



Human Model Agency Information System
of Massy Models Agency Company

by

Mr. Pipat Massuwansri

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

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

July 2004

**Human Model Agency Information System
of Massy Models Agency Company**

by
Mr. Pipat Massuwansri

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

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

July 2004

Project Title Human Model Agency Information System of Massy Models
Agency Company

Name Mr. Pipat Massuwansri

Project Advisor Dr. Settapong Malisuwan

Academic Year July 2004

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

Approval Committee:



(Dr. Settapong Malisuwan)

Advisor



(Prof. Dr. Srisakdi Charmonman)

Chairman



(Air Marshal Dr. Chulit Meesajjee)

Dean and Co-advisor



(Asst. Prof. Dr. Vichit Avatchanakorn)

Member



(Assoc. Prof. Somchai Thayarnyong)

CHE Representative

July 2004

ABSTRACT

This project is a system analysis and design of the Agency Model System of Massy Agency Models Company. The project aimed to improve the efficiency of the business operation. The system analysis and design involves the study of the existing system of the company, analysis of the existing problems, selection of the best alternatives, development of new proposed system, estimation and evaluation of the budget for proposed system, and the planning of system implementation.

The current problems of the existing system come from the use of manual system. Manual system cannot support the growth of the company because it cannot handle the large number of transactions. The information inquiry also takes a lot of time and effort. The required information cannot be delivered in time to be used. The operation cost of the manual system is very high and not suitable for long-term business.

The computerized system is introduced to deal with the above problems and increase the efficiency of the system. The computerized system is implemented according to the system analysis and design theories. Many methods of research are applied for identifying the requirement of users. The proposed system is designed to satisfy customers' needs. The hardware, software, and network are also designed in this project. The system development cost and budget is estimated wisely for the investment. Many analysis methods are used in the evaluation. The analysis shows that the payback period is not too long, and the accumulated cost of the proposed system is lower than the accumulated cost of the existing system in the long run. The proposed system also delivers many tangible and intangible benefits to the company.

ACKNOWLEDGEMENTS

Several people have made contributions to this project. The writer would like to acknowledge their efforts and thank them for their contributions. He would like to thank Dr. Settapong Malisuwan, his project advisor, for his suggestions and advice given throughout the preparation of this project.

He extends his sincere thanks to all the lecturers of MS (CIS) program who have imparted their knowledge to him, and to the Staff of Massy Agency Models Company for their timely assistance and information provided to him while carrying out the data collection required for his project.



TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
ABSTRACT	i
ACKNOWLEDGEMENTS	ii
LIST OF FIGURES	v
LIST OF TABLES	vii
I. INTRODUCTION	1
1.1 Background of the Project	1
1.2 Objective of the Project	2
1.3 Scope of the Project	2
1.4 Deliverables	3
1.5 Project Plan	3
II. THE EXISTING SYSTEM	6
2.1 Background of the Organization	6
2.2 Evaluation of Problems	8
2.3 Analysis and Selection of Alternatives	10
2.4 Existing System	12
III. THE PROPOSED SYSTEM	13
3.1 System Specification	13
3.2 System Design	15
3.3 Candidate Solution	25
3.4 Hardware and Software Requirement	30
3.5 Security and Control	33
3.6 Cost and Benefit Analysis	34

<u>Chapter</u>	<u>Page</u>
IV. PROJECT IMPLEMENTATION	46
4.1 Overview of Project Implementation	46
4.2 Source Code	47
4.3 Test Plan	47
4.4 Conversion	48
V. CONCLUSIONS AND RECOMMENDATIONS	49
5.1 Conclusions	49
5.2 Recommendations	50
APPENDIX A DATA FLOW DIAGRAM	52
APPENDIX B DATA MODEL	57
APPENDIX C FEASIBILITY ANALYSIS	60
APPENDIX D PROCESS SPECIFICATIONS	67
APPENDIX E DATA DICTIONARY	73
APPENDIX F DATABASE DESIGN	74
APPENDIX G INTERFACE DESIGN	83
APPENDIX H REPORT DESIGN	92
BIBLIOGRAPHY	95

