



Lease Evaluate System Universal Leasing Co., Ltd.

by

Ms. Parinda Sriyaphai

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

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

March, 2000

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Project Title	Lease Evaluate System, Universal Leasing Co., Ltd.
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Academic Year	March 2000

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

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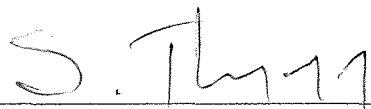
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March 2000

ABSTRACT

This project is about the analysis, design, and implementation of a system for a leasing company, Universal Leasing Co., Ltd., in order to reduce the time spent in the evaluation process for any lease application, to keep customers' financial data, to minimize bad debts, and to maximize profit.

The analysis phase consists of studying company business and existing business functions, and pointing out the current problems and areas for improvement. The data model (ERD) and process model (DFD) are drawn to define the data requirements and process requirements respectively.

During the design phase, three candidate solutions have been defined. The cost-benefit analysis technique is applied to select the best solution. And the recommended system is the custom program developed using VB6.0 and Access 2000 as a database management system.

The proposed system, LEASE EVALUATE SYSTEM, is designed starting from database design, inputs and outputs design, user interface design, hardware and software requirements, and lastly, security control.

System implementation involves programming, testing, training, and conversion. The system is tested in three levels: stub testing, program testing, and system testing. Finally, the system is placed into operation using parallel conversion.

ACKNOWLEDGEMENTS

The writer would like to thank a number of people who, without their help, this project would never have reached completion.

First, she would like to express her gratitude to Asst.Prof.Dr. Ouen Pin-ngern, the advisor of this project, for his suggestions and praise of the project.

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She would also like to extend her thanks to two special persons, her former boss, Mr. Atsushi Aoki, an inspirational man, and her beloved father, without his love, she would never have had today.

Finally, the writer also wishes to pass her sincere thanks to other people who are involved in this project but not previously mentioned.

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	v
LIST OF TABLES	viii
I. INTRODUCTION	1
1.1 Background of the Project	1
1.2 Objectives of the Project	2
1.3 Scope of the Project	2
II. THE EXISTING SYSTEM	3
2.1 Background of the Company	3
2.2 Existing Business Functions	5
2.3 Current Problems and Areas for Improvement	8
III. THE PROPOSED SYSTEM	15
3.1 User Requirements	15
3.2 System Design	15
3.3 Hardware and Software Requirements	84
3.4 Security and Control	84
IV. PROJECT IMPLEMENTATION	87
4.1 Overview of Project Implementation Schedule	87
4.2 Test Plan and Results	87

<u>Chapter</u>	<u>Page</u>
V. CONCLUSIONS AND RECOMMENDATIONS	90
5.1 Conclusions	90
5.2 Recommendations	91
APPENDIX A DATA DICTIONARY	92
APPENDIX B ENTITY RELATIONSHIP DIAGRAM	97
APPENDIX C STRUCTURE CHART	100
APPENDIX D PROCESS SPECIFICATION	101
BIBLIOGRAPHY	108



LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Organization Chart	4
2.2 Steps to Enter a Lease Agreement	6
2.3 Context Diagram of Existing System	10
2.4 Data Flow Diagram Level 0 of Existing System	11
2.5 Data Flow Diagram Level 1 of Process 1.0 of Existing System	12
2.6 Data Flow Diagram Level 1 of Process 2.0 of Existing System	13
2.7 Data Flow Diagram Level 2 of Process 2.2 of Existing System	14
3.1 Payback Period of Alternative Solution 1	23
3.2 Payback Period of Alternative Solution 2	25
3.3 Payback Period of Alternative Solution 3	27
3.4 Break Even Point between Alternative Solution 1 and Existing System	32
3.5 Break Even Point between Alternative Solution 2 and Existing System	34
3.6 Break Even Point between Alternative Solution 3 and Existing System	36
3.7 Context Diagram of Proposed System	42
3.8 Data Flow Diagram Level 0 of Proposed System	43
3.9 Data Flow Diagram Level 1 of Process 1.0 of Proposed System	44
3.10 Data Flow Diagram Level 2 of Process 1.1 of Proposed System	45
3.11 Data Flow Diagram Level 2 of Process 1.2 of Proposed System	46
3.12 Data Flow Diagram Level 1 of Process 2.0 of Proposed System	47
3.13 Designed Database	48
3.14 Relationship of Tables	49

<u>Figure</u>	<u>Page</u>
3.15 Designed Fields for Customer Table	50
3.16 Designed Fields for Quotable Table	51
3.17 Designed Fields for Application Table	52
3.18 Designed Fields for Drawdown Table	53
3.19 Designed Fields for Balance Sheet Table	54
3.20 Designed Fields for Income Statement Table	55
3.21 Designed Fields for Marketing Table	56
3.22 Input Screen: Customer Maintenance	58
3.23 Input Screen: Balance Sheet (page 1/3)	59
3.24 Input Screen: Balance Sheet (page 2/3)	60
3.25 Input Screen: Balance Sheet (page 3/3)	61
3.26 Input Screen: Income Statement	62
3.27 Input Screen: Quotation Maintenance	63
3.28 Input Screen: Application Maintenance	64
3.29 Input Screen: Drawdown Maintenance	65
3.30 Response Screen: Customer History - Quotation	67
3.31 Response Screen: Searching Quotation	68
3.32 Response Screen: Searching Application	69
3.33 Response Screen: Searching Drawdown	70
3.34 Response Screen: IRR Calculation	71
3.35 Response Screen: Repayment Schedule Calculation	72
3.36 Response Screen: Evaluation	73

<u>Figure</u>	<u>Page</u>
3.37 Preview Report Screen: Customer Report	74
3.38 Preview Report Screen: Quotation Report	75
3.39 Preview Report Screen: Application Report	76
3.40 Preview Report Screen: Drawdown Report	77
3.41 Indicative Quotation	78
3.42 Application for Approval	79
3.43 Drawdown Memorandum	80
3.44 Lease Evaluate Sate Transition Diagram	81
3.45 Lease Evaluate Main Menu	82
3.46 Lease Evaluate Pop-up Menu	83
3.47 Lease Evaluate License screen	83
3.48 Lease Evaluate Security Authorization	85
3.49 Lease Evaluate Security Control	85
3.50 Lease Evaluate Parameter Control	86
4.1 Gantt Chart of Proposed System	89
B.1 ER Diagram Entity Level	97
B.2 ER Diagram Primary Key Level	98
B.3 ER Diagram Attribute Level	99
C.1 Structure Chart	100

LIST OF TABLES

<u>Table</u>	<u>Page</u>
3.1 Candidate Matrix	18
3.2 Payback Analysis for Alternative Solution 1	22
3.3 Payback Analysis for Alternative Solution 2	24
3.4 Payback Analysis for Alternative Solution 3	26
3.5 Net Present Value Analysis for Alternative Solution 1	28
3.6 Net Present Value Analysis for Alternative Solution 2	29
3.7 Net Present Value Analysis for Alternative Solution 3	30
3.8 Break-Even Point between Existing System and Alternative Solution 1	31
3.9 Break-Even Point between Existing System and Alternative Solution 2	33
3.10 Break-Even Point between Existing System and Alternative Solution 3	35
3.11 Feasibility Matrix	37

I. INTRODUCTION

1.1 Background of the Project

Universal Leasing Co., Ltd. (UNVL) is a leasing company. The company's aim is to get a big portion of the market. UNVL realizes that in the face of high competition in the leasing business, today's leasing company must provide best services: fast and convenient. In addition, the company must have high skills of credit analysis to identify and bring in good credit customers in order to reduce the risk and make the company profitable.

Leasing is a contract between the lessor (leasing company) and the lessee (the equipment user) for the hire of a specific asset selected by the lessee from a manufacturer or supplier. The lessor retains the ownership of the asset during the term of contract. The lessee has possession and free use of the asset on payment of specified rentals over a fixed period of time. Upon expiry of the lease, several options are usually available to the lessee:

- (1) to return the equipment to the lessor.
- (2) to renew the lease contract on a yearly basis with nominal rental payments.
- (3) to purchase the equipment as it is from the lessor at an agreed price taking into account rentals paid during the lease term.

Universal Leasing decided to reengineer the Marketing Department's working processes and find out a new system together with software that helps the credit decision in a short time so that the company can provide fast services, minimize bad debt, and maximize profit.

1.2 Objectives of the Project

The objectives of the project on the LEASE EVALUATE SYSTEM are as follows:

- (1) To analyze the existing system of the Marketing Department of Universal Leasing Co., Ltd. and identify the requirements.
- (2) To design a functional system, the LEASE EVALUATE SYSTEM, helping the credit decision.
- (3) To develop Windows-Based Software for the LEASE EVALUATE SYSTEM.
- (4) To implement the LEASE EVALUATE SYSTEM.

1.3 Scope of the Project

The project concentrates on the evaluation of customers for the Marketing Department. The scope of the project is as follows:

- (1) Credit Analysis
 - (a) Calculate Financial Ratios
 - (b) Establish the databases for use in comparative analysis.
- (2) Evaluate and suggest the pricing rate
- (3) Issue Quotation
- (4) Issue Application for Approval
- (5) Issue Drawdown Memorandum

II. THE EXISTING SYSTEM

2.1 Background of the Company

Universal Leasing Co., Ltd. was established in 1984 with a paid-up capital of 60 million Baht. It offers lease facilities of various kinds of industrial, office and productive equipment to large, medium and small sized enterprises.

The company's departments comprise the followings: (Figure 2.1)

Marketing Department

Marketing Department consists of two sections: Credit Analysis and Marketing.

- (1) Credit analysis section is responsible for analyzing the customer's credit.
- (2) Marketing section is responsible for promoting and exploring business opportunities, pricing, issuing quotations and preparing applications for approval.

Administration Department

Administration Department consists of two sections: Administration and Treasurer.

- (1) Administration section is responsible for documentation and administrative jobs.
- (2) Treasurer section is responsible for drawdown (disburse of payment) and funding.

Finance and Accounting Department

Finance and Accounting Department consists of two sections: Portfolio Operation and

Financial Control

- (1) Portfolio Operation section is responsible for the customers' accounts: installment payments recording (receipt, VAT), floating rate charges, penalty and late charges, closing account.

Universal Leasing Co., Ltd.

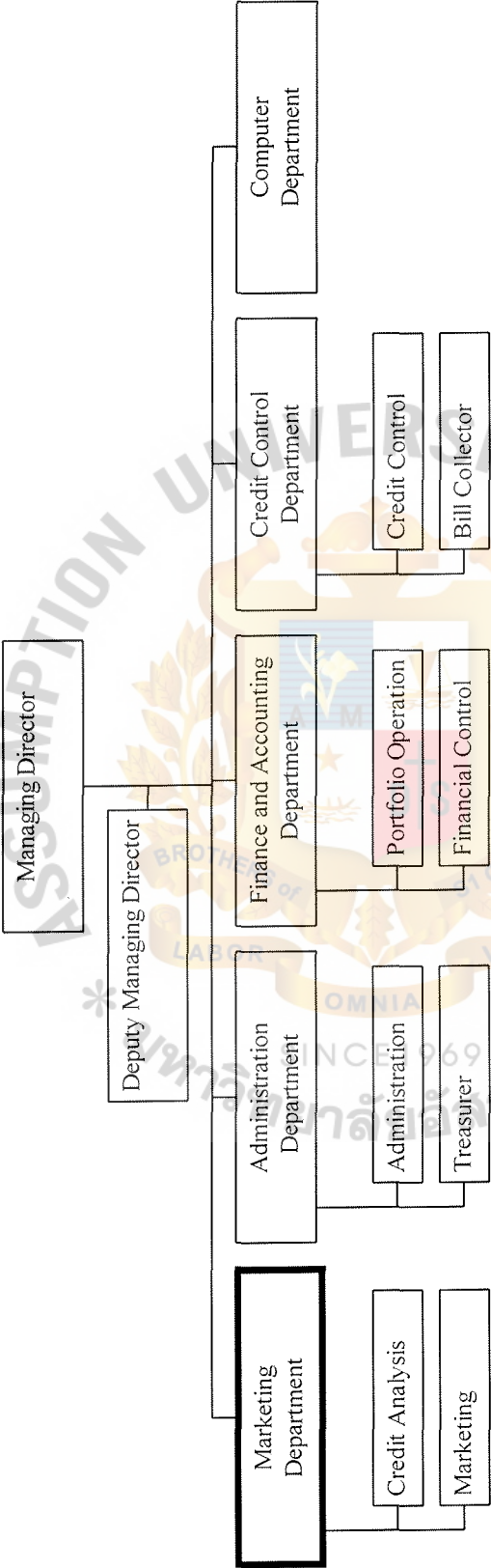


Figure 2.1. Organization Chart.

- (2) Financial Control section is responsible for the company's finance and accounting and auditing.

Credit Control Department

Credit Control Department consists of two sections: Credit Control and Bill Collector

- (1) Credit control section is responsible for chasing the overdue accounts, NPA and debt recovery, and taking legal action to legal cases.
- (2) Bill collector section is responsible for delivering debit notes and collecting payments.

Computer Department

Computer Department is responsible for providing information for every department, handling hardware and software problems, maintaining all PCs and the LAN system, and supporting the company's leasing software.

2.2 Existing Business Functions

The procedure to enter the lease agreement is basically as follows;

- (1) The lessee determines the equipment required and its technical specifications, the supplier or manufacturer, and fixed prices and other condition of sale.
- (2) A lease application together with the lessee's basic financial information is then submitted to Universal Leasing Co., Ltd.
- (3) Upon approval of the operation, a lease contract is signed between lessee and Universal Leasing Co., Ltd., who will buy the equipment directly according to the conditions fixed between the lessee and the provider.
- (4) When the equipment is received by the lessee to his satisfaction, an acceptance certificate dated and signed by the lessee is sent to Universal

Leasing Co., Ltd. together with the corresponding invoice in the name of Universal Leasing Co., Ltd., the first payment and insurance documents. Universal Leasing then settles the payment of the equipment.

Figure 2.2 below shows how a customer enters a lease agreement.

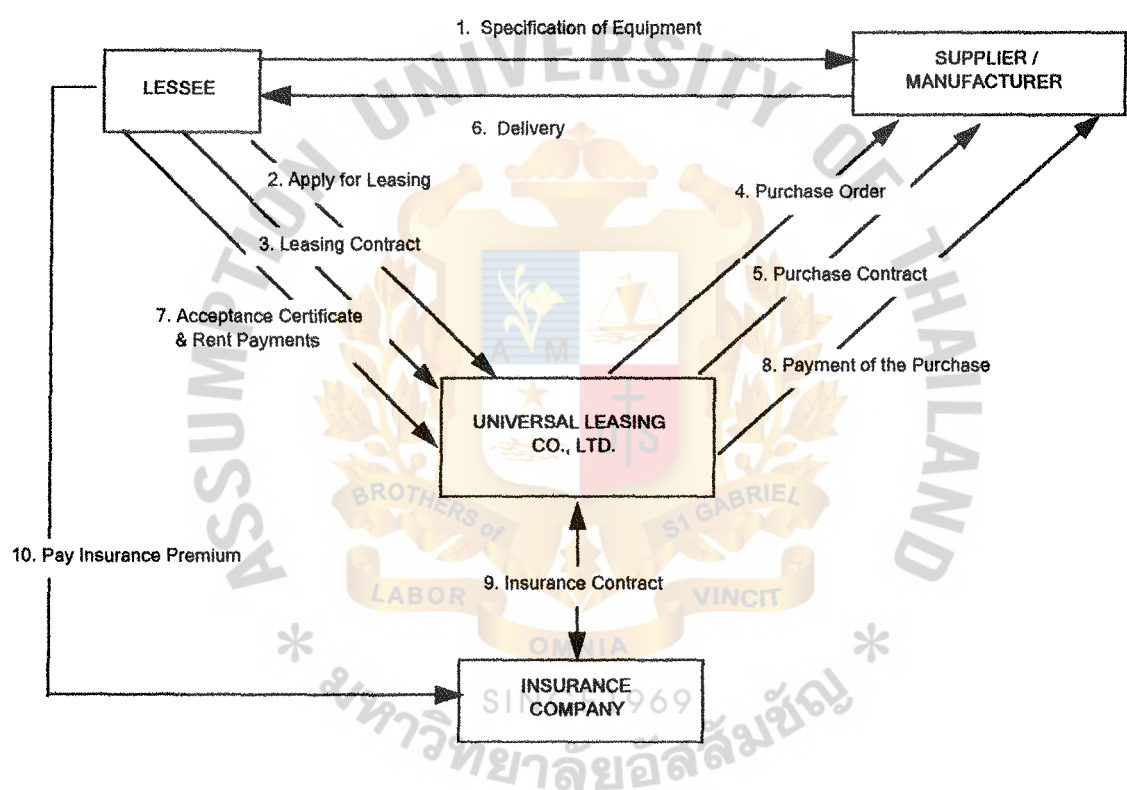


Figure 2.2. Steps to Enter a Lease Agreement.

The context diagram of the existing system is shown in Figure 2.3 to illustrate the total picture of the system. The marketing department participates when the lease application and financial information: the balance sheet and the financial statement are submitted. Marketing's work process is shown in Figure 2.4 and is as follows:

Process 1.0 Analyze Financial Information

The credit marketing will input financial Figures, calculate financial ratios and use the Figures to see the customer's potential and consider whether the lease application should be accepted or not (Figure 2.5). This process is done using MS Excel.

Process 2.0 Enter Lease Calculation

After the process of financial information analysis, the accepted application will be passed to the marketing officer for payment calculations and tax figures calculation (Figure 2.6).

The payment Figure from the process of payment calculation will be an input for the tax Figures calculation process.

The marketing officer, then, has to calculate the tax Figures to achieve a specified yield and find the present value (capitalized value) of a lease. The tax Figures calculation process consists of the calculation of finance profit, the operating profit, the profit difference and the tax difference (Figure 2.7). All are done using a finance calculator (HP 17BII).

Process 3.0 Calculate Cashflow

The process after the leasing calculation is the cashflow calculation, to see the interest rate of return (IRR) and the net present value, using a financial calculator (HP 17BII).

Process 4.0 Issue Interest Rate Memo

The marketing officer, then, prepares the interest rate memorandum which indicates IRR from the leasing calculation process and submits it to the MD and DMDs for approval.

Process 5.0 Issue Quotation

After the interest rate memorandum is approved, the marketing officer will issue the indicative quotation and send it to the customer.

Process 6.0 Issue Application for Approval

As soon as the customer accepts the indicative quotation, the application for approval is prepared and submitted to the MD and DMDS.

Process 7.0 Issue Drawdown Memorandum

Once the application is approved, the drawdown memorandum is issued and sent to the Administration Department for administrative processes.

2.3 Current Problems and Areas for Improvement

2.3.1 Current Problems

- (1) The time of lease evaluation for a lease application as measured from submission to time of approval takes too long, at least 7 days.
- (2) Calculations need both a spreadsheet and financial calculator, the output from spreadsheet is the input to the financial calculator. There is no automatic calculation system to calculate the financial ratios.
- (3) There is no database storing the existing customer's financial information. They are only in the paper form. The figures have to be input again to the financial calculator for evaluation if the financial information is changed.
- (4) There currently exists data redundancies among files of Interest Rate Memo, Quotation, Application for approval and Drawdown Memorandum.

2.3.2 Areas for Improvement

- (1) Processes to analyze financial information, to calculate the lease, and to calculate the cash flow should be merged into one process, a lease evaluation process.
- (2) The customers' financial information database should be established in order to solve the data redundancy problem.
- (3) Lease evaluation software should be developed for automatically calculating financial ratios and for the reduction of manual input into the financial calculator.
- (4) The developed lease evaluation software should support issuing the necessary documents i.e., interest rate memo, quotation, application for approval, and drawdown memorandum.



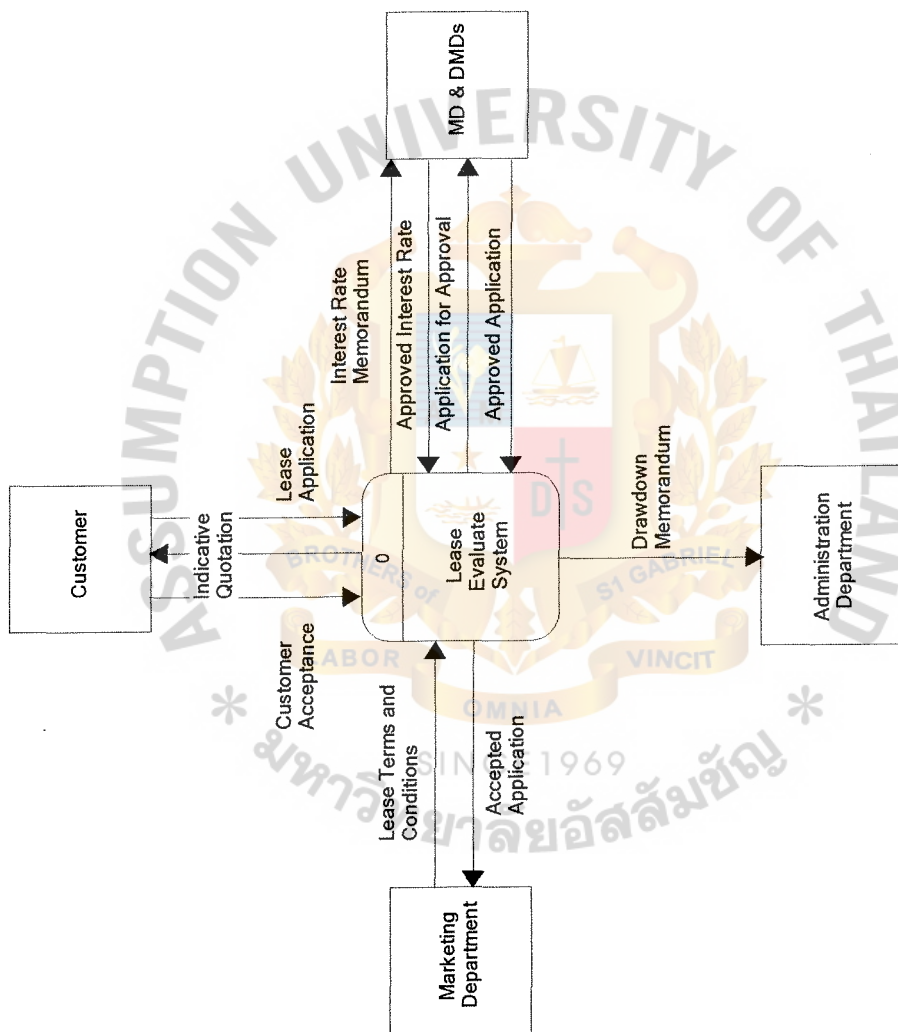


Figure 2.3. Context Diagram of Existing System.

