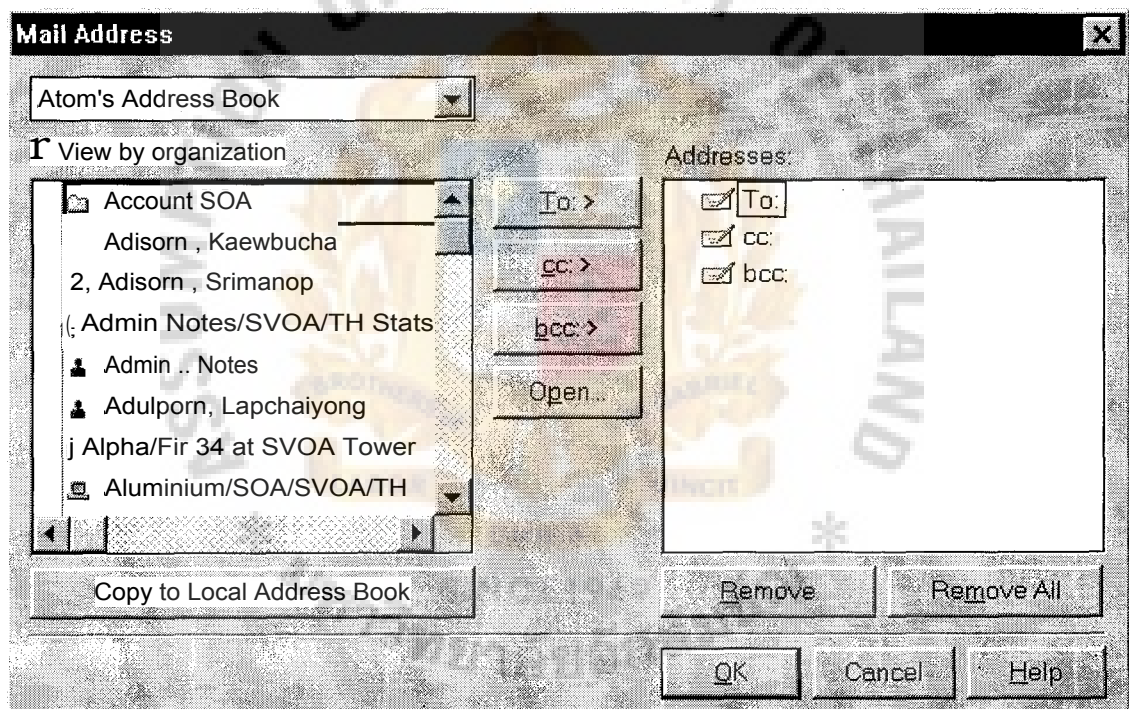
delivery "

To:" or "cc:" or "bcc:" as you want.

Figure F.6. Lotus Notes Mail Address.

For deletion of the name of the receiver, you can select in the right column

and then press the "Remove" button or specify the new receiver press the

"Remove All" button. Finally, click the "OK" button.

(1) Messaging and Sending

When we already specify the receiver's name, then go to the main Subject of the Letter. You can change the font, size, color, and forms as you need or may attach files with Lotus Notes Program the subject "Body" of letter. Furthermore, it can create forms from MS Word or other Spreadsheet. At the end of writing the message, we will go to the sending process.

With which we can do for many forms as shown below:

(a)   Select "Action" button in the name of "Send" located on the "Action bar"

(b)   Select " Save As Draft" to store a massage in the folder, called " Draft" (In case of not finish your writing and want to send the message the next time) you can save in "Draft" and select "Edit" and select "Send" when you finish your document.

(c)   Select " Send and File" in order to move or to copy a letter which we save in other folders from the other "Folder sent".

(d)   Press "double-click" (button in the right hand).

File -> Tools -> User Preferences

There are 4 things in the close window as follows: It can show in Figure F.7.

(1)   "Send and Save a copy" will be the topic that select and draft copy letter into the folder that we call "Sent"

(2)   "Send Only" will be the topic which we want to send only the letter and do not want to copy to "Sent".