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Context Diagram of existing System	7
2.2 Organization Chart Of Massy Models Agency Company	12
3.1 Context Data Model of Proposed System	17
3.2 Context Data Flow Diagram of Proposed System	19
3.3 Function Decomposition Diagram of Proposed System	21
3.4 Level 0 Dataflow Diagram of Proposed System	24
3.5 The Network Configuration of Proposed System	32
3.6 Cost Comparisons between Manual and Computerized System	39
3.7 Payback Period Analysis of Proposed System	43
A.1 Level 1 Data Flow Diagram of Model Register Process	52
A.2 Level 1 Data Flow Diagram of Photo Process	53
A.3 Level 1 Data Flow Diagram of Received Order Process	54
A.4 Level 2 Data Flow Diagram of Making Appointment Process	55
A.5 Level 1 Data Flow Diagram of Generating Report	56
B.1 Context Data Model of Proposed System	57
B.2 Key-Base Data Model of Proposed System	58
B.3 Fully Attributed Data Model of Proposed System	59
G.1 Login Interface	83
G.2 Main Menu Interface	84
G.3 Model's Information 1 Interface	85
G.4 Model's Information 2 Interface	86
G.5 Model's Information 3 Interface	87

<u>Figure</u>	<u>Page</u>
G.6 Order Information 1 Interface	88
G.7 Order Information 2 Interface	89
G.8 Model Search Interface	90
G.9 Order Search Interface	91



LIST OF TABLES

<u>Table</u>	<u>Page</u>
1.1 Project Plan of Models Agency System	5
2.1 Manual System versus Computerized System	10
3.1 Feasibility Analysis Matrix	27
3.2 Hardware Specification of Database Server	30
3.3 Hardware Specification of Client Computer	30
3.4 Software Requirement	31
3.5 Hardware Requirement for Set Up Network	31
3.6 Cost of the Existing System	35
3.7 Five Years Accumulated of Existing System	36
3.8 Cost of the Proposed System	37
3.9 Five Years Accumulated of Proposed System	38
3.10 Cost Comparison of System Costs	38
3.11 Net Present Value For Proposed System, Baht	44
5.1 The Degree of Achievement of the Proposed System	50
C.1 Estimated Cost of Candidate 1, Baht	60
C.2 Estimated Cost of Candidate 2, Baht	61
C.3 Estimated Cost of Candidate 3, Baht	62
C.4 Accumulated Cost of Candidate 1, Baht	63
C.5 Accumulated Cost of Candidate 2, Baht	63
C.6 Accumulated Cost of Candidate 3, Baht	63
C.7 Net Present Value of Candidate 1, Baht	64

<u>Figure</u>	<u>Page</u>
C.8 Net Present Value of Candidate 2, Baht	65
C.9 Net Present Value of Candidate 3, Baht	66
D.1 Process Specification of Add Information Process	67
D.2 Process Specification of Edit Existing Information Process	67
D.3 Process Specification of New Appointment Process	67
D.4 Process Specification of Storing Photo Process	68
D.5 Process Specification of Develop Film Process	68
D.6 Process Specification of New Order Process	68
D.7 Process Specification of Filtered Model Process	69
D.8 Process Specification of Making Appointment Process	69
D.9 Process Specification of Making Appointment with Customer Process	70
D.10 Process Specification of Making Appointment with Model Process	70
D.11 Process Specification of Cancelled Order Process	71
D.12 Process Specification of Receiving Commission Process	71
D.13 Process Specification of Checking Require Information Process.	71
D.14. Process Specification of Generate Report Process.	72
D.15. Process Specification of Print Hard Copy Report Process.	72
E.1 Data Dictionary of the Proposed System	73
F.1 Structure of Model Table	74
F.2 Structure of Customer Table	75
F.3 Structure of Customer Order Table	76
F.4 Structure of Hiring Table	77
F.5 Structure of Commission Table	78
F.6 Structure of Photo Table	79

<u>Figure</u>	<u>Page</u>
F.7 Structure of Develop Film Table	80
F.8 Structure of Payment Table	81
F.9 Structure of Photo Lab Table	82
H.1 Model List Report	92
H.2 Order List Report	93
H.3 Summary Report	94



I. INTRODUCTION

1.1 Background of the Project

Nowadays, there are a lot of competitions about advertising on any Media. So there are a lot of production houses (customer), which will produce that media and find the people who have the characters that meet the requirement that the production house wants by calling to any agency model to find them. That is the reason why the production house does not have the duty to find those people.