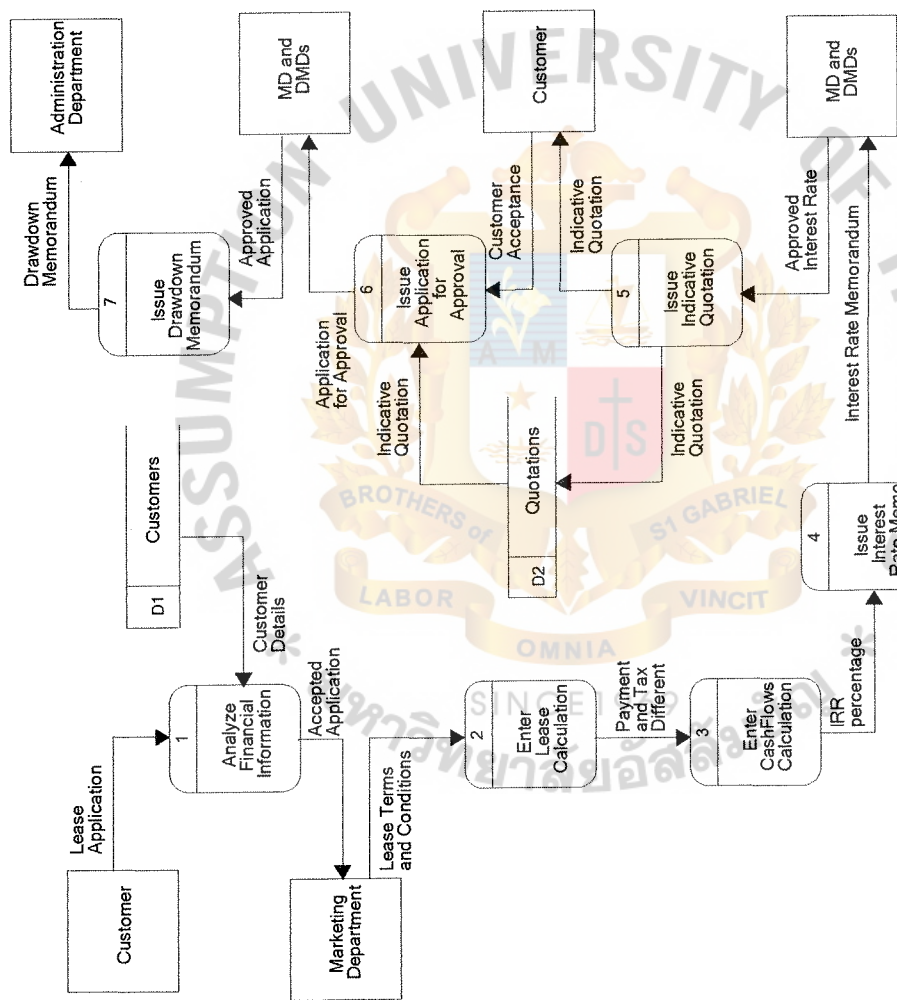


Figure 2.4. Data Flow Diagram Level 0 of Existing System.

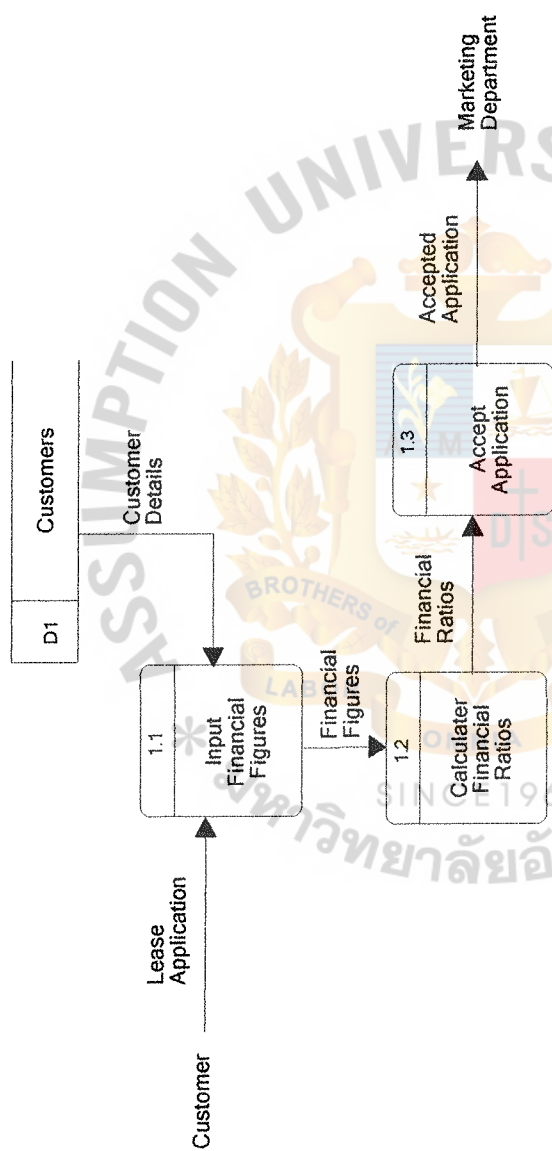


Figure 2.5. Data Flow Diagram Level 1 of Process 1.0 of Existing System.

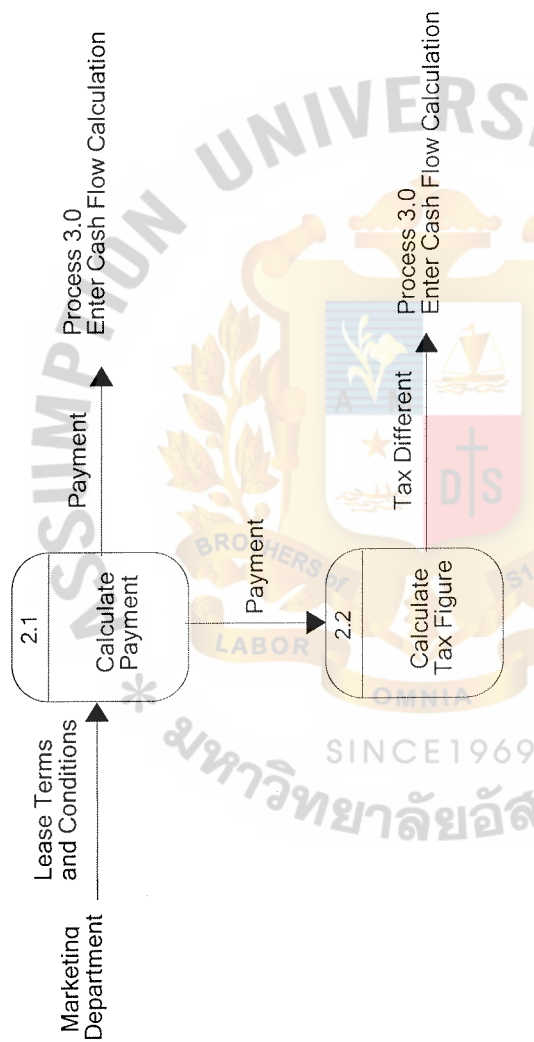


Figure 2.6. Data Flow Diagram Level 1 of Process 2.0 of Existing System.

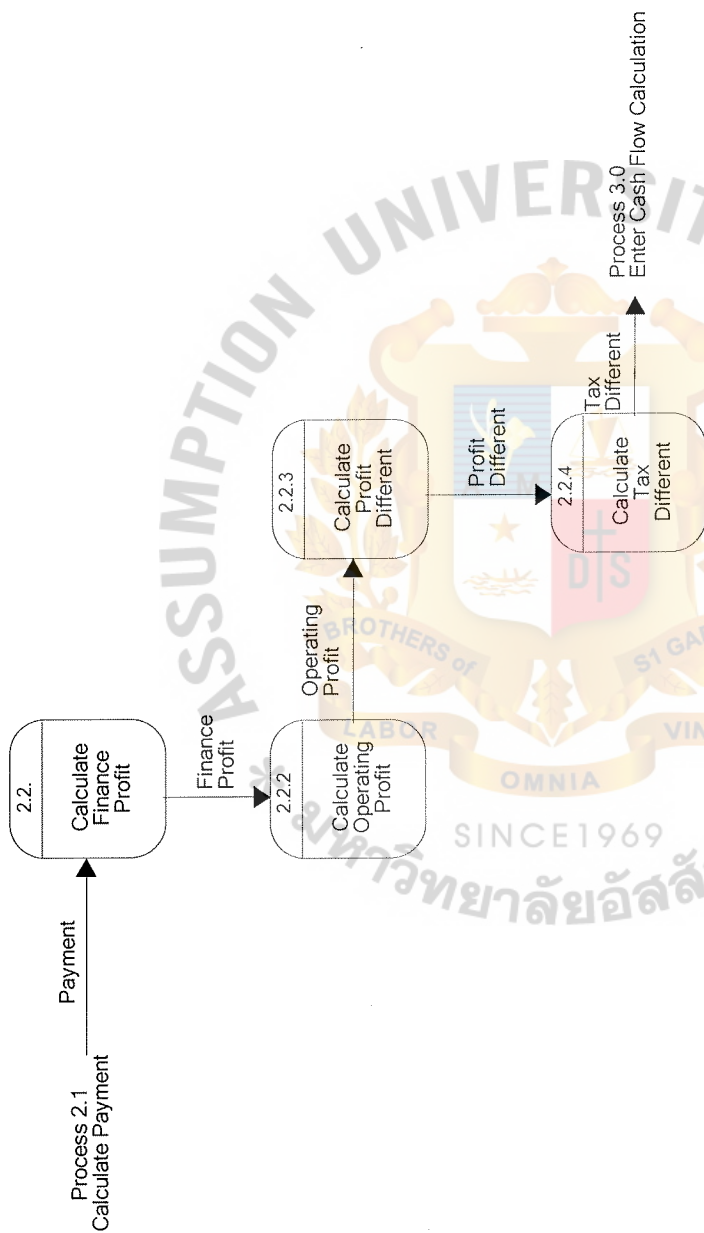


Figure 2.7. Data Flow Diagram Level 2 of Process 2.2 of Existing System.

III. THE PROPOSED SYSTEM

3.1 User Requirements

- (1) The time of lease evaluation for a lease application should not longer than 3 days.
- (2) The financial ratios must be automatically calculated after inputting the necessary details and be convenient, quick, and accurate.
- (3) The customers' financial information must be stored and could be retrieved, updated, and deleted.
- (4) The necessary documents: interest rate memo, quotation, application for approval, and drawdown memorandum, must be issued by the system based on information input from the evaluation process.
- (5) The developed system must be a windows-based system.

3.2 System Design

3.2.1 Define Candidate Solutions

There are three candidate solutions for developing the new system (see Table 3.1)

- (1) Package Program - InfoAnalysis™ Software
- (2) Custom Program using Visual Basic 6.0 and Access 2000.
- (3) Custom Program using VBA in Excel.

3.2.2 Cost-Benefit Analysis

- (1) Estimated Costs
 - (a) The estimated costs of the alternative solution 1 is 1,444,100 Baht (see page 19).
 - (b) The estimated costs of the alternative solution 2 is 691,500 Baht (see page 20).

- (c) The estimated costs of the alternative solution 3 is 670,900 Baht (see page 21).

(2) Tangible Benefits

- (a) The new system is estimated to reduce the Personnel Cost of two Credit Marketing staff, which is @18,000 x 2 x12 = 432,000 Baht.
- (b) The risk is reduced as the new system will select only potential customers which have less possibility to become NPA (Non Performing Account).

We could estimate that the risk is reduced by 10% from the last year company financial report, which is equal to 150,000 Baht per year).

(3) Intangible Benefits

There are two intangible benefits, which may result if the new system is in operation.

- (a) The time for evaluation of each Lease Application is reduced; the marketing officer could approach more prospects.
- (b) Evaluation result suggests cost-effective interest rate, the rate that is higher than the margin, for the company, which makes the company profitable.

(4) Payback Analysis

The discount rate (i) for the payback analysis of this project is assumed to be 12 percent. And the present value at any time in the future can be calculated using the following formula: (where n = year)

$$PV_n = 1 / (1+i)^n$$

The payback analysis of the alternative solutions shows the results as follows:

- (a) The alternative solution 1 can be accrued benefit after 5.9 years of operation (see Table 3.2).
- (b) The alternative solution 2 can be accrued benefit after 1.8 years of operation (see Table 3.3).
- (c) The alternative solution 3 can be accrued benefit after 1.7 years of operation (see Table 3.4).

(5) Net Present Value Analysis

The alternative solution 3 gives the highest net present value (see Table 3.7). The alternative solution 1 gives the lowest (see Table 3.5). Table 3.6 shows net present value analysis of alternative solution 2.

(6) Break-Even Point between Existing System and Alternative Solutions

- (a) Break-Even point between Existing System and the alternative solution 1 is 5.9 years (see Table 3.8).
- (b) Break-Even point between Existing System and the alternative solution 2 is 1.8 years (see Table 3.9).
- (c) Break-Even point between Existing System and the alternative solution 3 is 1.7 years (see Table 3.10).

3.2.3 Analyze Feasibility of Alternative Solutions

The Feasibility Matrix summarizes the criteria and shows that the alternative solution that has the best score is the alternative solution 2 (see Table 3.11).

3.2.4 Recommend a System Solution

From the feasibility analysis, the proposed system should be the alternative solution 2, which is the custom program developed based on user requirements using Visual Basic 6.0 and using Access 2000 as the database management system.

Table 3.1. Candidate Matrix.

CHARACTERISTICS	CANDIDATE 1	CANDIDATE 2	CANDIDATE 3
Portion of System Computerized	Package software: "InfoAnalysis" from Decision System Corp. , USA.would be purchased for analysis,pricing, keeping data, and issuing Quotation.	Lease Evaluate Software will be written by the programmer using Visual Basic 6.0 together with Access 2000 as a DBMS in order to fulfill all user requirements.	The spreadsheet will be created by the programmer using macro and VBA in Excel. One program for one process. And customer data will be kept seperately, one spreadsheet per customer.
Benefits	This solution could be implemented more quickly. Since it is a package software, save time for development.	Support all user requirements.	Support all user requirements. More familiar with users, as the existing manual system using macro and VBA in some parts.
Servers and Workstations	Stand alone PC, -Pentium Celeron or higher with RAM-32 MB, HD-5.1GB	Same as Candidate 1.	Same as Candidate 1.
Software Tools Needed	Windows 98 Thai Edition InfoAnalysis Software	Windows 98 Thai Edition Visual Basic Pro 6.0 MS Office Pro 2000	Windows 98 Thai Edition MS Office Pro 2000
Application Software	Package Solution	Custom Solution	Custom Solution
Method of Data Processing	PC Stand alone	Same as Candidate 1.	Same as Candidate 1.
Output Devices and Implications	HP Laser Printer	Same as Candidate 1.	Same as Candidate 1.
Input Devices and Implications	Keyboard and Mouse	Same as Candidate 1.	Same as Candidate 1.
Storage Devices and Implications	Backup Tape	Same as Candidate 1.	Same as Candidate 1.

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Estimated Costs for Alternative Solution 1

Candidate 1: Package Program - InfoAnalysis™ Software

Development Costs

Personnel :		Baht
System Analyst	(30,000/month x 3)	90,000

New Hardware & Software Expenses :

IBM PC 300 GL:	(@37,500 x 2)	75,000
Intel Celeron 433 Mhz with 128 KB L2 cache 32 Mb/ 8.4 GB		
Preloaded Software : Windows 98 Thai.		
Tape Drive (for backup)		5,000
Backup Tape	(@300 x 7)	2,100
InfoAnalysis License (2 users)		720,000
Total Development Costs :		892,100

Projected Annual Operating Costs

Personnel :		Baht
System Administration	(30,000/month x 12)	360,000

Expenses :

Maintenance Service (H/W)	(8,500/month x12)	102,000
Maintenance Service (S/W)	(Yearly)	90,000

Total Projected Annual Costs :	552,000
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Total Estimated Costs :	1,444,100
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Estimated Costs for Alternative Solution 2

Candidate 2 : Custom Program using VB 6.0 and Access 2000

Development Costs

Personnel :		Baht
System Analyst	(30,000/month x 3)	90,000
Programmer	(15,000/month x 1)	15,000

New Hardware & Software Expenses :

IBM PC 300 GL:	(@37,500 x 2)	75,000
Intel Celeron 433 Mhz with 128 KB L2 cache 32 Mb/ 8.4 GB		
Preloaded Software : Windows 98 Thai.		
Tape Drive (for backup)		5,000
Backup Tape	(@300 x 7)	2,100
Microsoft Office Pro 2000 Win 32 Thai Full Pack CD		22,800
Visual Basic Professional 6.0 Win 32 CD		20,600
Total Development Costs :		230,500

Projected Annual Operating Costs

Personnel :		Baht
System Administration	(30,000/month x 12)	360,000

Expenses :

Maintenance Service (H/W)	(8,000/month x12)	96,000
Maintenance Service (S/W)	(Yearly)	5,000

Total Projected Annual Costs :	461,000
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Total Estimated Costs :	691,500
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Estimated Costs for Alternative Solution 3

Candidate 3 : Custom Program using VBA in Excel

Development Costs

Personnel :		Baht
System Analyst	(30,000/month x 3)	90,000
Programmer	(15,000/month x 1)	15,000

New Hardware & Software Expenses :

IBM PC 300 GL:	((@37,500 x 2)	75,000
Intel Celeron 433 Mhz with 128 KB L2 cache 32 Mb/ 8.4 GB		
Preloaded Software : Windows 98 Thai.		
Tape Drive (for backup)		5,000
Backup Tape	((@300 x 7)	2,100
Microsoft Office Pro 2000 Win 32 Thai Full Pack CD		22,800
Total Development Costs :		209,900

Projected Annual Operating Costs

Personnel :		Baht
System Administration	(30,000/month x 12)	360,000

Expenses :

Maintenance Service (H/W)	(8,000/month x12)	96,000
Maintenance Service (S/W)	(Yearly)	5,000

Total Projected Annual Costs :	461,000
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Total Estimated Costs :	670,900
-------------------------	---------

Table 3.2. Payback Analysis for Alternative Solution 1 in Baht, Candidate 1: Package Program – InfoAnalysis Software.

Cost Items	Years					
	0	1	2	3	4	5
Development Cost	-892,100					
Operation: maintenance cost		-552,000	-568,600	-585,700	-603,300	-621,400
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	-892,100	-492,936	-453,174	-417,018	-383,699	-352,334
Cumulative time-adjusted cost over lifetime	-892,100	-1,385,036	-1,838,210	-2,255,229	-2,638,927	-2,991,261
Benefits derived from operation of new system	0	582,000	670,000	771,000	887,000	1,021,000
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	0	519,726	533,990	548,952	564,132	578,907
Cumulative time-adjusted cost over lifetime	0	519,726	1,053,716	1,602,668	2,166,800	2,745,707
Cumulative time-adjusted cost-benefits	-892,100	-865,310	-784,494	-652,561	-472,127	-245,554
						25,640

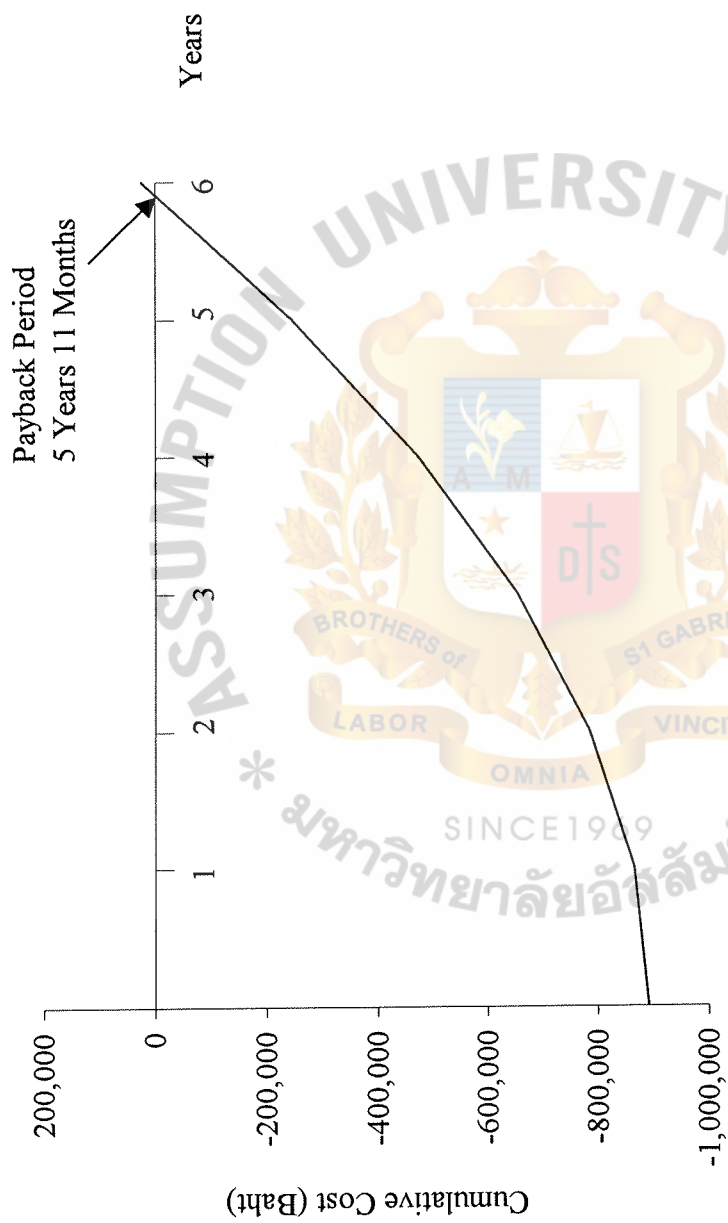


Figure 3.1. Payback Period of Alternative Solution 1.

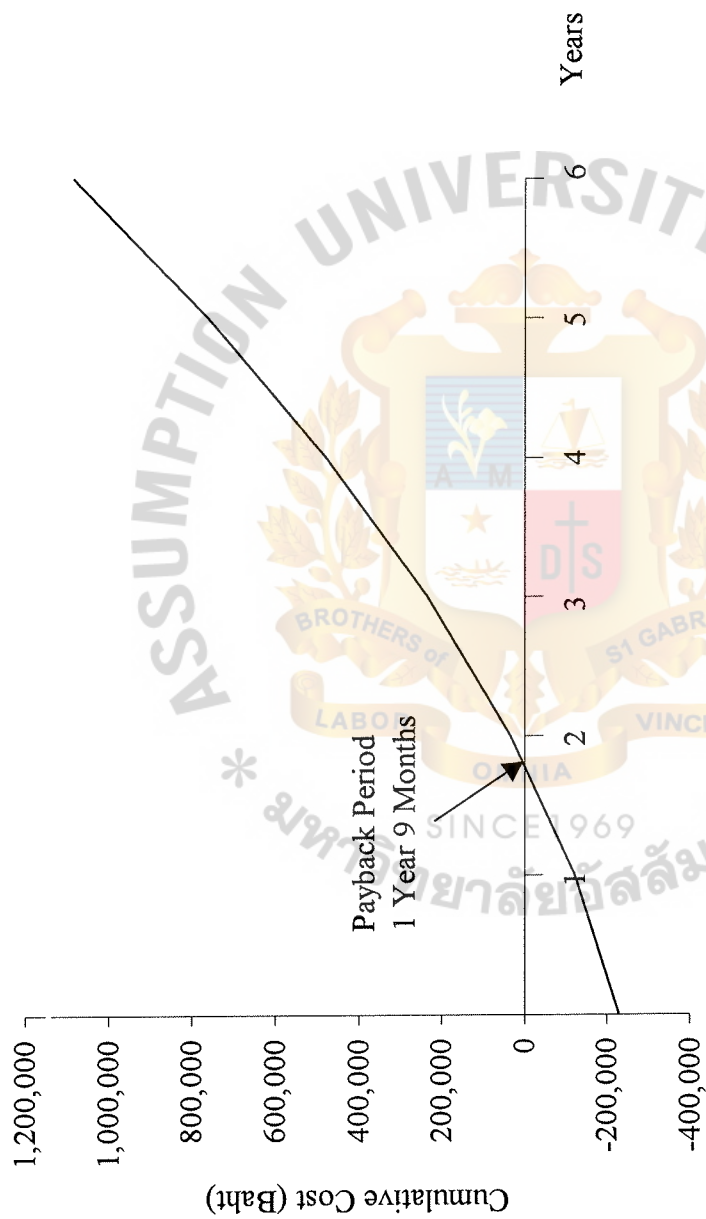


Figure 3.2. Payback Period of Alternative Solution 2.