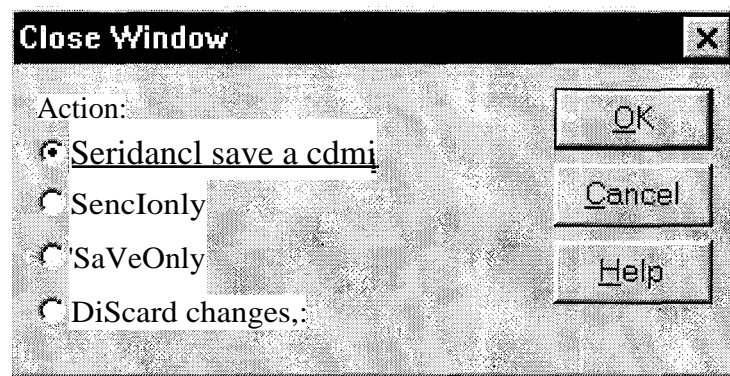(3)   "Save Only" it is a method to copy the message in a draft but it will not sent out.

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Figure F.7. Lotus Notes Close Window.

(4) "Discard Changes" will be a topic to cancel the letter and it will not

send and not copy before sending we can set up the value of letter by

clicking the button" Action" at Delivery Options

Figure F.8. Lotus Notes Delivery Options.

"Importance" is the specific importance of the letter. Notes has 3 levels of

classification as shown below.

(a)   "High" If we choose this level there will appear a red sign "!". When the receiver views a letter at the "Inbox View" there will also appear a red sign of the envelope, in the "Folder Sent" of the sender to notify that is the important letter.

(b)   " Normal and Low" there are no sign appearing at the receivers view. It will show only yellow envelope sign at the "Folder Sent" of the sender.

(c)   "Delivery Report" is the topic for Notes Server to send the status reports to the sender whether it is a success or a failure.

(d)   " Mood Stamp" is to put the picture "Icon" showing the emotion letter. The picture of icon in front of the letter to the receiver will appear.

(e)   " Delivery Priority" to tell Notes Server in what priority to send our letter, which classify in three levels: High, Normal and low.

(f)   " Sign" when we select this topic "a letter", which is sent out together with an electronic signature.

(g)   "Encrypt" to input password with this letter that will open and be viewed by only the authorized person.

(h)   " Return receipt" is the response message to the sender when the letter is opened.

(i)   " Prevent copying" is to protect the copied message or forward to the other receiver or reference the copied letter by replying with history or the receiver must print out the message by the printer. The users can only view on Notes System.

(4) Reply

      This topic will select reply to sender. This method will choose to reply in 2 ways.

    (a)   Select "Inbox view" and choose the letter which we want to reply then

          select the button "Action" with the name of "Reply" or select at "Menu bar"

          at Create -> Reply

    (b)   Select while we read the letter by pressing the button "Action" with the

          name of "Reply"

    (c)   After we selected, there will appear a replied letterform which is divided

          into a letter memo form but the receiver field will appear as the origin

          sender which we can add the new receiver.

(5) Reply with history

      This topic is the same as a reply function but it always replies with an original

copy. This is useful to remind the receiver, which massage is referred to.

(6) Forward

      This topic is to disseminate to other person in groups without creating the new

message. The process is the same as "Reply" but changed from the button "Action" in

the name of reply function to "Forward" which forwards the form that will appear such

as memo form but for the field "Body" there will appear a message of a letter which is

forwarded by inserting this message. It can show in Figure F.9 as the following:

" - - Forward by Atapong Akapopyotin/SVOA/TH on 13/10/1999 18.00 ‒ ‒

Figure F.9. Lotus Notes Forward.

It will declare the name of the senders that the letter is attached with the date and time. On the field of subject there will appear the message in the head of letter.

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1.   3.llt   flpLY1111114114f15: d11.1nfarativilli11cln54
      3.1111illtatl, 2542.

2.   59fit tM0⁻611k1,1.6M, AU51 1i159,15qa. fl111Lf151141=0Dflit9J915n111f1DIFIA111,VID5T1170111.1.
      fl111,1TIAILI11114f15: IiiiIrlfl15411141 1f1fl, 2542.