Massy Models Agency Company opened in year 2003. The existing system of Massy Models Agency Company is the manual system. All data is kept in the paper format. The manual system, encounters many problems such as the lack of skilled staffs, the confusion of the system. To solve these problems, the company needs a fast and reliable system. The manual system cannot accomplish the key success of the company. So, the computerized system has to be developed for this company in order to accomplish the key success of the company.

This project emphasizes on replacing the existing manual system by the new computerized system. This project is performed according to the system analysis and design theory. The system analysis phase is applied to the study of the existing manual system of Massy Models Agency Company. The system design phase is applied to the design of a new computerized system for the company. This project also includes the estimation of cost and benefit and the evaluation of investment in this new computerized system.

1.2 Objectives of the Project

This project aims to bring the new effective computerized system to the company.

There are some objectives for this project to accomplish as follows:

- (1) To analyze the exiting system of Massy Models Agency Company and evaluate the performance of manual system.
- (2) To identify and analyze the problems of the existing system.
- (3) To organize the necessary data into proper designed database to reduce paper works.
- (4) To design a computer-based information system to improve the company's operation.
- (5) To develop a new computer information system for Massy Models Agency Company.
- (6) To organize the necessary data into proper designed database.

1.3 Scope of the Project

The project emphasizes on the set up of the computer system for office operation of Massy Models Agency Company, follows:

- (1) Models register Process.
- (2) Photo Process.
- (3) Receiving order Process.
- (4) Generating Report Process.

1.4 Deliverables

The deliverables of the project on the proposed Models Agency System for Massy Models Agency Company are as follows:

- (1) Hardware Specification
- (2) Software Specification
- (3) Process Modeling (Context Diagram and Data Flow Diagram)
- (4) Data Modeling (Context Entity-Relation Diagram, Key-Based, and Fully Attributed Diagram)
- (5) Cost and Benefit Analysis
- (6) Test Plan
- (7) Conversion Plan

1.5 Project Plan

The schedule of computerizing the system is about 4 months. The project is divided into 8 phases: preliminary investigation phase, problem analysis phase, requirement analysis phase, decision analysis phase, system design phase, system construction phase, implementation phase, and operation and support phase. The first 7 phases can be categorized into 2 main parts as system analysis part and system design part. The first part is aimed to analyze the existing system of the company, identify the problem, requirement of company and set up the project plan. This part will take approximately one month. This part includes the first 4 phases, which are preliminary investigation, problem analysis, requirement analysis, and decision analysis.

The second part, which is the design part, will be started as soon as the first part is completed. This part consists of system design phase, system construction phase, and implementation phase. This part aims to design the proposed system and apply the proposed system to actual business operation. The design phase takes approximately

half of a month to design the ideal system, which can solve the problem and meet the users' requirement from analysis part. The system construction phase uses a month to set up the actual system from the guideline in design phase. The system will be built and tested again and again in this phase in order to remove all undesirable errors. The last phase is implementation phase, which takes approximately a month. All of the task will be performed in the new proposed system. The users will be trained in this phase. The system will be fully run by the new proposed system after all 7 phases are completed.

Finally, the operation and support phase, which is excluded from the system analysis and design aims to support the system for some period of time. The main task of this phase supports the users to run the business with the new system smoothly and remove undesirable errors that might occur. This phase takes approximately half of a month to monitor the system.