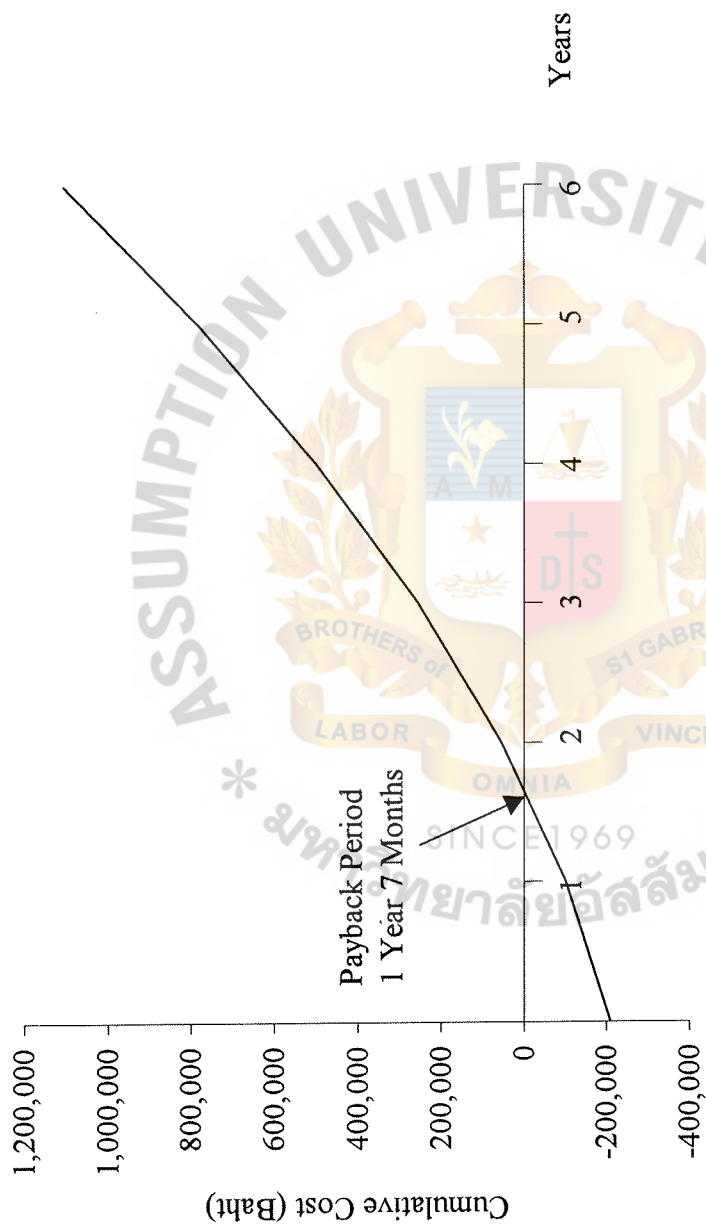


Figure 3.3. Payback Period of Alternative Solution 3.

Table 3.5. Net Present Value for Alternative Solution 1 in Baht, Candidate 1: Package Program - InfoAnalysis Software.

Cost Items	Years						
	0	1	2	3	4	5	6
Development Cost	-892,100						
Operation: maintenance cost		-552,000	-568,600	-585,700	-603,300	-621,400	-640,100
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual costs	-892,100	-492,936	-453,174	-417,018	-383,699	-352,334	-324,531
Total present value of lifetime costs							-3,315,792
Benefits derived from operation of new system	0	582,000	670,000	771,000	887,000	1,021,000	1,175,000
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual benefits	0	519,726	533,990	548,952	564,132	578,907	
Total present value of lifetime benefits							3,341,432
Net Present Value of This Alternative							25,640

Table 3.6. Net Present Value for Alternative Solution 2 in Baht, Candidate 2: Custom Program Using VB 6.0 and Access 2000.

Cost Items	Years						
	0	1	2	3	4	5	6
Development Cost	-230,500						
Operation: maintenance cost		-461,000	-474,900	-489,200	-503,900	-519,100	-534,700
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual costs	-230,500	-411,673	-378,495	-348,310	-320,480	-294,330	-271,093
Total present value of lifetime costs							-2,254,882
Benefits derived from operation of new system	0	582,000	641,000	706,000	777,000	855,000	941,000
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual benefits	0	519,726	510,877	502,672	494,172	484,785	477,087
Total present value of lifetime benefits							2,989,319
Net Present Value of This Alternative							734,437

Table 3.7. Net Present Value for Alternative Solution 3 in Baht, Candidate 3: Custom Program Using VBA in Excel.

Cost Items	Years						
	0	1	2	3	4	5	6
Development Cost	-209,900						
Operation: maintenance cost		-461,000	-474,900	-489,200	-503,900	-519,100	-534,700
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual costs	-209,900	-411,673	-378,495	-348,310	-320,480	-294,330	-271,093
Total present value of lifetime costs							-2,234,282
Benefits derived from operation of new system	0	582,000	670,000	771,000	887,000	1,021,000	1,175,000
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Present Value of annual benefits	0	519,726	533,990	548,952	564,132	578,907	595,725
Total present value of lifetime benefits							3,341,432
Net Present Value of This Alternative							1,107,150

Table 3.8. Break-Even Point between Existing System and Alternative Solution 1, in Baht.

Cost Items	Years						
	0	1	2	3	4	5	6
Existing System:							
Development cost	0						
Operation: Personnel cost		432,000	496,800	571,400	657,200	755,800	869,200
Risk cost		150,000	165,000	181,500	199,700	219,700	241,200
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Time-adjusted cost (adjusted to present value)	0	519,726	527,455	536,065	544,988	553,109	563,226
Cumulative time-adjusted cost over lifetime	0	519,726	1,047,181	1,583,245	2,128,234	2,681,342	3,244,569
Alternative Solution 1:							
Development cost	892,100						
Operation: Maintenance cost		552,000	568,600	585,700	603,300	621,400	640,100
Risk cost		0	0	0	0	0	0
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567	0.507
Time-adjusted cost (adjusted to present value)	892,100	492,936	453,174	417,018	383,699	352,334	324,531
Cumulative time-adjusted cost over lifetime	892,100	1,385,036	1,838,210	2,255,229	2,638,927	2,991,261	3,315,792

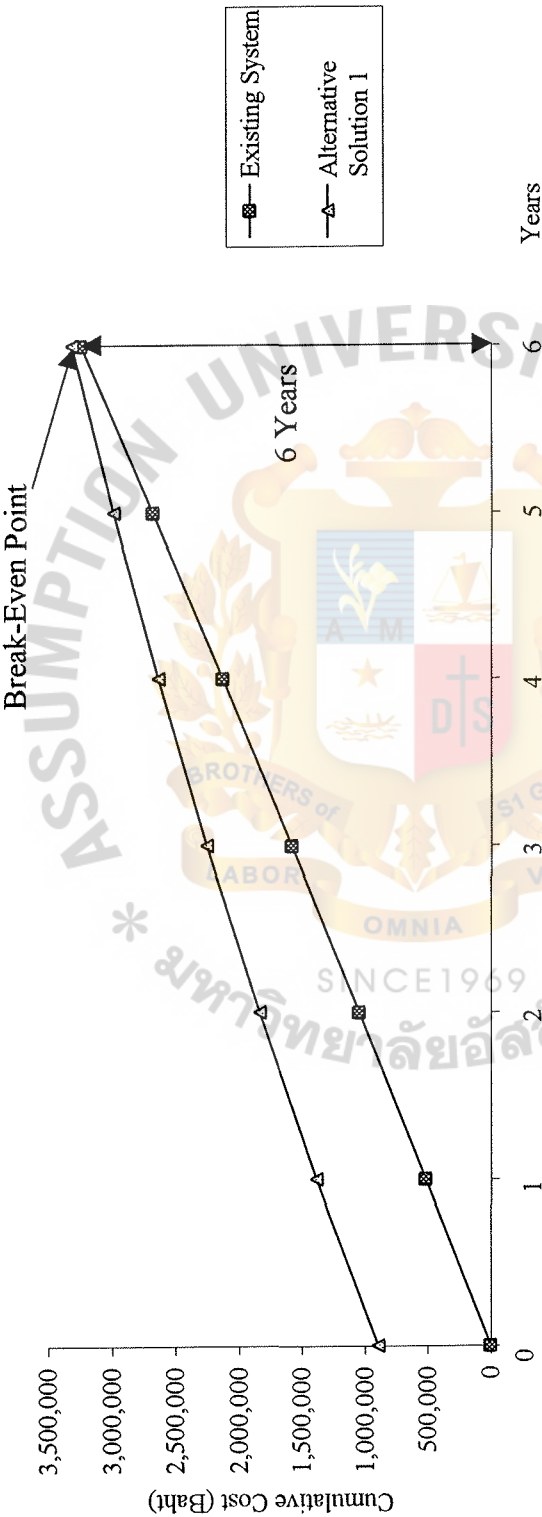


Figure 3.4. Break-Even Point between Existing System and Alternative Solution 1.

Table 3.9. Break-Even Point between Existing System and Alternative Solution 2, in Baht.

Cost Items	Years					
	0	1	2	3	4	5
Existing System:						
Development cost	0					
Operation: Personnel cost		432,000	496,800	571,400	657,200	755,800
Risk cost		150,000	165,000	181,500	199,700	219,700
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	0	519,726	527,455	536,065	544,988	553,109
Cumulative time-adjusted cost over lifetime	0	519,726	1,047,181	1,583,245	2,128,234	2,681,342
Alternative Solution 2:						
Development cost	230,500					
Operation: Maintenance cost		461,000	474,900	489,200	503,900	519,100
Risk cost		0	0	0	0	0
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	230,500	411,673	378,495	348,310	320,480	294,330
Cumulative time-adjusted cost over lifetime	230,500	642,173	1,020,668	1,368,979	1,689,459	1,983,789
						2,254,882

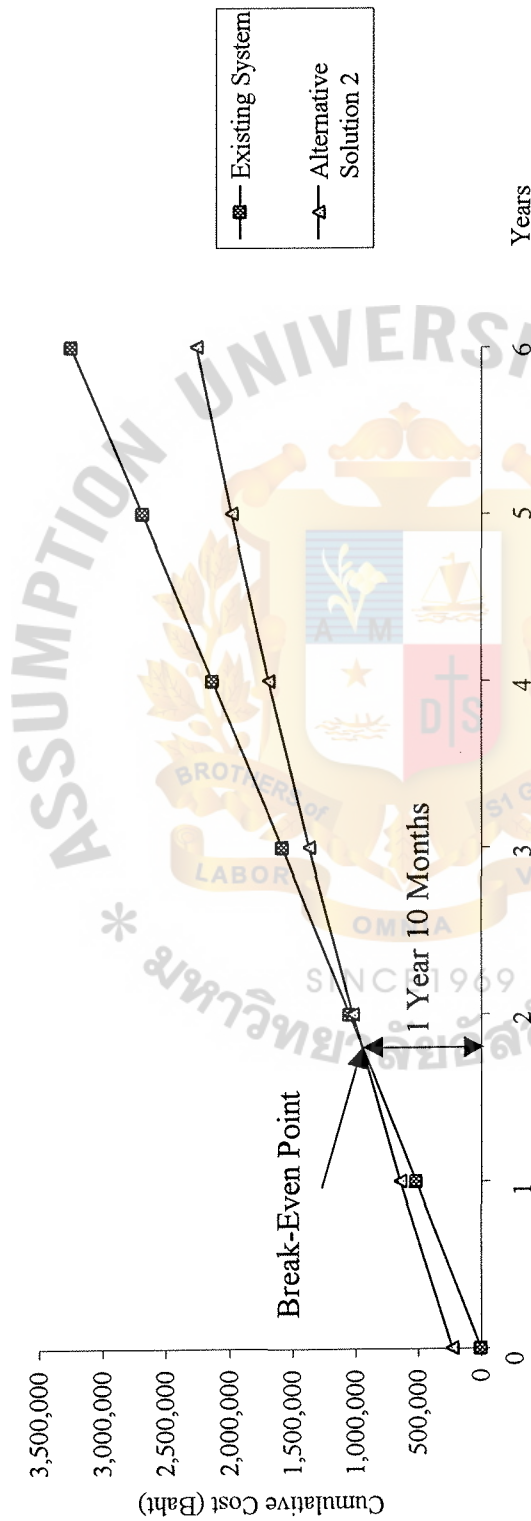


Figure 3.5. Break-Even Point between Existing System and Alternative Solution 2.

Table 3.10. Break-Even Point between Existing System and Alternative Solution 3, in Baht.

Cost Items	Years					
	0	1	2	3	4	5
Existing System:						
Development cost	0					
Operation: Personnel cost		432,000	496,800	571,400	657,200	755,800
Risk cost		150,000	165,000	181,500	199,700	219,700
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	0	519,726	527,455	536,065	544,988	553,109
Cumulative time-adjusted cost over lifetime	0	519,726	1,047,181	1,583,245	2,128,234	2,681,342
Alternative Solution 3:						
Development cost	209,900					
Operation: Maintenance cost		461,000	474,900	489,200	503,900	519,100
Risk cost		0	0	0	0	0
Discount factor for 12%	1.000	0.893	0.797	0.712	0.636	0.567
Time-adjusted cost (adjusted to present value)	209,900	411,673	378,495	348,310	320,480	294,330
Cumulative time-adjusted cost over lifetime	209,900	621,573	1,000,068	1,348,379	1,668,859	1,963,189
						2,234,282

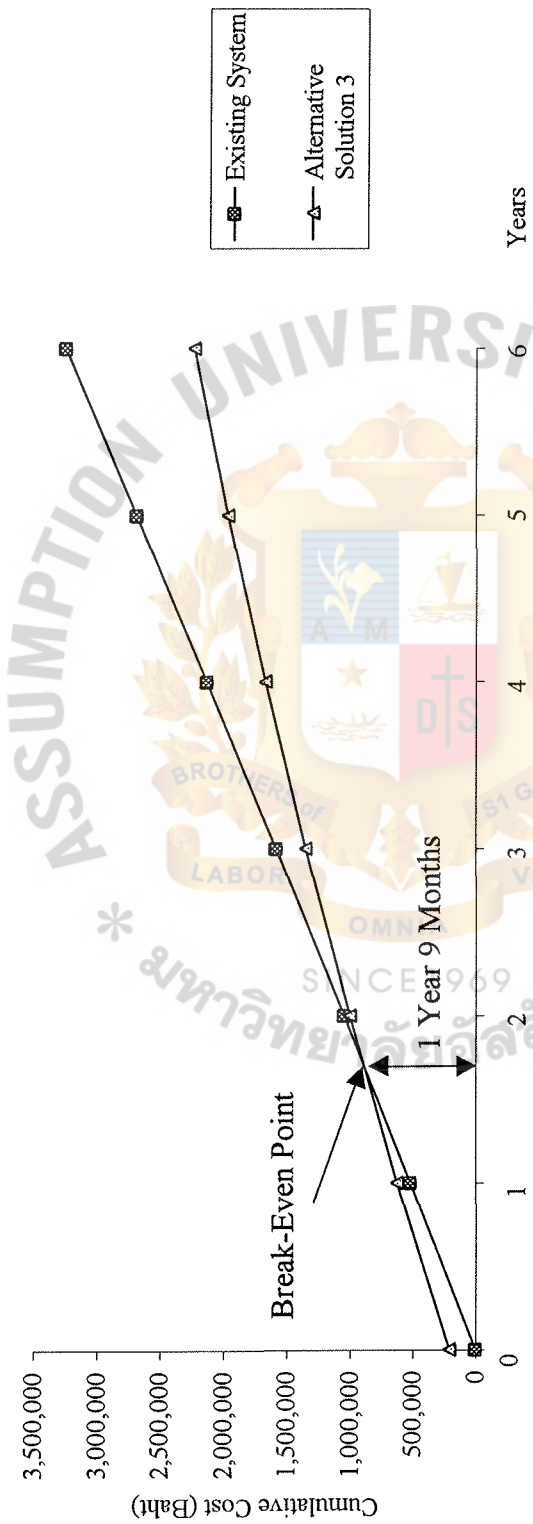


Figure 3.6. Break-Even Point between Existing System and Alternative Solution 3.

Table 3.11. Feasibility Matrix

Feasibility Criteria	Weight	CANDIDATE 1	CANDIDATE 2	CANDIDATE 3
Operational Feasibility	35%	Fully supports user required functionality. Score : 100	Fully supports user required functionality. Score : 100	Only supports calculation processess, cannot automatically evaluate in one click. And customer database must be developed. Score : 60
Technical Feasibility	30%	Because the software belongs to Decision System Corp., USA and there is no distributor in Thailand, the company must be contacted directly for the solution of all problems. This is inconvenient and very expensive. Score : 75	MS Visual Basic 6.0 is the most productive tool for creating high performance application, and web-based application, which the company may need in the future. Access 2000 provides powerful tools that help user organize the database and easy to get needed information. Score : 100	Although current marketing staff is comfortable with VBA in Excel, management is concerned with the time spent for each evaluation. Even though this solution shows the evaluation time to be less than that of the existing system, it's still not acceptable. Score : 85
Economic Feasibility Cost to develop: Payback period: Net Present Value: Detailed calculation:	25%	Approx. 892,100.- Baht. Approx. 5.9 years. Approx. 25,640.- Baht. See Page 19. Score : 60	Approx. 230,500.- Baht. Approx. 1.8 years. Approx. 734,437.- Baht. See Page 20. Score : 90	Approx. 209,900.- Baht. Approx. 1.7 years. Approx. 1,107,150.- Baht. See Page 21. Score : 100
Schedule Feasibility	10%	Less than 3 months. Score : 100	3 months Score : 90	Less than 3 months. Score : 100
Ranking	100%	83.8	95.0	86.3

After studying the current problems, the areas for improvement and the user requirements, the proposed system is designed. The context diagram is rewritten as shown in Figure 3.7 and the processes of work is redesigned details as follows:

Process 1.0 Evaluate Finance (see Figure 3.8)

Description: Add new or maintain customer's details, calculate financial ratios and analyze.

Input Flows: Lease Application, Customer History

Output Flows: Analyzed Information, Customer Financial Data, Customer Information

Process 1.1 Input Financial Details (see Figure 3.9)

Description: Input or update customer's balance sheet Figures and income statement Figures.

Input Flows: Lease Application, Customer History

Output Flows: Customer Financial Data

Process 1.1.1 Input Balance Sheet Details (see Figure 3.10)

Description: Input or update customer's balance sheet Figures.

Input Flows: Lease Application, Customer History

Output Flows: Customer Financial Data

Process 1.1.2 Input Income Statement Details (see Figure 3.10)

Description: Input or update customer's income statement Figures.

Process 1.2 Calculate and Compare (see Figure 3.9.)

Description: Calculate financial ratios, compare balance sheet, compare income statement, and compare financial ratios.

Input Flows: Customer Financial Data

Output Flows: Compared Financial Ratios and Data

Process 1.2.1 Calculate Financial Ratios (see Figure 3.11)

Description: Calculate the finance ratios based on the Figures from balance sheet and income statement.

Input Flows: Customer Financial Data

Output Flows: Financial Ratios

Process 1.2.2 Compare Financial Ratios (see Figure 3.11)

Description: Compare three years financial ratios to see the trend.

Input Flows: Customer Financial Data

Output Flows: Financial Ratios

Process 1.2.3 Compare Balance Sheet (see Figure 3.11)

Description: Compare three years highlight Figures from balance sheet.

Input Flows: Customer Financial Data

Output Flows: Compared Balance Sheet

Process 1.2.4 Compare Income Statement (see Figure 3.11)

Description: Compare three years highlights income Figures from income statement.

Output Flows: Compared Income Statement

Process 1.3 Analyze (see Figure 3.9)

Description: Compare customer's ratios and Figures with parameters, then analyze customer's potential and suggest the interest rate.

Input Flows: Compared Financial Ratios and Data

Output Flows: Analyzed Information, Customer Financial Data

Process 2.0 Issue Indicative Quotation (see Figure 3.8)

Description: Add new or maintain Quotation records, calculate IRR and Repayment, and print (issue) Quotation.

Input Flows: Accepted Lease Application

Output Flows: Indicative Quotation

Process 2.1 IRR Calculation (see Figure 3.12)

Description: Calculate tax burden on leasing to get an IRR

Input Flows: Accepted Lease Application

Output Flows: IRR

Process 2.2 Repayment Schedule Calculation (see Figure 3.12)

Description: Calculate repayment schedule for the specified IRR.

Input Flows: IRR

Process 2.3 Print Quotation (see Figure 3.12)

Description: Print (issue) quotation to the customer.

Input Flows: Quoted Rate

Output Flows: Indicative Quotation

Process 3.0 Issue Application for Approval (see Figure 3.8)

Description: Add new or maintain Application records, print (issue) Application for Approval.

Input Flows: Indicative Quotation, Customer Acceptance

Output Flows: Application for Approval

Process 4.0 Issue Drawdown Memorandum (see Figure 3.8)

Description: Add new or maintain Drawdown records, print (issue) Drawdown Memorandum.



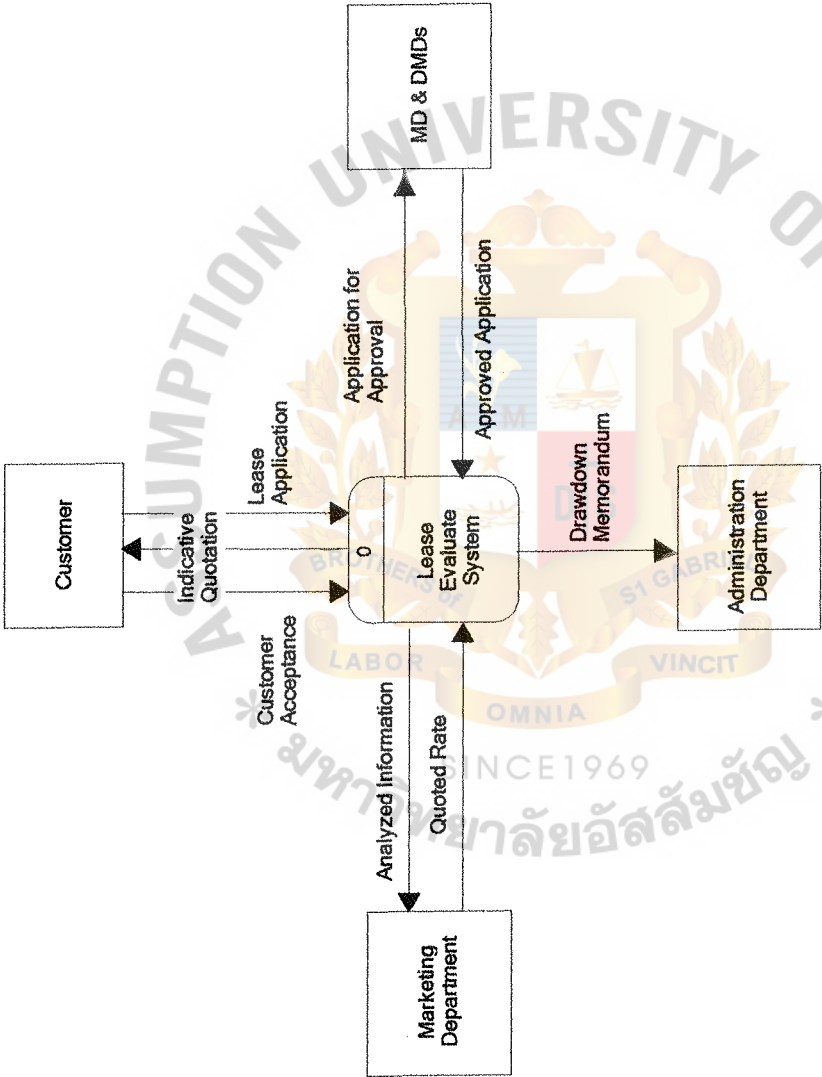


Figure 3.7. Context Diagram of Proposed System.