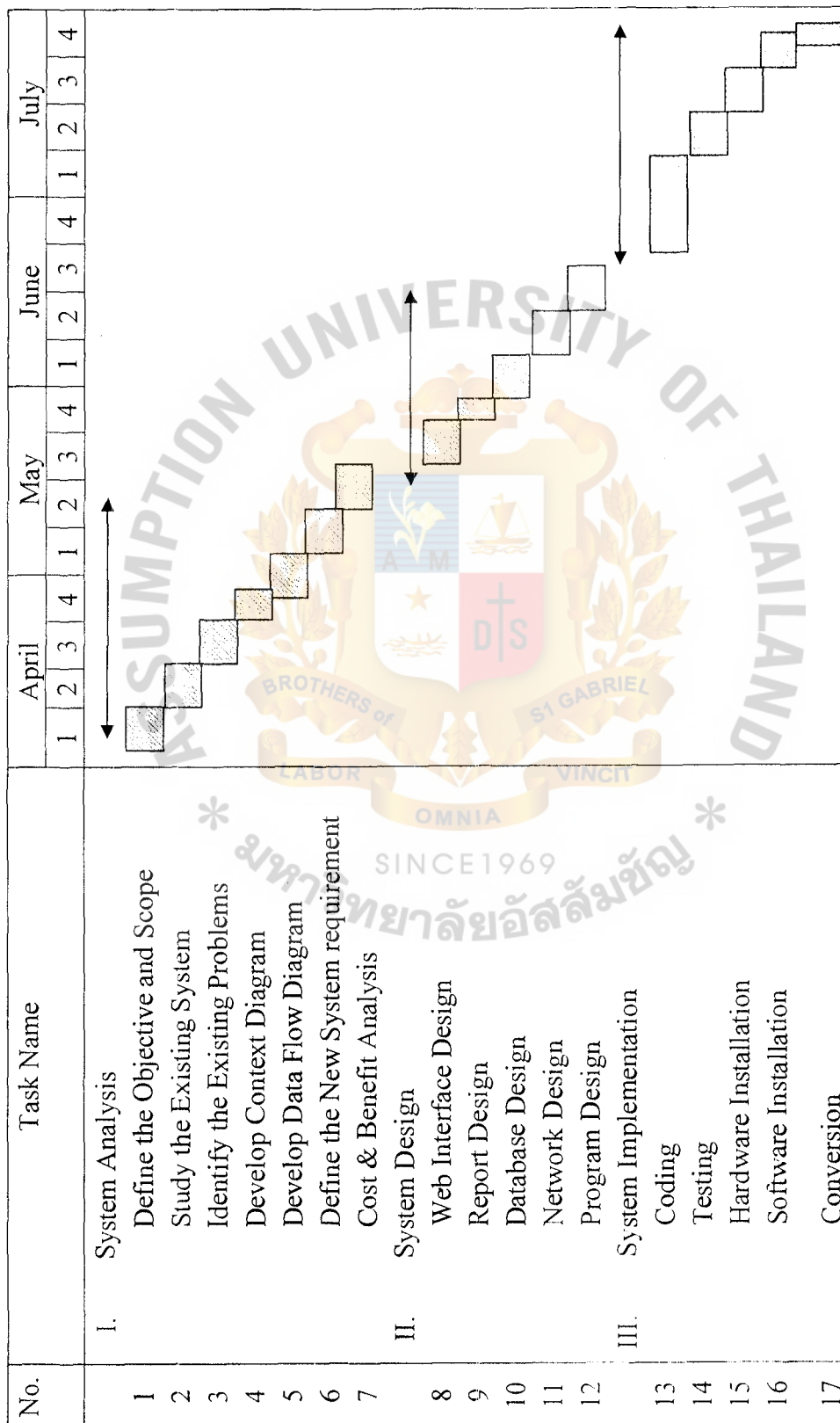


Table1.1. Project Plan of Models Agency System.

II. THE EXISTING SYSTEM

2.1 Background of the Organization

Massy Models Agency Company was established in 2003 as a models agency company. This company runs the business as a family business, and now has about 5 staff working in the office, which is located in Bangkok. The company has to find the people who are good looking, have good characters and then make an appointment with them to take the photo. So the models have to register all the information to the company by writing in the paper form. And then the company will be contacted by the production house to send the photo and information of models to production house. So the company has to keep the information of models which is the core function of the company.

The company has divided their system into 3 main processes: Model Register Process, Photo Process, and Receiving Order Process. The Model Register process is responsible to provide the service to all models to add their information in the register system such as name, address, age, sex, etc. by writing in the paper form of Massy Agency Models. Photo processes is responsible for taking the photo of the models .The photographer will bring the film to the photo shop to develop the photo film. The last process is receiving order. This process will concern the customers to request the models from Massy Models Agency Company .The customers will contact Massy Models Agency by telephone, fax or mail. The Massy Models Agency Company will record the requests in the book and then filtering the photo of models that meet their requirement and then Massy Models Agency Company will send the photos to the customer by the messenger.

Overall, the process of the existing system that is described above is summarized into the context diagram shown in Figure 2.1.