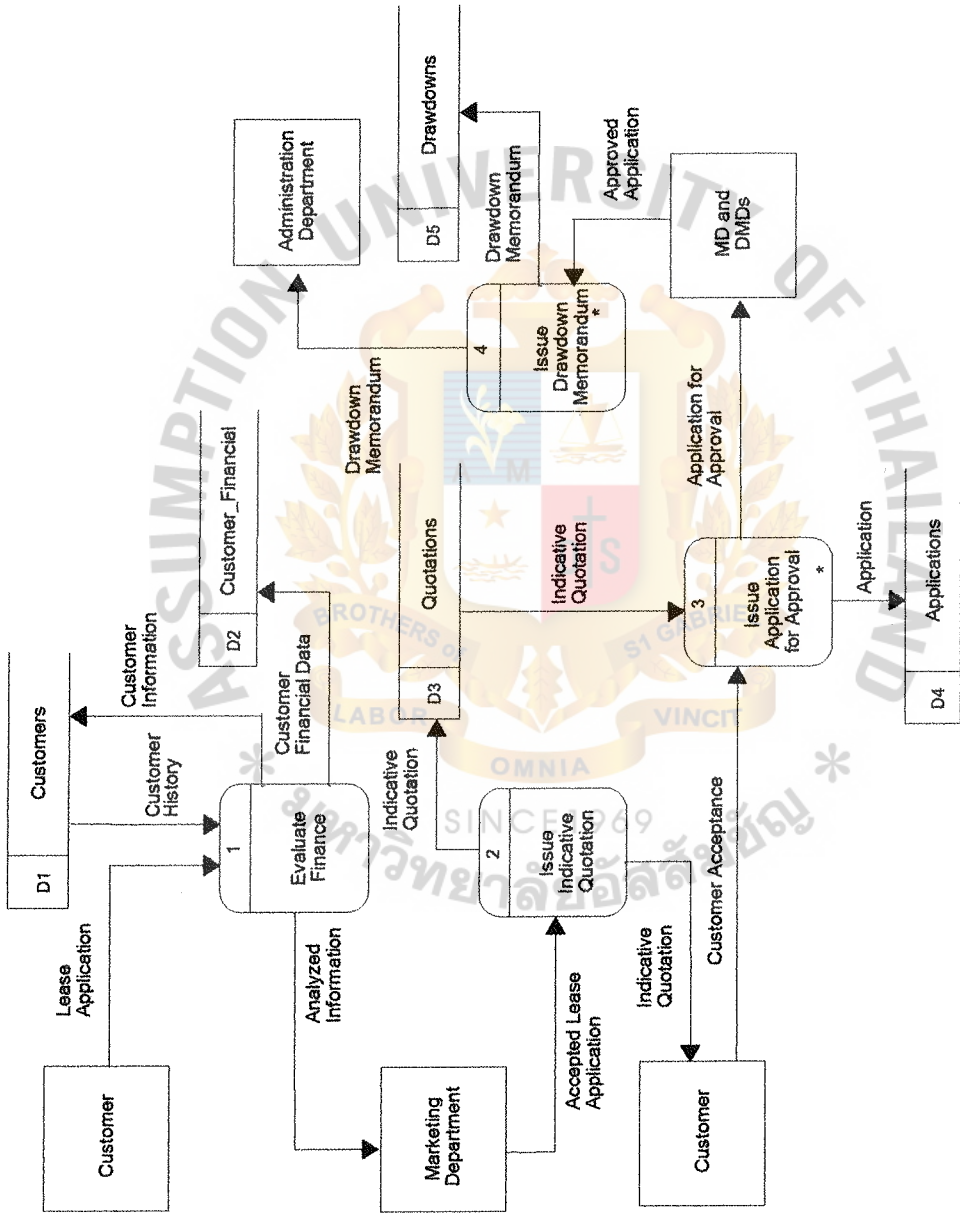


Figure 3.8. Data Flow Diagram Level 0 of Proposed System.

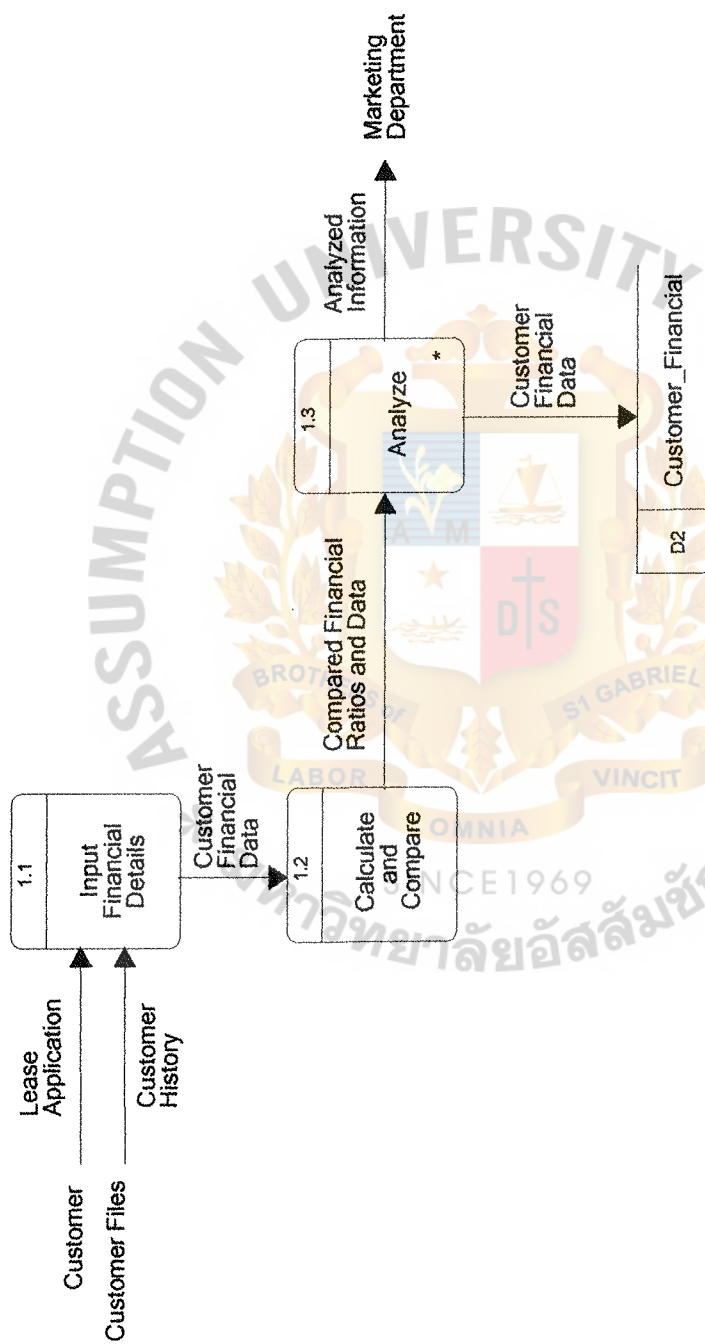


Figure 3.9. Data Flow Diagram Level 1 of Process 1.0 of Proposed System.

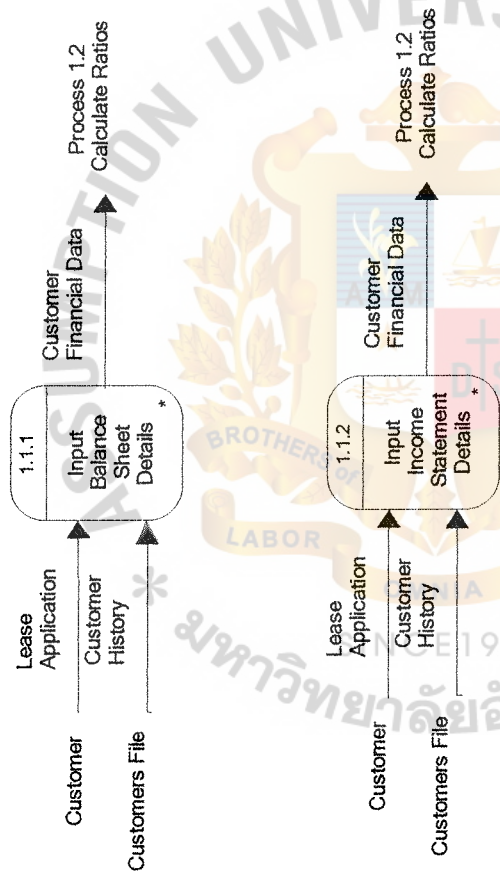


Figure 3.10. Data Flow Diagram Level 2 of Process 1.1 of Proposed System.

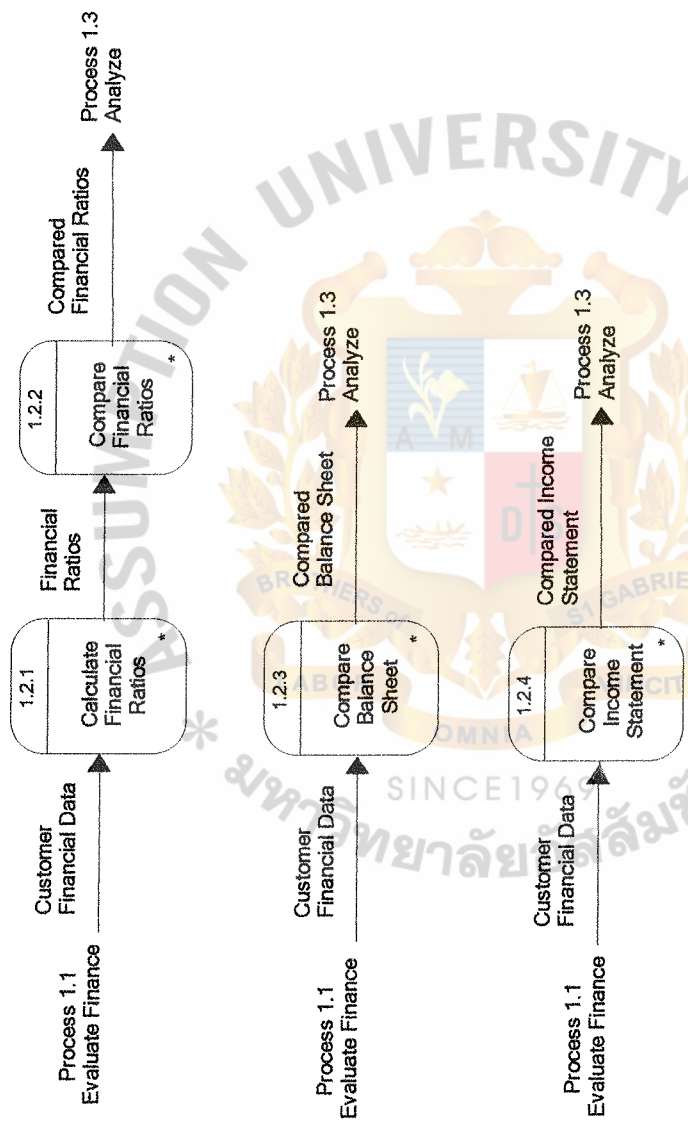


Figure 3.11. Data Flow Diagram Level 2 of Process 1.2 of Proposed System.

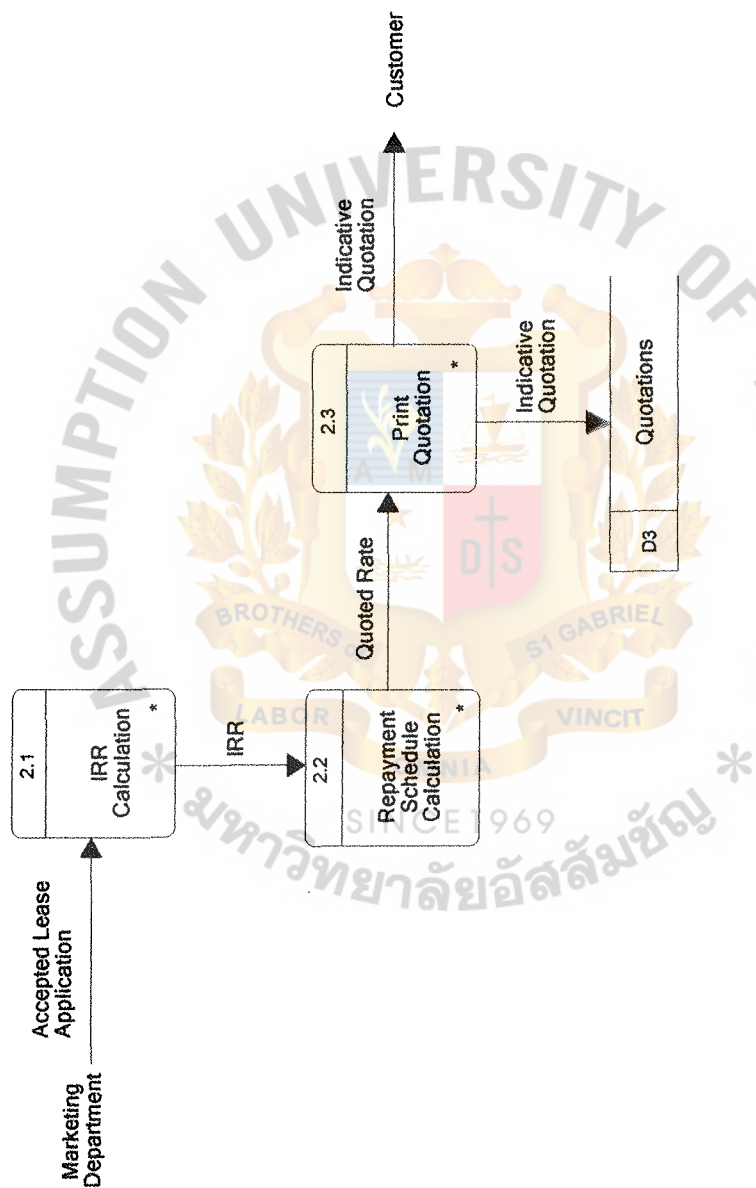


Figure 3.12. Data Flow Diagram Level 1 of Process 2.0 of Proposed System.

3.2.5 Database Design

The database of the proposed system is created using Microsoft Access. The designed database consists of seven Tables: Customer, Balance Sheet, Income Statement, Quotation, Application, Drawdown, and Marketing (see Figure 3.13).

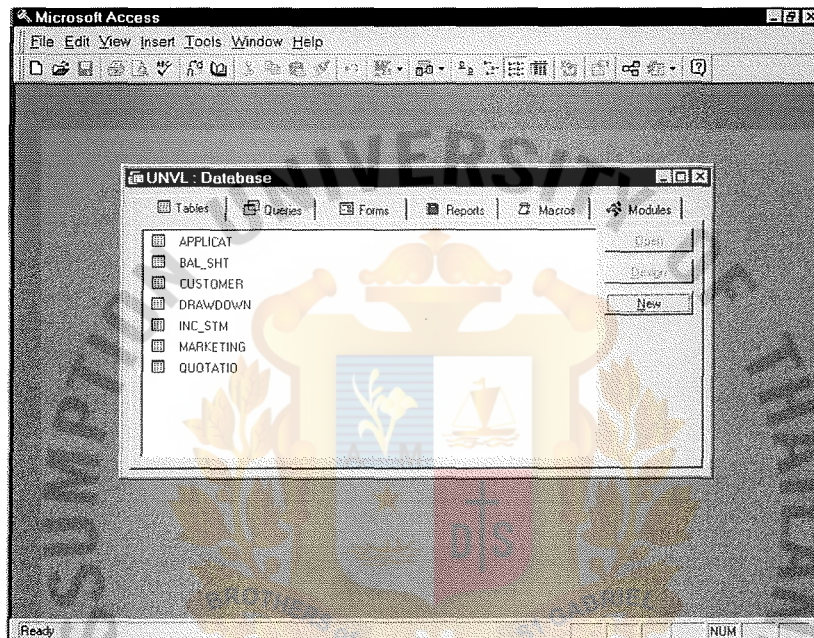


Figure 3.13. Designed Database of Proposed System.

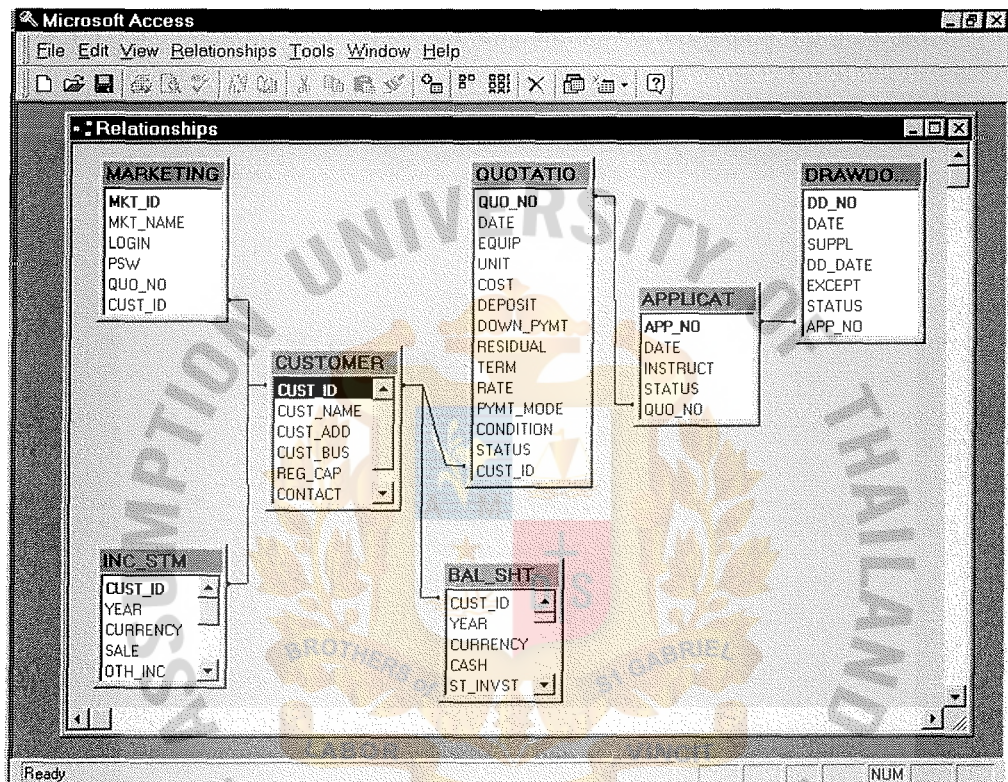


Figure 3.14. Relationships of Tables in Designed Database.

CUSTOMER TABLE - keeps general details of the customer.

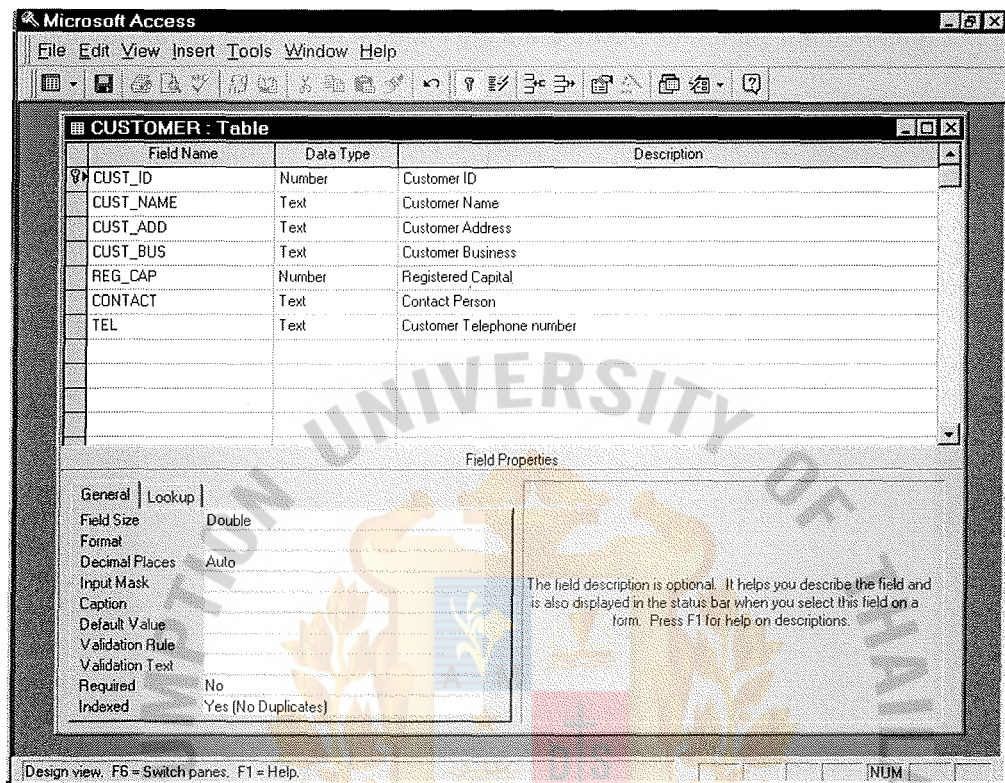


Figure 3.15. Designed Fields for Customer Table.

QUOTATION TABLE - keeps details of Customers' Quotations.

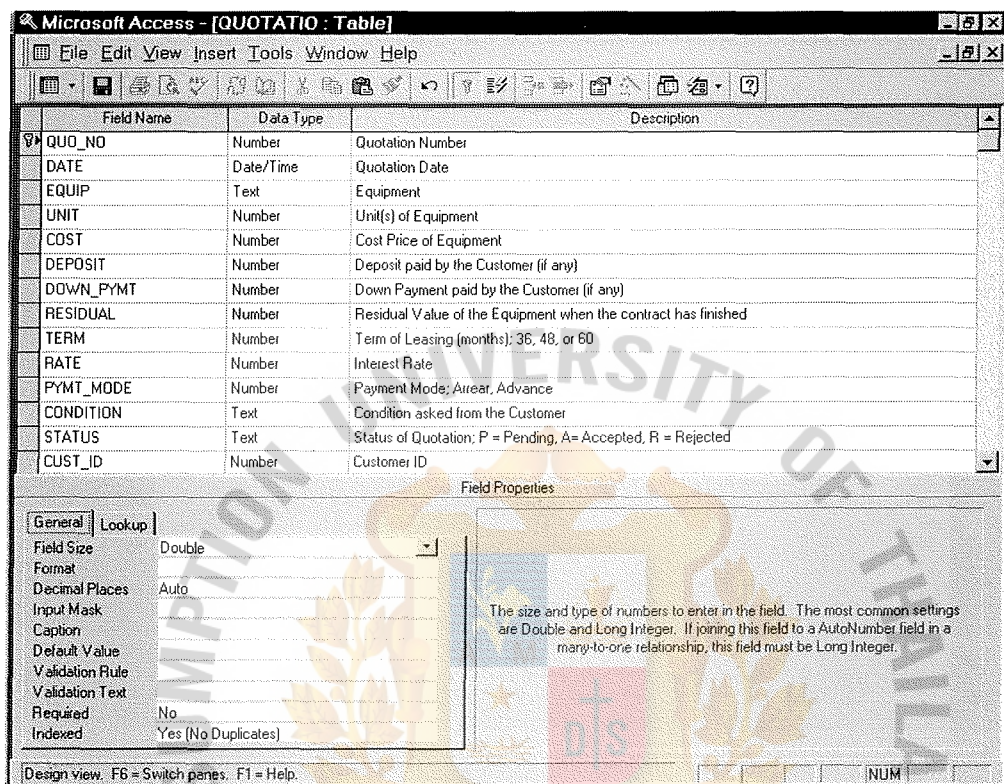


Figure 3.16. Designed Fields for Quotation Table.