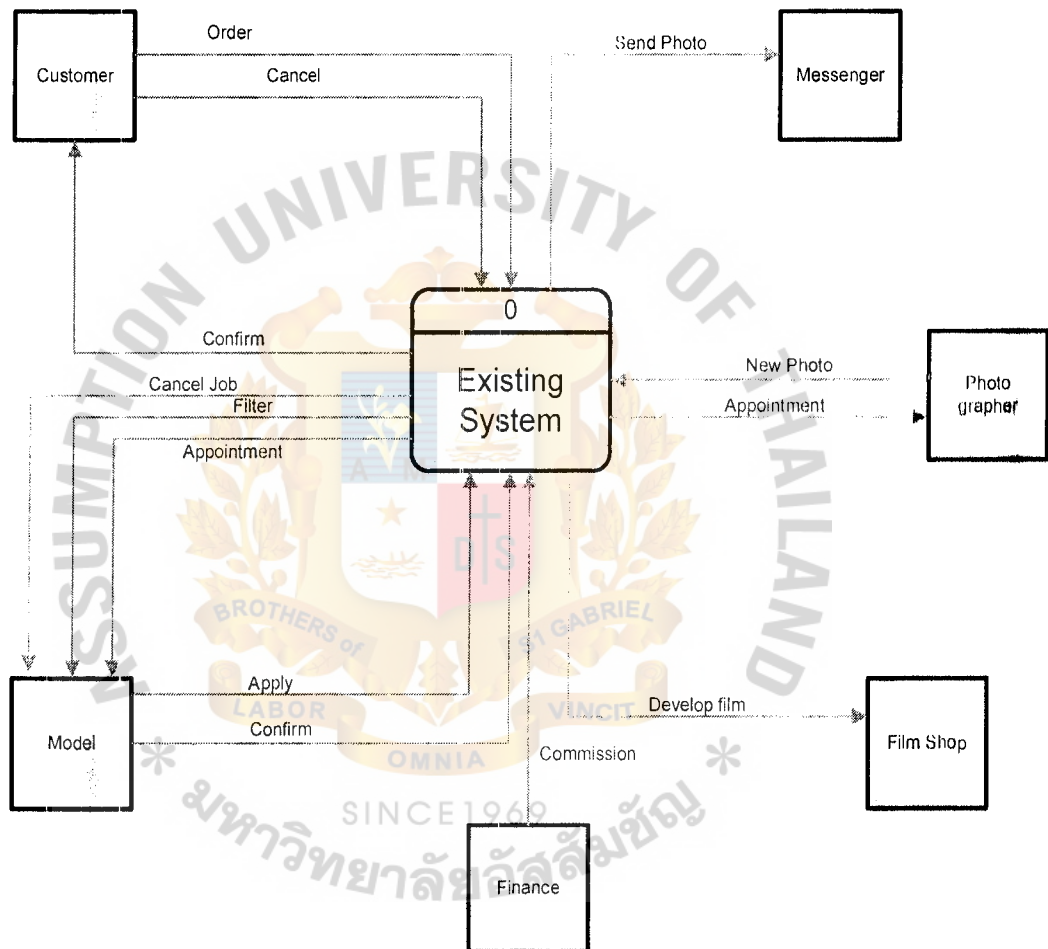


Figure 2.1. Level Context Diagram of Existing System.

2.2 Evaluation of Problems

The manual system that is currently applied in the company brings many problems to the company. According to PIECES analysis, the problems are classified into 6 major types which are performance, information, economics, control, efficiency, and service. All of the problems of the company will be arranged in these 6 main types.

(1) Performance

The performance of the system can be measured by the throughput and the response times of the system. The throughput of the existing system is too low. The amount of order that system can arrange, confirm to customer and applicants add the information in the paper in the period of time is limited. The existing system consumes much more time to complete customer's order, which has effect with the throughput of the system in the rush hour. The time between the order submitted and the confirmation is too long. The low throughput and slow response time indicate that the performance of the company has the problem.

(2) Information or Data

The information is separated into 3 main groups as follows:

(a) Output

The output from the system may not meet their requirements because of the error of the people. The information is not in a useful format. Some outputs are not accurate.

(b) Input

The input to the system is not in the format that is easy, it makes errors such as handwriting. So input contains errors, which are generated by humans.

(c) Stored Data

All the data are stored on paper. Some data are stored redundantly in multiple files of paper. The data is not well organized and is not ready for use. Accidents or vandalisms may occur to the paper, which stored the data. The data is not accessible or difficult to search for the required data.