APPLICATION TABLE - keeps details of the Application for Approval

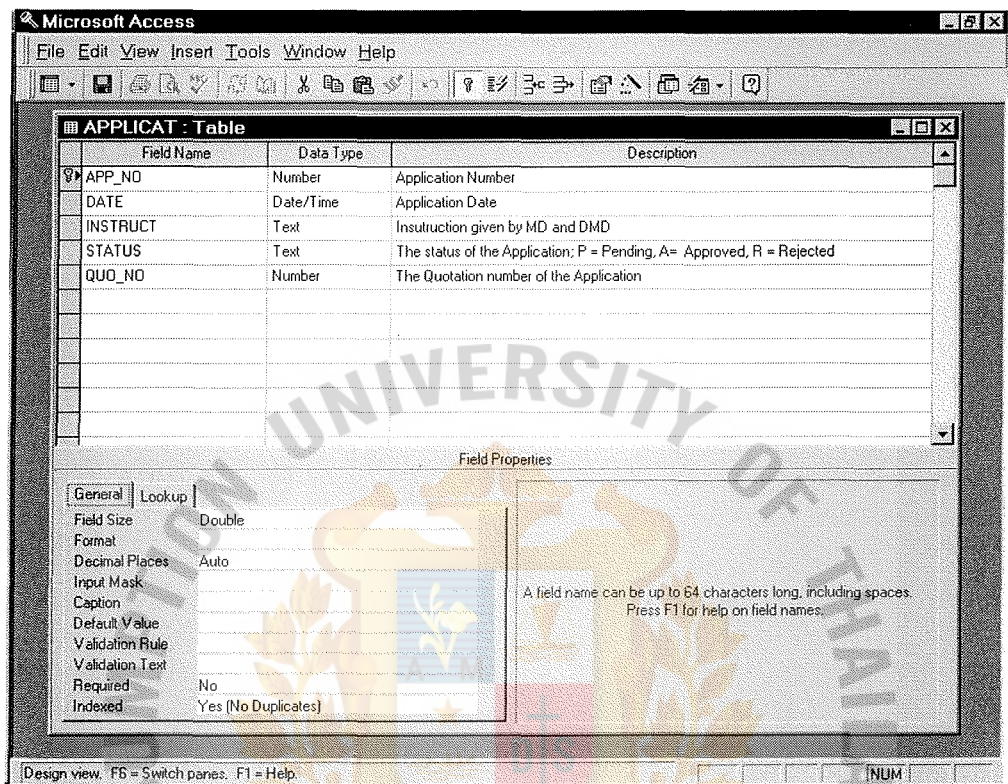


Figure 3.17. LA Designed Fields for Application Table.

DRAWDOWN TABLE - keeps details of the Drawdown Memorandum.

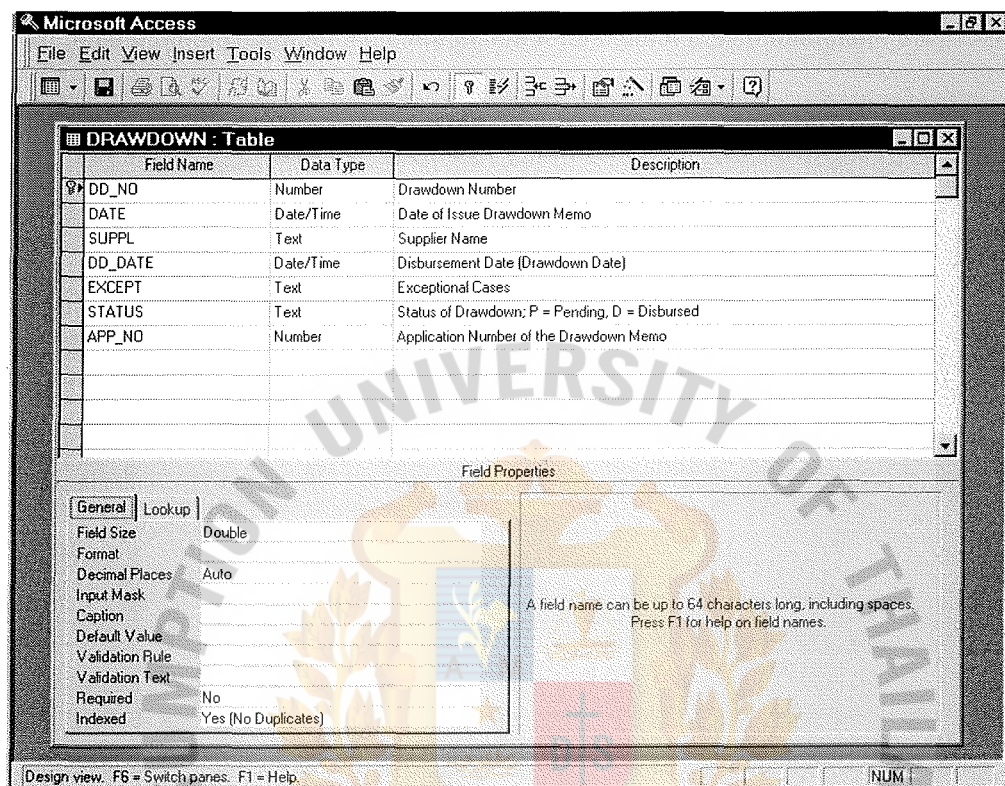


Figure 3.18. LA Designed Fields for Drawdown Table.

BALANCE SHEET TABLE - keeps Customers' Balance Sheet Figures.

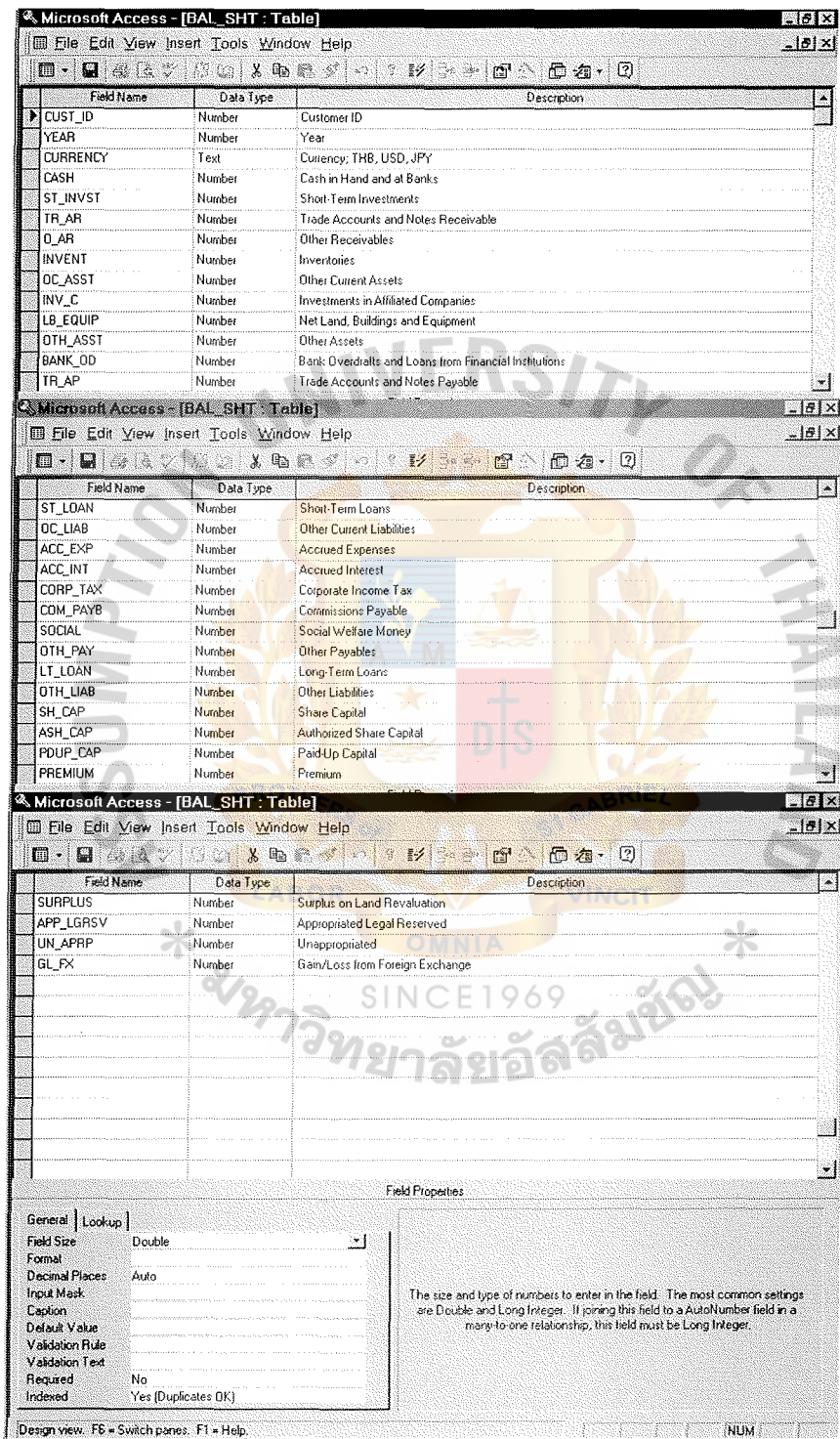


Figure 3.19. Designed Fields for Balance Sheet Table.

INCOME STATEMENT TABLE - keeps Customers' Income Statement Figures.

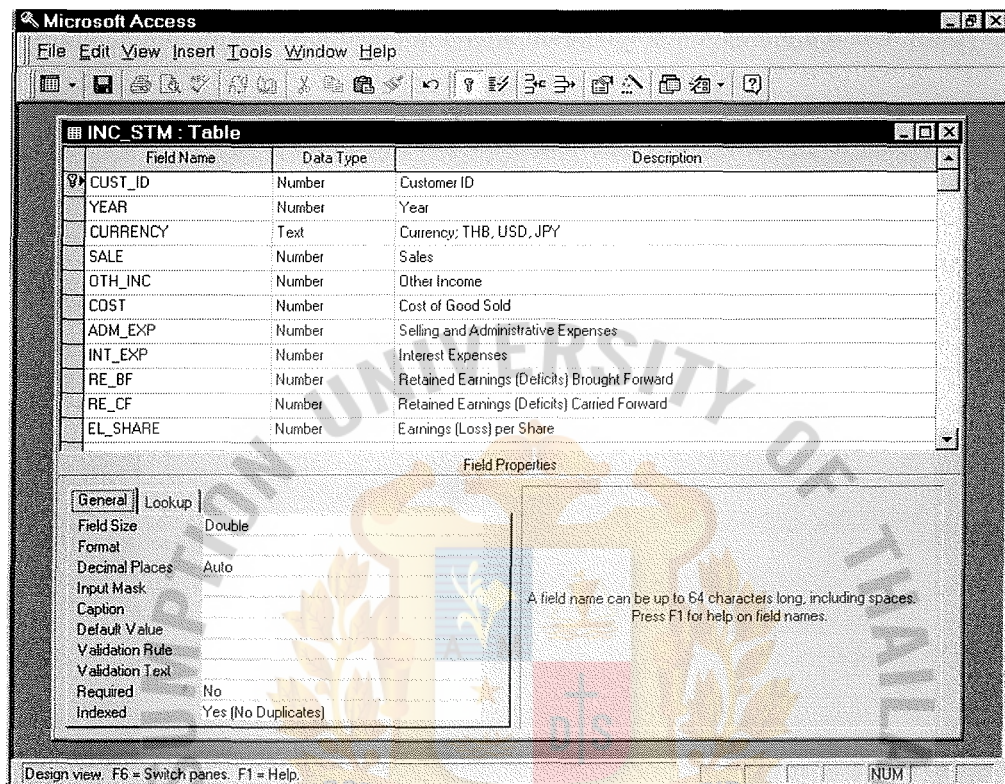


Figure 3.20. Designed Fields for Income Statement Table.

MARKETING TABLE - keeps details of Marketing staff.

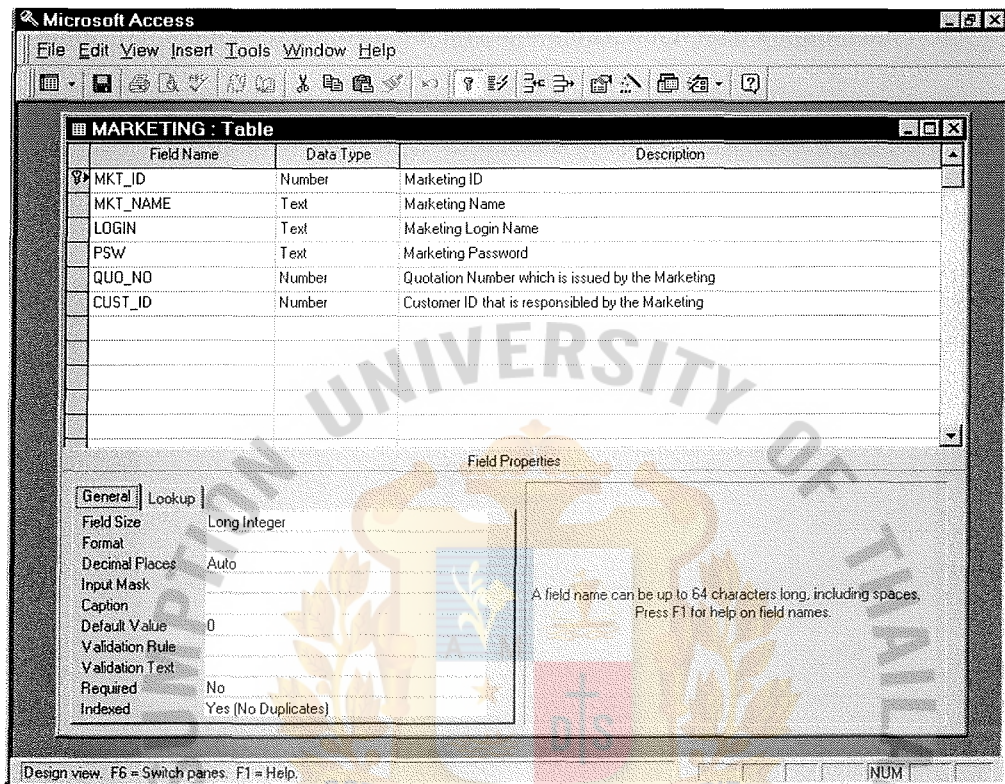


Figure 3.21. Designed Fields of Marketing Table.

3.2.6 Inputs and Outputs Design

(1) Input Design

The Lease Evaluate System has four main input screens: Customer, Quotation, Application, and Drawdown.

The main inputs use the Customer screen (Figure 3.22) as this is the first screen to keep all customer details both general information and financial information.

There are two more input screens that need to be accessed via the Customer Maintenance Screen; via the Balance Sheet and the Income Statement (Figure 3.23, Figure 3.24, Figure 3.25, and Figure 3.26 respectively).

Another important screen is the Quotation screen (Figure 3.27) as it contains all the details of the lease applications that are needed for Application and Drawdown.

The last two main input screens are the Application screen (Figure 3.28) and the Drawdown screen (Figure 3.29).

The following are the designed input screens for Lease Evaluate System:

Lease Evaluation System - Customer

Customer Maintenance

Customer Details

Customer ID

5

Quotation

Name

WORLD EQUIPMENT CO., LTD.

Address

53/38 MOO7, SOI PRACHA U-THIT,
NONTHABURI 1 RD., T.BANGKRASOR, A.

Business

MFG. OF HEAVY EQUIPMENT

Registered Capital

440

THB Million

Contact Person

ANGKANA, MS.

Tel No.

237-7657

Customer

Financial Details

Balance Sheet

Income Statement

Analyze

Print

Searching

Customer Name

WORLD EQUIPMENT

Search

New

Save

Help

Close

Customer History

Quotation

Application

Drawdown Memo

Figure 3.22. Input Screen: Customer Maintenance.

58

Page 1/3

Currency
☒ THB ☐ USD ☐ JPY

Balance Sheet

Unit: Thousand

	Year	1998	Year	1997	Year	
Assets						
Current Assets						
Cash in Hand and at Banks		31,054.43		22,590.84		
Short-Term Investments		3,621.85		15,000.00		
Trade Accounts and Notes Receivable		138,567.35		69,668.35		
Other Receivables		23,064.31		15,204.50		
Inventories		40,708.36		29,415.88		
Other Current Assets		43,021.70		74,726.99		
Total Current Assets		280,038.00		226,606.56		
Investments in Affiliated Companies		40,404.91		148,079.64		
Net Land, Buildings and Equipment		1,323,729.37		1,187,220.23		
Other Assets		245,341.91		99,161.77		
Total Assets		1,889,514.20		1,661,068.21		

Figure 3.23. Input Screen: Balance Sheet (page 1/3).

Liabilities

Current Liabilities

Page 2/3

	Year	1998	Year	1997	Year	
Bank Overdrafts and Loans from Financial Institutions		161,758.81		194,468.86		
Trade Accounts and Notes Payable		182,707.46		242,636.23		
Short-Term Loans		41,500.00		24,068.25		
Other Current Liabilities		247,358.18		68,627.11		
Accrued Expenses		116,592.19		38,627.11		
Accrued Interest		31,968.19		10,653.20		
Corporate Income Tax						
Commissions Payable						
Social Welfare Money						
Other Payables				173,775.79		
Total Other Current Liabilities		100,006.05		68,627.11		
Total Current Liabilities		681,890.87		752,857.13		
Long Term Loans		109,321.93		188,878.22		
Other Liabilities		20,154.42		17,962.00		
Total Liabilities		10,111,367.23		959,697.35		

Figure 3.24. Input Screen: Balance Sheet (page 2/3).

Page 3/3

Shareholders' Equity

Share Capital

Authorized Share Capital

Issued and Paid-Up Share Capital

Premium on Share Capital

Surplus on Land Revaluation

Appropriated - Legal Reserve

Unappropriated

Gain (Loss) from the Change of Foreign Currency

Total Shareholders' Equity

Shareholders' Equity

Total Liabilities and

Year	1998	1997	Year
	440,000.00	440,000.00	
	440,000.00	440,000.00	
	419,630.23	419,630.23	
	22,349.25		
	(3,832.53)	(158,259.37)	
	878,146.96	701,370.86	
	1,889,514.19	1,661,068.21	

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Figure 3.25. Input Screen: Balance Sheet (page 3/3).

Currency

THB

USD

JPY

Page 1/1

Income Statement

Unit: Thousand

	Year	1998	Year	1997	Year	
Revenues						
Sales		2,023,824.69		961,784.02		
Other Income		20,157.01		11,919.15		
Total Revenues		2,043,981.67		973,703.17		
Expenses						
Cost of Goods Sold						
Selling and Administrative Expenses		1,755,071.40		831,268.29		
Interest Expenses		119,160.31		107,668.83		
Total Expenses		1,874,231.71		938,937.12		
Net Profit (Loss)		169,749.96		34,766.04		
Retained Earnings (Deficits) B/F		(147,400.71)		(193,025.41)		
Retained Earnings (Deficits) C/F		22,349.25		(158,259.37)		
Earnings (Loss) per Share		3.86		0.96		

Figure 3.26. Input Screen: Income Statement.

Lease Evaluation System - Quotation

Quotation Maintenance

Quotation Details

Quotation No.
Status ☒ Pending ☐ Accepted ☐ Rejected

Date

Customer Name

Equipment

Unit(s)
Application

Searching
Customer Name:

Lease Details

Cost Price	<input type="text" value="\$3,800,000.00"/>	THB	Payment	<input checked="" type="radio"/> Arrear <input type="radio"/> Advance	Term	<input type="radio"/> 36 M <input type="radio"/> 48 M <input checked="" type="radio"/> 60 M	P/YR	<input checked="" type="radio"/> 12 <input type="radio"/> 6 <input type="radio"/> 3
Security Deposit	<input type="text" value="\$0.00"/>	THB						
Down Payment	<input type="text" value="\$800,000.00"/>	THB						
Finance Amount	<input type="text" value="\$3,000,000.00"/>	THB						
Residual Value	<input type="text" value="\$380,000.00"/>	THB	Rate (%)	<input type="text" value="12.50"/>			Monthly Payment	<input type="text" value="\$62,902.93"/>
	<input type="text" value="10.00"/>	% of Cost Price						
Special Conditions	<input type="text" value="Buy back guarantee by Directors"/>							

Figure 3.27. Input Screen: Quotation Maintenance.

Lease Evaluating System - Application

Application Maintenance

Application Details

Application No. Date

Quotation No. Customer ID

Name

Equipment Unit(s)

Status

☒ Pending ☐ Approved ☐ Rejected

Searching

Customer Name :

Lease Details

Payment Mode	Arrear	Term	36	P/YR	12	Rate (%)	12.50
Cost Price			฿3,800,000.00	THB			
Security Deposit			฿0.00	THB			
Down Payment			฿800,000.00	THB			
Finance Amount			฿3,000,000.00	THB			
Residual Value			฿380,000	THB			
			10.00 % of Cost Price				
Monthly Payment			฿62,902.93				

Special Conditions

Comments or Instructions

Figure 3.28. Input Screen: Application Maintenance.

Lease Evaluating System - Drawdown

Drawdown Maintenance

Drawdown Details

Date
3/3/97
Status
☒ Pending
☐ Disbursed

Drawdown

Drawdown No.
4

Application No.
2
Customer ID
5

Name
WORLD EQUIPMENT CO., LTD.

Finance Amount
3,000,000.00
THB

Equipment
HINO TRUCK
1 Unit(s)

Supplier Name
KIJ KAMOL SUKOSOL CO., LTD.

Date of Disbursement to Supplier (Drawdown Date)
30/3/1997

Searching

Customer Name :

Search

Exceptional Transaction(s)

The equipment will be delivered before drawdown.

Print

New
Save
Help
Close

Figure 3.29. Input Screen: Drawdown Maintenance.

(2) Output Design

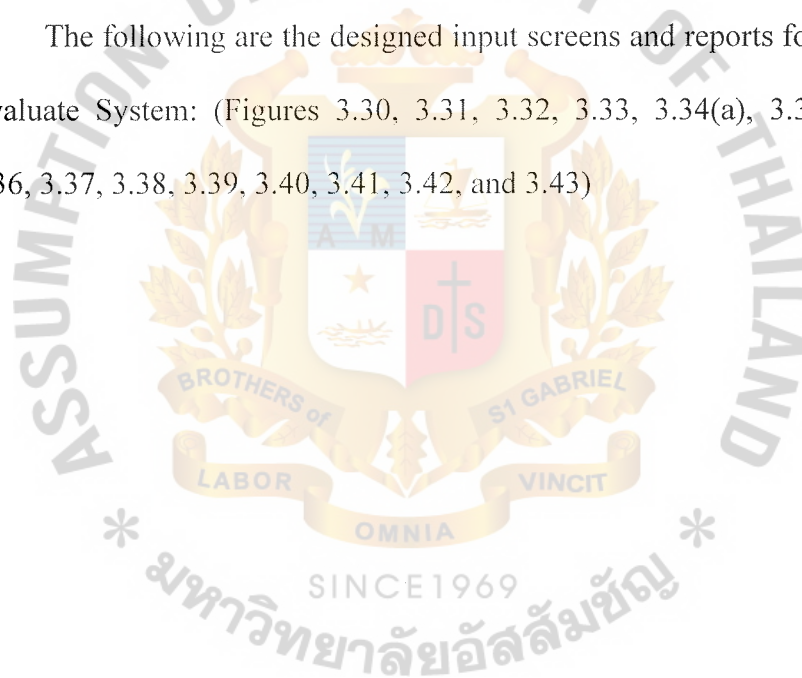
The Lease Evaluate System is designed to have several screens for output, the response screen, screens of the preview reports, and the printout reports.

Response screen - the screen response for user selection for preview history, searching, calculation, and evaluation.

Preview Report screen - the preview of the selected report.

Report - the printouts report responses for the selection of printing the Quotation, Application or Drawdown Memorandum.

The following are the designed input screens and reports for the Lease Evaluate System: (Figures 3.30, 3.31, 3.32, 3.33, 3.34(a), 3.34(b), 3.35, 3.36, 3.37, 3.38, 3.39, 3.40, 3.41, 3.42, and 3.43)



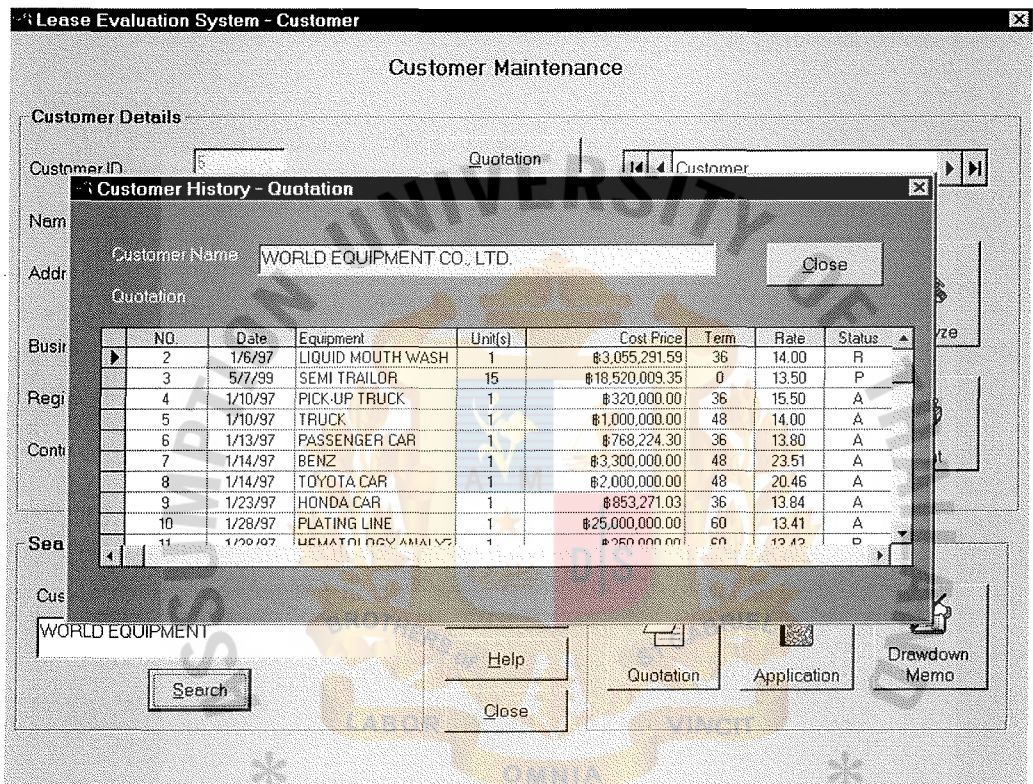


Figure 3.30. Response Screen: Customer History – Quotation.

Lease Evaluation System - Quotation

Quotation Maintenance

Quotation Details

Quotation No.

Customer Name

Equipment

1

Lease Details

Cost Price

Security Deposit

Down Payment

Finance Amount

Residual Value

Special Conditions

Status

☒ Pending
☐ Accepted
☐ Rejected

Date
1/13/97

Searching Quotation

Customer
5

WORLD EQUIPMENT CO., LTD.

Quotation

Customer

QUO_NO	DATE	EQUIP	UNIT
1	1/6/97	LIQUID MOUTH WASH	1
2	1/6/97	LIQUID MOUTH WASH	1
3	5/7/99	SEMI TRAILER	15
4	1/10/97	PICK-UP TRUCK	1
5	1/10/97	TRUCK	1
6	1/13/97	HINO TRUCK	1
7	1/14/97	BENZ	1
8	1/14/97	TOYOTA CAR	1
9	1/23/97	HONDA CAR	1

Close

Buy back guarantee by Directors

Print

IRR Calculation

Repayment Schedule

New

Save

Help

Close

Figure 3.31. Response Screen: Searching Quotation.

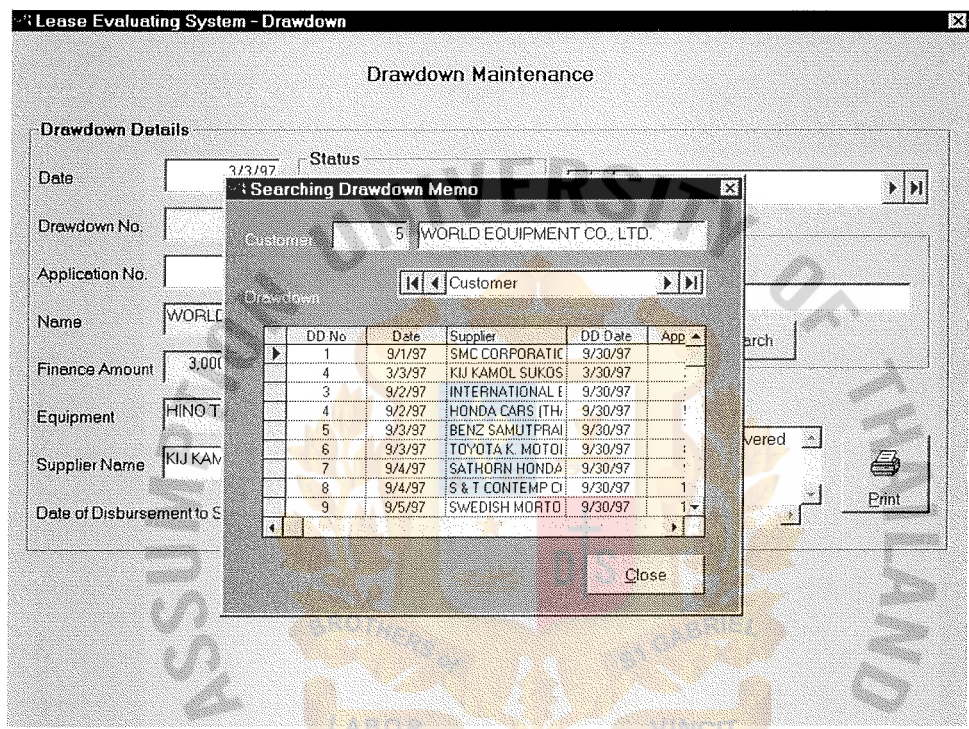


Figure 3.33. Response Screen: Searching Drawdown.

Lease Evaluating System - IRR Calculation

EditViewInsertFormatToolsDataHelp

IRR CALCULATION FOR LEASING

Asset : HINO TRUCK

PYR12

MODEEND

Cost price : 3,800,000.00 Baht

Net financed amount (PV): 3,000,000.00 Baht

Security deposit : 800,000.00 Baht

Rental : 62,902.93

Residual value (FV) : 380,000.00 10%

Term (N): 60 installments

Interest rate (%/YR) : 12.50%

Depreciation : 760,000.00 Equipment

5 YEAR LEASING

YEAR	FINANCE PROFIT	OPERATING PROFIT	PROFIT DIFFERENCE	TAX DIFFERENCE
1	352,465.00	-5,164.82	357,629.82	107,288.95
2	299,184.73	-5,164.82	304,349.55	91,304.87
3	238,849.30	-5,164.82	244,014.12	73,204.24
4	170,524.49	-5,164.82	175,689.31	52,706.79
5	93,152.38	1,174,835.18	-1,081,682.80	-324,504.84

Lease Evaluating System - IRR Calculation

EditViewInsertFormatToolsDataHelp

TOTAL	1,154,175.89	1,154,175.89	0.00	0.00
-------	--------------	--------------	------	------

CALCULATOR	AMOUNT	#TIMES	FLOW
Flow 0	-3,000,000.00	-	F0
Flow 1	62,902.93	11	F01 - F11
Flow 2	170,191.88	1	F12
Flow 3	62,902.93	11	F13 - F23
Flow 4	154,207.80	1	F24
Flow 5	62,902.93	11	F25 - F35
Flow 6	136,107.17	1	F36
Flow 7	62,902.93	11	F37 - F47
Flow 8	115,609.72	1	F48
Flow 9	62,902.93	11	F49 - F59
Flow 10	118,398.09	1	F60

IRR % => 13.581%

TAX BURDEN => -1.081%

Figure 3.34. Response Screen: IRR Calculation.

71

Lease Evaluating System - Repayment Schedule

Edit View Insert Format Tools Data Help

REPAYMENT SCHEDULE FOR LEASING

PAYR 12 N 60 RV 10% MODE END Print Exit

No. of Installments : 60 Down Payment : 800,000.00 Agreement Number :
Interest Rate Fixed : 12.50% Security Deposit : Name of Customer : World Equipment C
Cost of Equipment : 3,800,000.00 Financing Amount : 3,000,000.00 Name of Supplier :
Residual Value : 380,000.00 Rental Amount : 62,902.93 Equipment : Hino Truck
Total Interest : 1,154,175.89

5 YEAR LEASING

No.	PMT	PRINCIPAL	INTEREST	O/S PRINCIPAL	O/S INTEREST
				3,000,000.00	1,154,175.89
1	62,902.93	31,652.93	31,250.00	2,968,347.07	1,122,925.89
2	62,902.93	31,982.65	30,920.28	2,936,364.42	1,092,005.61
3	62,902.93	32,315.80	30,587.13	2,904,048.62	1,061,418.48
4	62,902.93	32,652.43	30,250.51	2,871,396.19	1,031,167.97
5	62,902.93	32,992.55	29,910.38	2,838,403.64	1,001,257.59
6	62,902.93	33,336.23	29,566.70	2,805,067.41	971,690.89
7	62,902.93	33,683.48	29,219.45	2,771,383.93	942,471.44
8	62,902.93	34,034.35	28,868.58	2,737,349.58	913,602.85
9	62,902.93	34,388.67	28,514.06	2,702,960.71	885,088.80
10	62,902.93	34,747.09	28,155.84	2,668,213.62	856,932.96
11	62,902.93	35,109.04	27,793.89	2,633,104.58	829,139.06
12	62,902.93	35,474.76	27,428.17	2,597,629.82	801,710.89
13	62,902.93	35,844.29	27,058.64	2,561,785.53	774,652.25
14	62,902.93	36,217.67	26,685.27	2,525,567.87	747,966.98
15	62,902.93	36,594.93	26,308.00	2,488,972.93	721,658.98

Figure 3.35. Response Screen: Repayment Schedule Calculation.

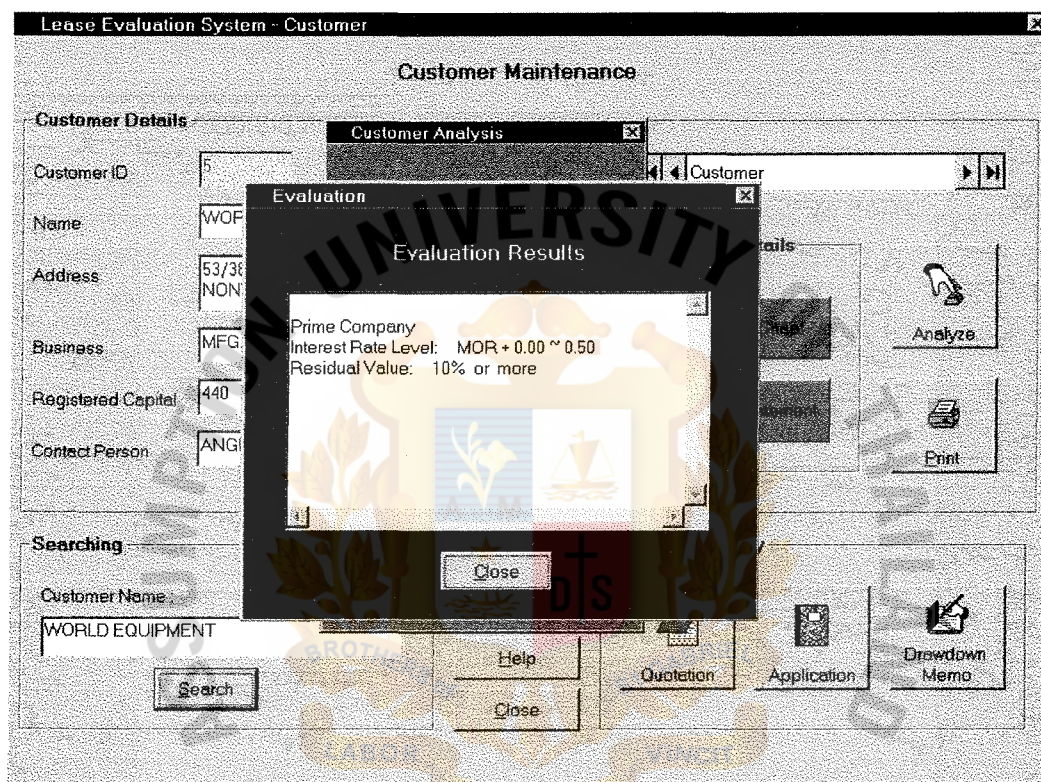


Figure 3.36. Response Screen: Evaluation.

UNVL - Customer (DataReport)
Zoom: 100%

Page: 1/5
CUSTOMER REPORT
Date: 05/02/43

Customer: WORLD EQUIPMENT CO.,
Drawdown Date: 30 September 1997

Quotation# 1
Application# 1
Drawdown# 1

Equipment: LIQUID MOUTH WASH MAC
Unit(s) 1
Supplier: SMC CORPORATION

Cost Price: 2,365,269.16
Down Payment 0.00

Deposit: 0.00
RV: 591,317.29

Term: 36 months
Rate (%) : 14.00
Customer# 1

Customer: WORLD EQUIPMENT CO.,
Drawdown Date: 30 September 1997

Quotation# 17
Application# 20
Drawdown# 17

Equipment: TOYOTA CAMRY
Unit(s) 4
Supplier: HONDA CARS

Cost Price: 1,476,727.27
Down Payment 0.00

Deposit: 0.00
RV: 295,345.45

Term: 48 months
Rate (%) : 19.00
Customer# 1

Pages: 1/5

Figure 3.37. Preview Report Screen: Customer Report.

UNVL - Quotation (DataReport)

Zoom 100%

Page: 1/1 Quotation Report Date: 05/02/43

Quo#	Date	Customer	Equipment	Unit(s)	Cost Price	*
1	06/01/1997	WORLD EQUIPMENT CO.,	LIQUID MOUTH WASH	1	2,365,269.16	A
17	04/02/1997	WORLD EQUIPMENT CO.,	TOYOTA CAMRY	4	1,476,727.27	A
4	10/01/1997	DISTAR CHAIN CO., LTD.	PICK-UP TRUCK	1	320,000.00	A
5	10/01/1997	HAKUHODO (BANGKOK) CO.,	TRUCK	1	1,000,000.00	A
18	26/03/1997	HAKUHODO (BANGKOK) CO.,	TOYOTA CORONA	1	754,545.45	A
6	13/01/1997	HITACHI CONSUMER	PASSENGER CAR	1	768,224.30	A
28	28/04/1997	HITACHI CONSUMER	VOLVO 960	1	1,943,925.23	A
7	14/01/1997	HONDA CARS (THAILAND)	BENZ	1	3,300,000.00	A
8	14/01/1997	HONDA CARS (THAILAND)	TOYOTA CAR	1	2,000,000.00	A
9	23/01/1997	BASF (THAI) LTD.	HONDA CAR	1	853,271.03	A
12	28/01/1997	NESTLE PRODUCTS	HEMATOLOGY	1	625,000.00	A
27	10/04/1997	NICHIMEN CO., (THAILAND)	FORKLIFT	8	1,923,000.00	A
19	10/02/1997	NITTSU SHOJI (THAILAND)	COMPUTER AS400	1	718,328.00	A
15	30/01/1997	PFIZER INTERNATIONAL	VOLVO CAR	1	1,120,000.00	A
21	11/02/1997	PIGEON INDUSTRY	TOYOTA CROWN	1	2,636,363.64	A
23	12/02/1997	THAI FUKUDA CORP., LTD.	COMPUTER	50	522,500.00	A
26	25/02/1997	THAI FUKUDA CORP., LTD.	HONDA CITY	1	397,196.26	A
25	14/02/1997	THAI FUJI XEROX CO., LTD.	TOYOTA CAR	1	2,100,000.00	A

Pages: 1/1

Figure 3.38. Preview Report Screen: Quotation Report.

UNVL - Application (DataReport)							
Zoom		100%					
Page: 1/1		Application Report				Date: 05/02/43	
App#	Customer	Equipment	Unit	Cost Price	Term	Rate	*
1	WORLD EQUIPMENT CO.,	LIQUID MOUTH WASH	1	2,365,269.16	36	14	A
20	WORLD EQUIPMENT CO.,	TOYOTA CAMRY	4	1,476,727.27	48	19	A
15	DISTAR CHAIN CO., LTD.	PICK-UP TRUCK	1	320,000.00	36	15.5	A
16	HAKUHODO (BANGKOK) CO.,	TRUCK	1	1,000,000.00	48	14	A
21	HAKUHODO (BANGKOK) CO.,	TOYOTA CORONA	1	754,545.45	60	17.75	A
2	HITACHI CONSUMER	PASSENGER CAR	1	768,224.30	36	13.8	A
14	HITACHI CONSUMER	VOLVO 980	1	1,943,925.23	36	24.68	A
3	HONDA CARS (THAILAND)	BENZ	1	3,300,000.00	48	23.51	A
17	HONDA CARS (THAILAND)	TOYOTA CAR	1	2,000,000.00	48	20.46	A
18	BASF (THAI) LTD.	HONDA CAR	1	853,271.03	36	13.84	A
5	NESTLE PRODUCTS	HEMATOLOGY	1	625,000.00	60	13.43	A
13	NICHIMEN CO., (THAILAND	FORKLIFT	8	1,923,000.00	36	13.83	A
7	NITTSU SHOJI (THAILAND)	COMPUTER AS400	1	718,326.00	48	14.02	A
19	PFIZER INTERNATIONAL	VOLVO CAR	1	1,120,000.00	36	14.48	A
8	PIGEON INDUSTRY	TOYOTA CROMAN	1	2,636,363.64	60	18	A
9	THAI FUKUDA CORP., LTD.	COMPUTER	50	522,500.00	36	14.5	A
12	THAI FUKUDA CORP., LTD.	HONDA CITY	1	397,196.26	48	14.25	A
11	THAI FUJI XEROX CO., LTD.	TOYOTA CAR	1	2,100,000.00	48	14	A

Figure 3.39. Preview Report Screen: Application Report.

UNVL - Drawdown (DataReport)					
Zoom: 100%					
Page: 1/1		Drawdown Report		Date: 05/02/43	
DD#	Customer	Equipment	Supplier	DD Date	Cost Price
1	WORLD EQUIPMENT CO.,	LIQUID MOUTH WASH	SMC CORPORATION	30/09/97	2,365,269.16
17	WORLD EQUIPMENT CO.,	TOYOTA CAMRY	HONDA CARS	30/09/97	1,476,727.27
12	DISTAR CHAIN CO., LTD.	PICK-UP TRUCK	KERNEL COMPUTER	30/09/97	320,000.00
13	HAKUHODO (BANGKOK) CO.,	TRUCK	TOYOTA K. MOTORS	30/09/97	1,000,000.00
18	HAKUHODO (BANGKOK) CO.,	TOYOTA CORONA	SIAM INDUSTRIAL	30/09/97	754,545.45
2	HITACHI CONSUMER	PASSENGER CAR	KIJ KAMOL SUKOSOL	30/09/97	768,224.30
11	HITACHI CONSUMER	VOLVO 960	TOYOTA K. MOTORS	30/09/97	1,943,925.23
3	HONDA CARS (THAILAND)	BENZ	INTERNATIONAL	30/09/97	3,300,000.00
14	HONDA CARS (THAILAND)	TOYOTA CAR	SIAM NISSAN	30/09/97	2,000,000.00
15	BASF (THAI) LTD.	HONDA CAR	METRO SYSTEM	30/09/97	853,271.03
4	NESTLE PRODUCTS	HEMATOLOGY	HONDA CARS	30/09/97	625,000.00
10	NICHIMEN CO., (THAILAND)	FORKLIFT	TOYOTA K. MOTORS	30/09/97	1,923,000.00
5	NIITSU SHOJI (THAILAND)	COMPUTER AS/400	BENZ	30/09/97	718,326.00
16	PFIZER INTERNATIONAL	VOLVO CAR	TOYOTA K. MOTORS	30/09/97	1,120,000.00
6	PIGEON INDUSTRY	TOYOTA CROWN	TOYOTA K. MOTORS	30/09/97	2,636,363.64
7	THAI FUKUDA CORP., LTD.	COMPUTER	SATHORN HONDA	30/09/97	522,500.00
9	THAI FUKUDA CORP., LTD.	HONDA CITY	SWEDISH MORTORS	30/09/97	397,196.26
8	THAI FUJI XEROX CO., LTD.	TOYOTA CAR	S & T CONTEMP CO.,	30/09/97	2,100,000.00

Figure 3.40. Preview Report Screen: Drawdown Report.

UNIVERSAL LEASING CO., LTD.		<table border="1"> <tr> <th>STEP</th> <th>INITIAL</th> <th>DATE</th> </tr> <tr> <td>S1</td> <td></td> <td></td> </tr> <tr> <td>S2</td> <td></td> <td></td> </tr> <tr> <td>S3</td> <td></td> <td></td> </tr> </table>		STEP	INITIAL	DATE	S1			S2			S3		
STEP	INITIAL	DATE													
S1															
S2															
S3															
APPLICATION FOR APPROVAL															
APPLICATION NO: _____		DATE: _____	PREPARED BY: _____												
(EXECUTIVE COMMITTEE)		(Please select your name from the List)													
<div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100px; margin: 0 auto;"></div> <div>(APPROVING DATE)</div> </div>															
SUMMARY OF APPLICATION		CALCULATION RECHECKED BY													
APPLICANT: _____															
BUSINESS: _____															
NET FINANCE AMOUNT EXCLUDING VAT		BAHT	% OF COST PRICE												
NEW BALANCE		0.00	BAHT												
DISBURSEMENT DATE															
LEASE [OPERATING]		TERM	MONTHS												
INTEREST RATE	FIXED	%	EFFECTIVE RATE : %												
RENTAL PAYMENT	ADVANCE	- +VAT - = -	BAHT												
RENTAL INTERVAL	1	7%	MONTH												
EQUIPMENT	NEW														
COST PRICE		+VAT - = -	BAHT												
[DOWN PAYMENT/SECURITY DEPOSIT]		- BAHT	PAYABLE TO [SST/SUPPLIER]												
RESIDUAL VALUE			BAHT												
TOTAL RECEIVABLES		- +VAT - = -	BAHT												
GUARANTEE AND SECURITY		NONE													
SPECIAL CONDITIONS (REMARKS)		SPECIAL CONDITIONS (REMARKS)													
		- INSURANCE PREMIUM EXCLUDED. - IN THE EVENT VAT IS OFFICIALLY CHANGED IN THE FUTURE, VAT AMOUNT SHALL BE ADJUSTED ACCORDINGLY.													
DRAWDOWN (BAHT)															
DATE	AMOUNT	AGGREGATE	CHECK												

Figure 3.42. Application for Approval.

<div>DRAWDOWN MEMORANDUM</div>					
TO : ADMINISTRATION DEPT.					
FROM : MARKETING DEPT.				DATE :	
LEASE	AGREEMENT NO.	001-0099***-000	CHECKED BY	PREPARED BY	
HIRE PURCHASE					
DATE	AMOUNT				
CUSTOMER					
DATE OF DISBURSEMENT TO THE SUPPLIER					
DETAILS OF DISBURSEMENT :					
	NAME	AMOUNT	CHECK NO.	REMARKS	
1				INCLUDING VAT	
2					
3					
4					
5					
6					
7					
8					
EXCEPTIONAL TRANSACTION :				DMD	
CONTENTS MENTIONED ABOVE HAVE BEEN AGREED AND ACCEPTED :					
DATE	TIME	RECEIVER'S		SENDER'S	
	: AM/PM	SIGNATURE		SIGNATURE	

Figure 3.43. Drawdown Memorandum.

3.2.7 User Interface Design

The Lease Evaluate System is designed to be a user-friendly system. The menu selection strategy is applied to this system. Pull-down menus and cascading menus are used for the main menu. Pop-up menus are also available quick selection. Each screen can interface with main menu and the next screen. Figure 3.44 depicts the Lease Evaluate State Transition Diagram.

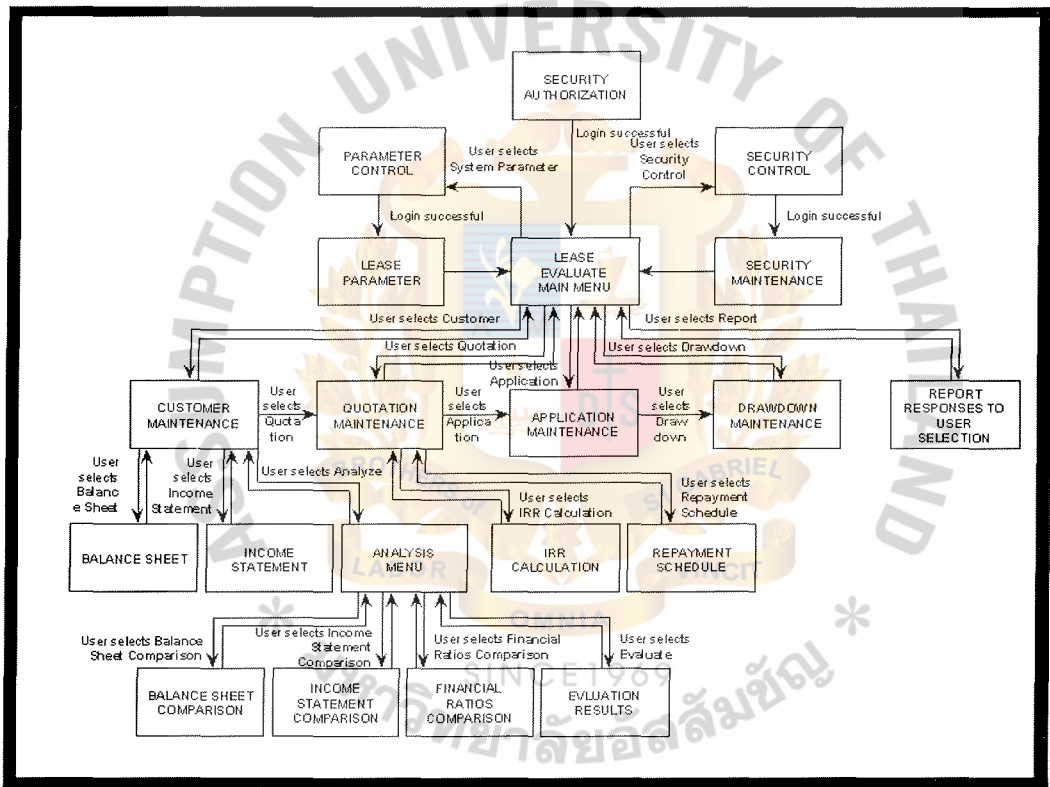


Figure 3.44. Lease Evaluate State Transition Diagram.

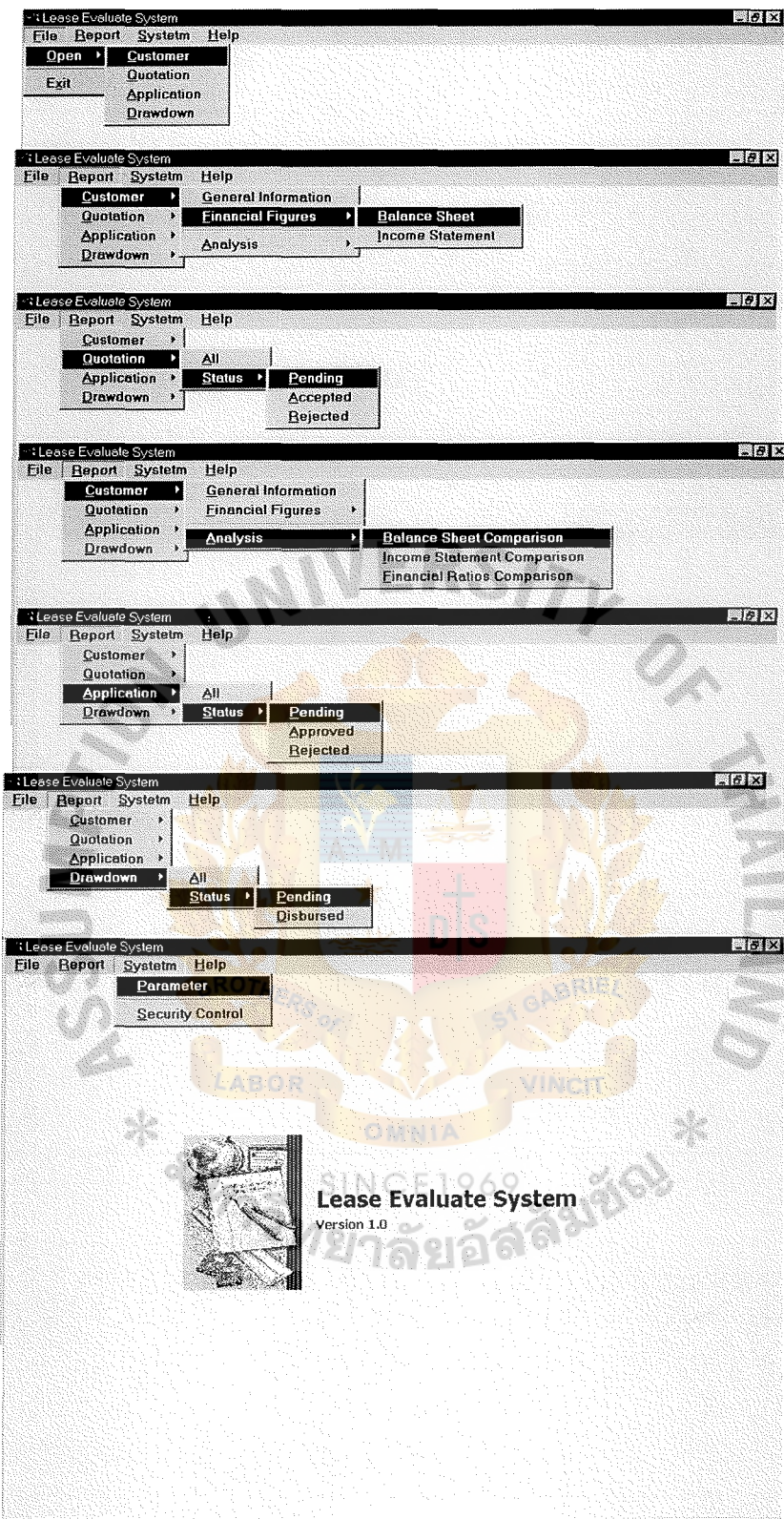


Figure 3.45. Lease Evaluate Main Menu.

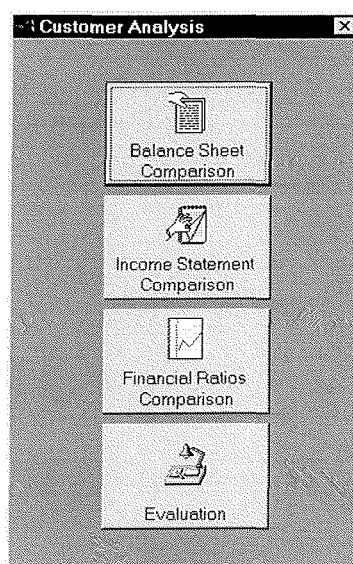


Figure 3.46. Lease Evaluate Pop-Up Menu.



Figure 3.47. Lease Evaluate License Screen.

3.3 Hardware and Software Requirements

3.3.1 Hardware Requirements

The proposed system requires the specification of hardware as follows:

- (1) Personal Computer 1 Unit

IBM PC 300GL

Celeron 433 Mhz with 128 KB L2 cache /32 MB / 8.4GB

CD-ROM Drive 50x (internal)

G51 15" IBM Color Monitor

- (2) HP Laser Printer 1 Unit

3.3.2 Software Requirement

- (1) Operating System Software

Windows 98 Thai Edition

- (2) Application Software

Microsoft Access Profession 2000 Win 32 Thai CD

Visual Basic Professional 6.0 Win 32 CD

3.4 Security and Controls

The security for the proposed system is designed for two main purposes;

- (1) To ensure that only the authorized person can access the system.
- (2) To ensure that only the supervisory level has the authorization for parameter maintenance and security maintenance.

3.4.1 Access Control

Only the authorized person can access the system through the login screen (see Figure 3.48).

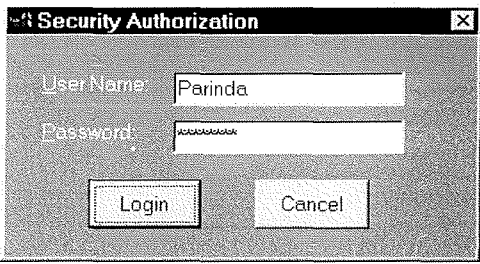


Figure 3.48. Lease Evaluate Security Authorization.

3.4.2 Maintenance Control

(1) Security maintenance

Security maintenance can be accessed only at the supervisory level. Unless the password is correct, the Security Maintenance Screen (Figure 3.49) will not appear.

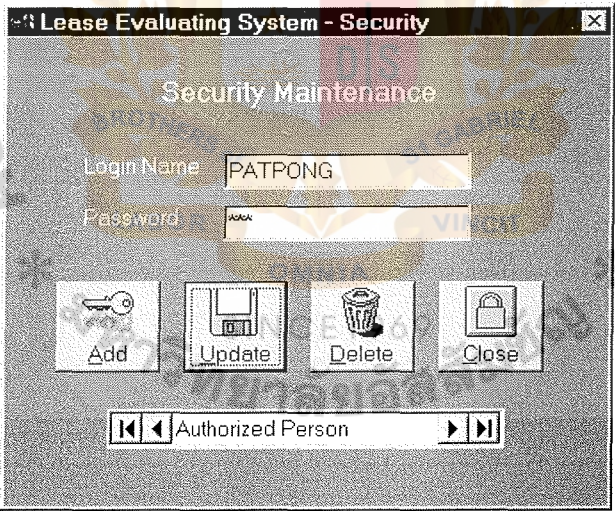


Figure 3.49. Lease Evaluate Security Control.

(2) Parameter maintenance

Parameter maintenance has the same procedure as the security maintenance; only the supervisory level can access. Unless the password is correct, the Lease Parameters screen (Figure 3.50) will not appear .

Lease Evaluating System - Lease Parameters

Lease Parameters

Ratios

Current Ratio

Collection Period

Gross Profit Margin (%)

Net Profit Margin (%)

Return of Equity (%)

Return of Assets (%)

Debt Ratio

Debt to Equity

Interest Coverage

Paid-up Capital

>=

100

Million Baht

Interest Rate

MOR +

0.00

~

0.50

RV (%)

10

>=

20

Million Baht

MOR +

0.50

~

1.00

10

>=

5

Million Baht

MOR +

0.75

~

1.50

15

<

5

Million Baht

MOR +

1.50

~

3.00

20

Update

Close

Figure 3.50. Lease Evaluate Parameter Control.

(3) Input validation

Once the user has entered the wrong type of data into a particular field, the program will give a warning message.

IV. PROJECT IMPLEMENTATION

4.1 Overview of the Project Implementation Schedule

The proposed system is scheduled to be completed within three months (see Figure 4.1). The schedule of all tasks is as follows:

(1)	System Analysis	25 days
(a)	Survey and plan the project	7 days
(b)	Study and analyze the existing system	14 days
(c)	Define business requirements	4 days
(2)	System Design	20 days
(a)	Design database	7 days
(b)	Design inputs	7 days
(c)	Design outputs	7 days
(d)	Design user interface	14 days
(3)	System Implementation	25 days
(a)	Write and test new program	21 days
(b)	Convert to new system	2 days
(c)	Train system user	2 days

4.2 Test Plan and Results

The testing of the proposed system has been performed in three levels; stub testing, program testing, and system testing.

Stub Testing.

Each module was tested independently to ensure that all calculations are done properly in every condition and give the correct result.

Results: Every module gave the correct results of calculation

Program Testing.

All the modules that have been coded and stub tested was tested as an integrated unit.

Results: The modules in the program have been linked and worked properly and gave the correct results.

System Testing.

The system was tested to ensure that application programs written in isolation work properly when they are integrated into the total system.

Results: The system worked properly and gave the correct results.



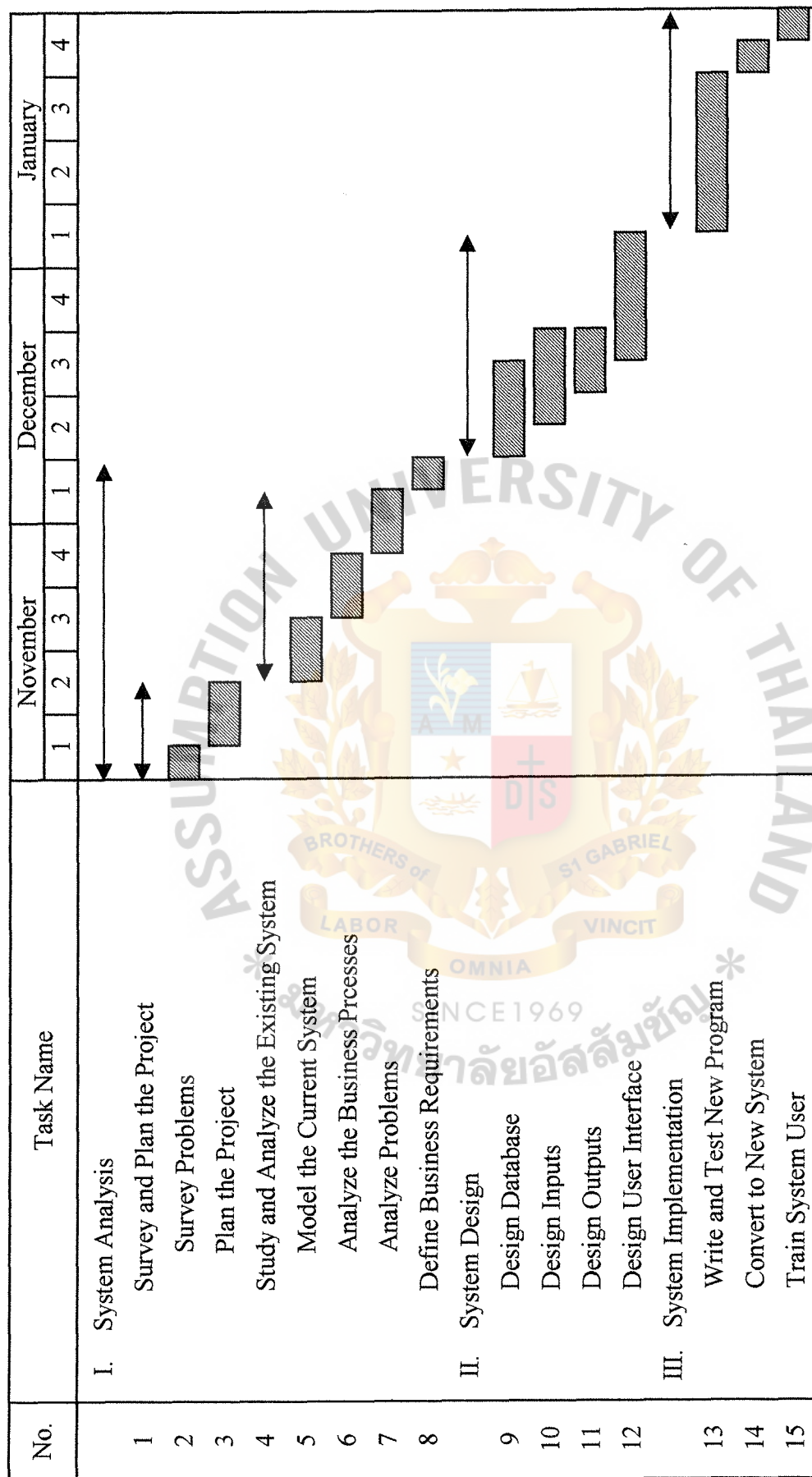


Figure 4.1. Gantt Chart of Proposed System.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The management of a leasing company, Universal Leasing Company Limited, recognized that the time required for their evaluation process for any lease application is not competitive¹. The company, then, realized that a new system should be developed, so that they can provide fast services, minimize bad debts, and maximize profit.

During analysis of the existing system, four problems have been discovered: (1) A long evaluation time was needed for each lease application, (2) Calculation mistakes are made using manual input to a finance calculator, (3) No database system exists to keep customers' financial data, and (4) Data redundancy exists among paper files.

Lease Evaluate System is developed to solve those problems. The system has the ability to keep customers' financial information, calculate finance ratios, compare the highlight figures, evaluate the customers' potential, and suggest the cost-effective interest rate. The system also supports issuing necessary forms for leasing: Quotation, Application for Approval, and Drawdown Memorandum.

In the view of cost-benefit analysis, the company can derive the benefits from operation of Lease Evaluate System in 1.8 years.

The implementation of Lease Evaluate System involves programming, testing, training, and conversion. The system is tested in three levels: stub testing, program testing, and system testing. The system is placed into operation using parallel conversion.

The degree of achievement between Existing System and Lease Evaluate System is measured mainly in the evaluation time. The evaluation time for each lease application is reduced from seven days to two days, which is 3.5 times reduction.

5.2 Recommendations

Due to rapid changes in information technology, nowadays an electronic business becomes very popular. Lease Evaluate System should be further developed to support those functions. The company's web pages together with an electronic lease application should be added. The security concern is also very necessary if the company decide to establish an electronic business. A security technique should be applied in order to protect against a third party accessing the system.

Using electronic business with a reliable security system can provide more convenience to customers and make the company one step ahead of competitors.





APPENDIX A
DATA DICTIONARY

DATA DICTIONARY

Data Element

Acc_Exp	= Accrued Expenses
Acc_Int	= Accrued Interest
Adm_Exp	= Selling and Administration Expenses
App_LgRsv	= Appropriated Legal Reserved
App_No	= Application Number
Ash_Cap	= Authorized Share Capital
Bank_Od	= Bank Overdrafts and Loans from FI
Com_Payb	= Commissions Payable
Condition	= Condition asked from the customer
Contact	= Customer's Contact Person
Corp_Tax	= Corporate Income Tax
Cost	= Cost of Good sold
Currency	= Currency
Cust_Add	= Customer Address
Cust_Bus	= Customer Business
Cust_ID	= Customer ID
Cust_Name	= Customer Name
Date	= Initiation Date
DD_Date	= Drawdown Date
DD_No	= Drawdown Number
Deposit	= Deposit

Down_Pymt	= Down Payment
El_Share	= Earnings/Loss per Share
Equipment	= Equipment
Except	= Exceptional Cases
Gl_Fxn	= Gain/Loss from Foreign Exchange
Instruct	= Instruction give by MD or DMDs
Int_Exp	= Interest Expense
Inv_C	= Investments in Affiliated Companies
Invent	= Inventories
Lb_Equip	= Net Land, Buildings and Equipment
Login	= Marketing Login Name
Lt_Loan	= Long-Term Loans
Mkt_ID	= Marketing ID
Mkt_Name	= Marketing Name
O_Ar	= Other Receivables
Oc_Asst	= Other Current Assets
Oc_Liab	= Other Liabilities
Oth_Asst	= Other Assets
Oth_Inc	= Other Income
Oth_Liab	= Other Liabilities
Oth_Pay	= Other Payables
PdUp_Cap	= Paid-up Capital
Premium	= Premium

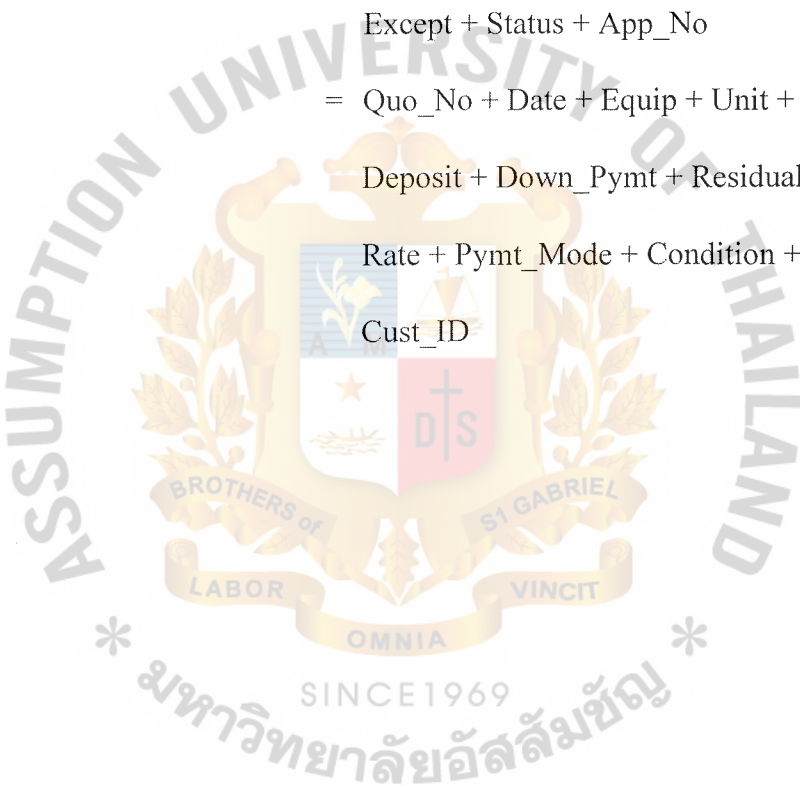
Psw	= Marketing Password
Pymt_Mode	= Payment Mode
Quo_No	= Quotation Number
Rate	= Interest Rate
Re_Bf	= Retained Earnings (Deficits) B/F
Re_Cf	= Retained Earnings (Deficits) C/F
Reg_Cap	= Registered Capital
Residual	= Residual Value
Sale	= Sales
Sh_Cap	= Share Capital
Social	= Social Welfare Money
St_Invst	= Short-Term Investments
St_Loan	= Short-Term Loans
Status	= Status of Application
Suppl	= Supplier
Surplus	= Surplus on Land Revaluation
Tel	= Customer Telephone
Term	= Lease Term
Tr_Ap	= Trade Accounts and Notes Payable
Tr_Ar	= Trade Accounts and Notes Receivable
Un_Aprp	= Unappropriated
Unit	= Unit of Equipment
Year	= Fiscal Year

Data Flow

Accepted Lease Application	= Accepted Lease Application
Analyzed Information	= Analyzed Information
Application	= Application from Customer
Application for Approval	= Application for Approval
Approved Application	= Approved Application
Compared Balance Sheet	= Compared Balance Sheet
Compared Financial Ratios	= Compared Financial Ratios
Compared Financial Ratios and Data	= Compared Financial Ratios and Data
Compared Income Statement	= Compared Income Statement
Customer Acceptance	= Customer Acceptance
Customer Financial Data	= Customer Financial Data
Customer History	= Customer History
Customer Information	= Customer Information
Drawdown Memorandum	= Drawdown Memorandum
Financial Ratios	= Financial Ratios
Indicative Quotation	= Indicative Quotation
IRR	= Interest Rate of Return
Lease Application	= Lease Application
Quoted Rate	= Quoted Rate

Data Store

Applications	= App_No + Date + Instruct + Status +Quotation
Customer_Financial	= Balance Sheet + Income Statement
Customers	= Cust_ID+Cust_Name+Cust_ADD+ Cust_Bus + Reg_Cap + Contact + Tel
Drawdowns	= DD_No + Date + Suppl + DD_Date + Except + Status + App_No
Quotations	= Quo_No + Date + Equip + Unit + Cost + Deposit + Down_Pymt + Residual + Term + Rate + Pymt_Mode + Condition + Status + Cust_ID





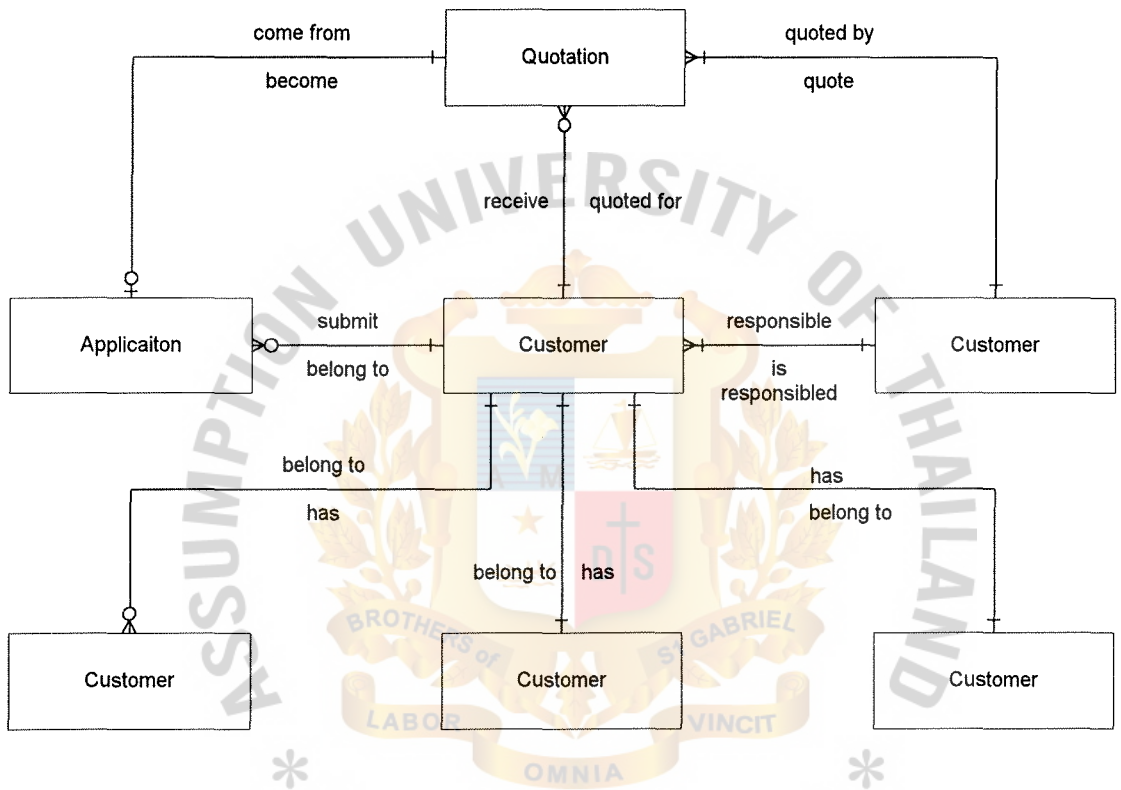


Figure B.1. Lease Evaluate Entity Relationship Diagram Entity Level.

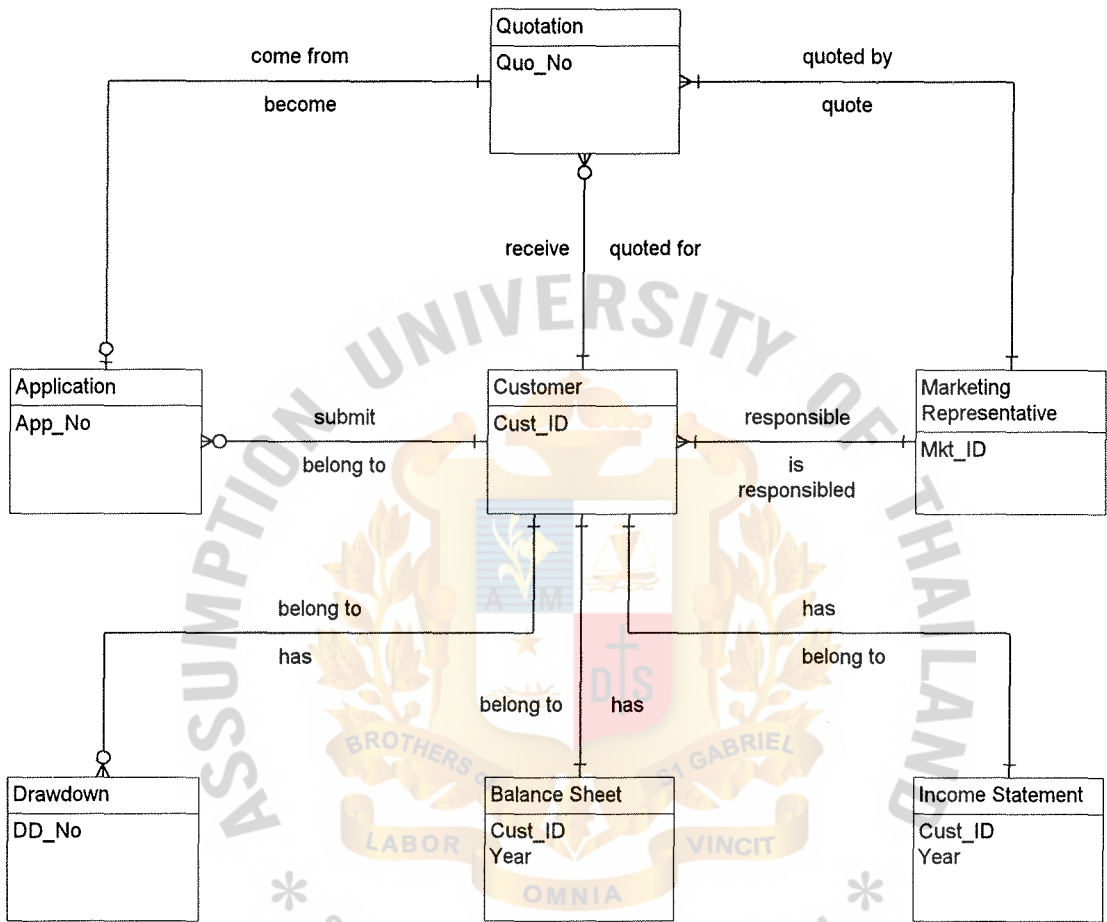


Figure B.2. Lease Evaluate Entity Relationship Diagram Primary Key Level.

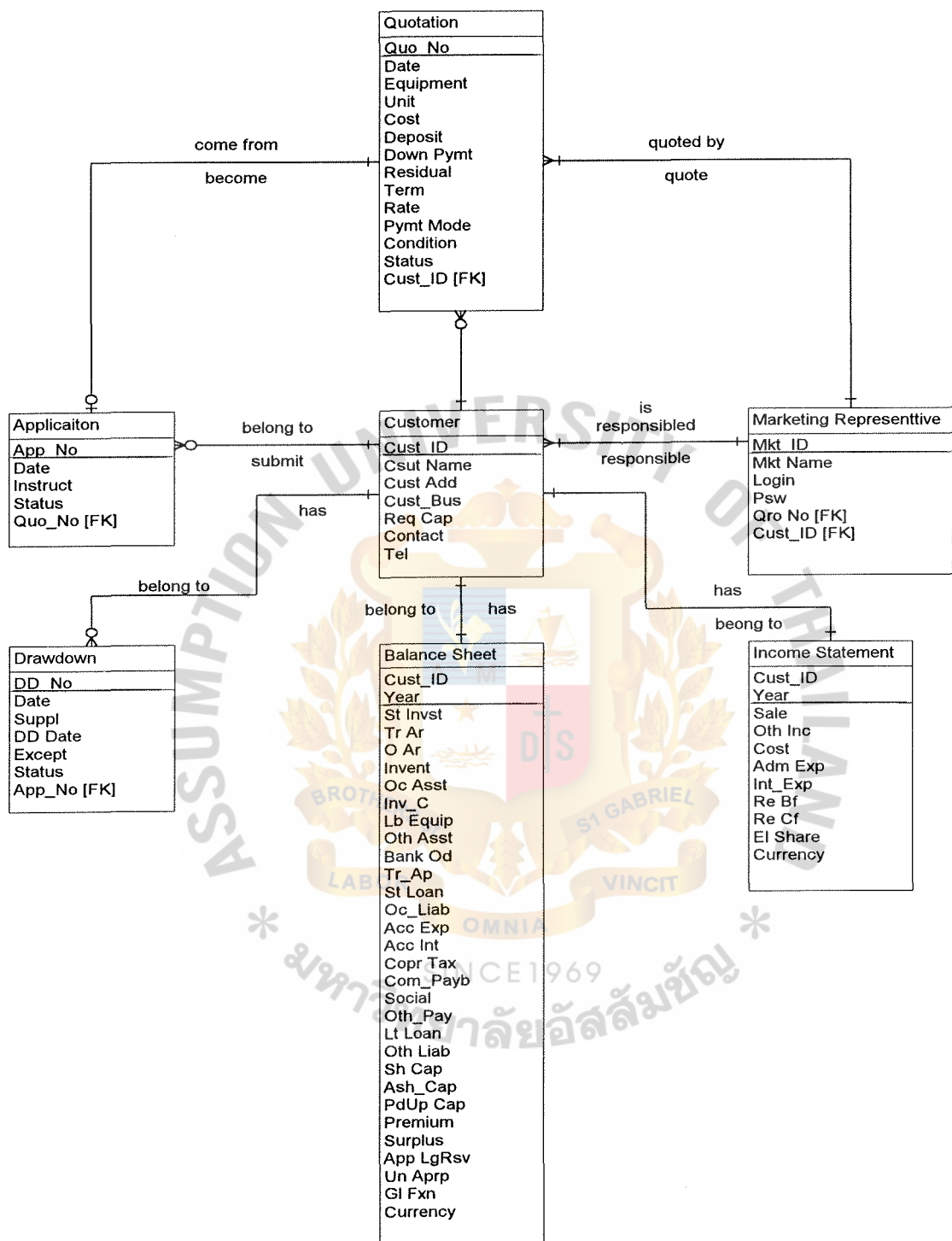


Figure B.3. Lease Evaluate Entity Relationship Diagram Attribute Level.



APPENDIX C
STRUCTURE CHART

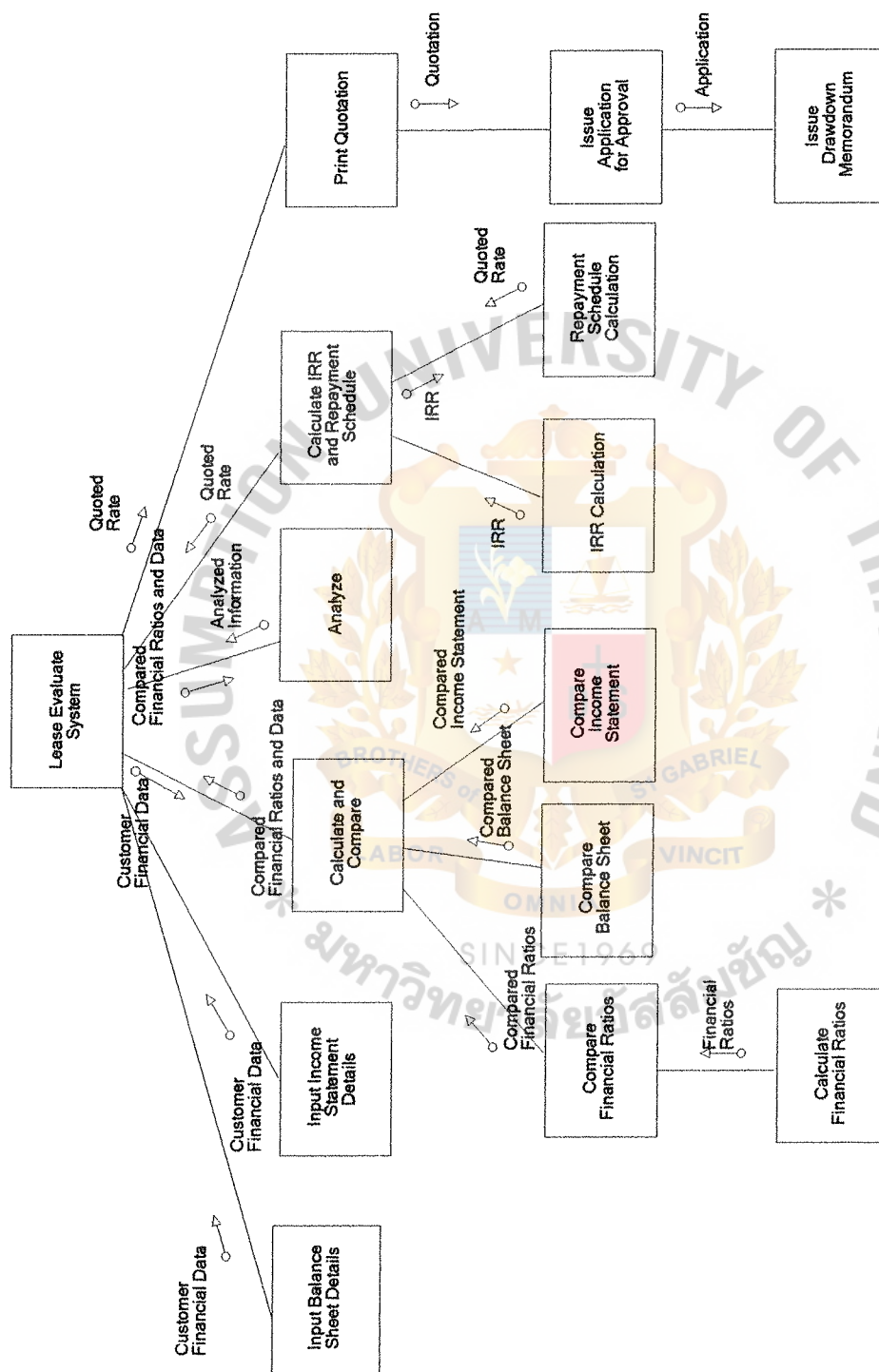


Figure C.1. Lease Evaluate Structure Chart.



APPENDIX D

PROCESS SPECIFICATION

PROCESS SPECIFICATION

Process 1.0 Evaluate Finance

Description: Add new or maintain customer's details, calculate financial ratios and analyze.

Location: DFD Level 0 (0)

Input Flows: Lease Application
Customer History

Output Flows: Analyzed Information
Customer Financial Data
Customer Information

Invoker: Customer (External Entity)
Customers (Data Store)

Caller: Marketing Department (External Entity)
Customers (Data Store)
Customer_Financial (Data Store)

Process 1.1 Input Financial Details

Description: Input or update customer's balance sheet figures and income statement figures.

Location: DFD Level 1-1 (1)

Input Flows: Lease Application
Customer History

Output Flows: Customer Financial Data

Invoker: Customer (External Entity)
Customers (Data Stores)
Caller: Calculate and Compare Process (Process 1.2)

Process 1.1.1 Input Balance Sheet Details

Description: Input or update customer's balance sheet figures.
Location: DFD Level 1-1-1 (1.1)
Input Flows: Lease Application
Customer History
Output Flows: Customer Financial Data
Invoker: Customer (External Entity)
Customers (Data Stores)
Caller: Calculate Ratios Process (Process 1.2)

Process 1.1.2 Input Income Statement Details

Description: Input or update customer's income statement figures.
Location: DFD Level 1-1-1 (1.1)
Input Flows: Lease Application
Customer History
Output Flows: Customer Financial Data
Invoker: Customer (External Entity)
Customers (Data Stores)
Caller: Calculate Ratios Process (Process 1.2)

Process 1.2 Calculate and Compare

Description: Calculate financial ratios compare balance sheet, compare income statement, and compare financial ratios.

Location: DFD Level 1-1 (1)

Input Flows: Customer Financial Data

Output Flows: Compared Financial Ratios and Data

Invoker: Input Financial Details Process (Process 1.1)

Caller: Analyze Process (Process-1.3)

Process 1.2.1 Calculate Financial Ratios

Description: Calculate the finance ratios based on the figures from balance sheet and income statement.

Location: DFD Level 1-2-1 (1.2)

Input Flows: Customer Financial Data

Output Flows: Financial Ratios

Invoker: Evaluate Finance Process (Process 1.1)

Caller: Compare Financial Ratios Process (Process 1.2.2)

Process 1.2.2 Compare Financial Ratios

Description: Compare three years financial ratios to see the trend.

Location: DFD Level 1-2-1 (1.2)

Input Flows: Customer Financial Data

Output Flows: Financial Ratios

Invoker: Calculate Financial Ratios Process (Process 1.2.1)

Caller: Analyze Process (Process 1.3)

Process 1.2.3 Compare Balance Sheet

Description: Compare three years highlight figures from balance sheet.

Location: DFD Level 1-2-1 (1.2)

Input Flows: Customer Financial Data

Output Flows: Compared Balance Sheet

Invoker: Evaluate Finance Process (Process 1.1)

Caller: Analyze Process (Process 1.3)

Process 1.2.4 Compare Income Statement

Description: Compare three year highlights income figures from income statement.

Location: DFD Level 1-2-1 (1.2)

Output Flows: Compared Income Statement

Invoker: Evaluate Finance Process (Process 1.1)

Caller: Analyze Process (Process 1.3)

Process 1.3 Analyze

Description: Compare customer's ratios and figures with parameters, then analyze customer's potential and suggest the interest rate.

Location: DFD Level 1-1 (1)

Input Flows: Compared Financial Ratios and Data

Output Flows: Analyzed Information

Customer Financial Data

Invoker: Calculate and Compare Process (Process 1.2)

Caller: Marketing Department (External Entity)

Process 2.0 Issue Indicative Quotation

Description: Add new or maintain Quotation records, calculate IRR and Repayment, and print (issue) Quotation.

Location: DFD Level 0 (0)

Input Flows: Accepted Lease Application

Output Flows: Indicative Quotation

Invoker: Marketing Department (External Entity)

Caller: Customer (External Entity)

Quotations (Data Store)

Process 2.1 IRR Calculation

Description: Calculate tax burden on leasing to get an IRR

Location: DFD Level 2-1 (2)

Input Flows: Accepted Lease Application

Output Flows: IRR

Invoker: Marketing Department (External Entity)

Caller: Repayment Schedule Calculation Process (Process 2.2)

Process 2.2 Repayment Schedule Calculation

Description: Calculate repayment schedule for the specified IRR.

Location: DFD Level 2-1 (2)

Input Flows: IRR

Invoker: IRR Calculation Process (Process 2.1)

Caller: Print Quotation Process (Process 2.3)

Process 2.3 Print Quotation

Description: Print (issue) quotation to the customer.

Location: DFD Level 2-1 (2)

Input Flows: Quoted Rate

Output Flows: Indicative Quotation

Invoker: Repayment Schedule Calculation Process (Process 2.2)

Caller: Customer (External Entity)

 Quotations (Data Store)

Process 3.0 Issue Application for Approval

Description: Add new or maintain Application records, print (issue) Application
 for Approval.

Location: DFD Level 0 (0)

Input Flows: Indicative Quotation

 Customer Acceptance

Output Flows: Application for Approval

Invoker: Customer (External Entity)
Quotations (Data Store)
Caller: MD and DMDs (External Entity)
Applications (Data Store)

Process 4.0 Issue Drawdown Memorandum

Description: Add new or maintain Drawdown records, print (issue) Drawdown Memorandum.

Location: DFD Level 0 (0)

Input Flows: Approved Application

Output Flows: Drawdown Memorandum

Invoker: MD and DMDs (External Entity)

Caller: Administration Department (External Entity)
Drawdowns (Data Store)

BIBLIOGRAPHY

English References

1. Coleshaw, John. Credit Analysis. England: Woodhead-Faulkner (Publishers) Limited, 1989.
2. HP 17BII Financial Calculator. Owner's Manual, 2nd Edition. U.S.A.: Hewlett Packard Co., 1989.
3. Jennings, Roger. Using Access for Windows, Special Edition. U.S.A.: Que Corporation. 1993.
4. Tyran, Michael R. Handbook of Business and Financial Ratios. NJ: Prentice Hall International Company, 1986.
5. Whitten, Jeffrey L. and Lonnie D. Bentley. System Analysis and Design Methods. NY: McGraw-Hill, Inc., 1998.
6. Winders, Terry J. Profitable Equipment Leasing: A Practical Guide for Bankers. Boston: Bankers, 1987.

Thai References

1. กิตติ ภัคดีวิวัฒนะกุล และ จำลอง ครูอุตสาหะ. Visual Basic 6 ฉบับโปรแกรมเมอร์, พิมพ์ครั้งที่ 5. กรุงเทพมหานคร: บริษัท เคทีพี คอมพ์ แอนด์ คอนซัลท์ จำกัด, ตุลาคม 2542.
2. กิตติ ภัคดีวิวัฒนะกุล และ จำลอง ครูอุตสาหะ. Visual Basic 5 ฉบับโปรแกรมเมอร์, พิมพ์ครั้งที่ 4. กรุงเทพมหานคร: บริษัท เคทีพี คอมพ์ แอนด์ คอนซัลท์ จำกัด, มกราคม 2542.