(3) Economics

Economic Problem is the major problem of Models Agency Company because it has to minimize cost and maximize performance by competing with the time and opportunity at the same time. Costs in the existing system are too high, major cost is hard to estimate because some of costs are untraceable to source, which are not the best way to operate company in the long run.

(4) Control and Securities

There is too little control and securities in the existing system. As a result of storing the data on paper, every employee and unauthorized people can access the data. The data not be adequately edited. And redundantly stored data are inconsistent in different files or database.

(5) Efficiency

The manual system brings some problems, which are related to the company. Humans waste the operation times such as capture the data redundantly, information error or the process the data redundantly. The information is generated redundantly, as the existing system is a manual system. It may waste other people's time, and waste both materials and office supplies.

(6) Service

There is no standard for the manual system of the company. The system may produce inaccurate, inconsistent, and unreliable results.

2.3 Analysis and Selection of Alternatives

From the analysis of the existing system, the manual system is a major cause of many problems in the company such as too slow operation times, too high operation cost, or unreliable information. In order to solve this problem, the new system is introduced. Before the new system is designed, some factors have to be considered:

(1) Manual System versus Computerized System.

The manual system and computerized system had its own advantages and disadvantages.

Table 2.1. Manual System versus Computerized System.

Criteria	Manual System	Computerized System
Operation Speed	The operation speed is too slow.	The operation speed is fast.
Investment	The investment is very low.	Hugh investment is required to set up the system.
Operation Cost	The operation cost is high and some cost is untraceable to source.	The operation cost is relatively low compared to the manual system.

Table 2.1. Manual System versus Computerized System (Continue).

Criteria	Manual System	Computerized System
Maintenance Cost	The maintenance cost is relatively low compared to the computerized system.	The maintenance cost is high to maintain the system.
Data Error	The data contain many errors generated by human or other factor.	Computerized system will check the data input to minimize the data error rate.
Data Redundancy	Manual system generates very high data redundancy.	Computerized system reduces the data redundancy in the database.
Data Reliability	The data from manual system is unreliable and inconsistent.	Computerized system promotes the reliability and consistency of data.
Accessibility to data	It is difficult to access to the data in manual system.	It is very easy to access or search the required data in computerized system.
Data Securities	There is too little security in the manual system. The unauthorized person can access to the data.	The data is kept in the computer, which has the security system to protect the access from unauthorized person.
Number of employee Required	Manual system required more employees compared to Computerized system.	Computerized system minimizes the number of employee to reduce salary.

From Table 2.1, the computerized system is more preferable than the manual system. The computerized system has more advantages than the manual system. The computerized system can accelerate the operation, reduce the overall cost, and increase the reliability of the data and information.

2.4 Existing Computer System

In the existing system, there is no computer system existing in Massy Models Agency Company before.

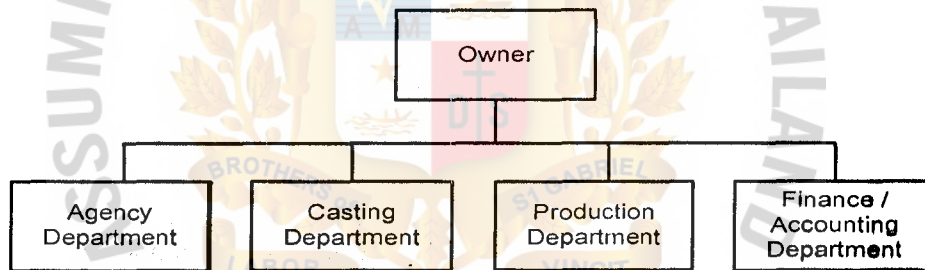


Figure 2.2. Organization Chart of Massy Models Agency Company.

III. THE PROPOSED SYSTEM

3.1 System Specification

The user requirements are obtained by interviewing, distributing questionnaires and observation applied to find out the requirement of users. After studying the existing system of the company, the problems are discovered. These requirements are the guidelines for the system specification. Users' requirements are the expectation from users toward the new system. The user requirements of this company are summarized as follows:

- (1) The proposed system has to shorten the service time for providing the service to customers. The time for searching the required data has to be minimized. The response time of the system has to be stimulated. The reliable information has to be increased together with the speed of the system.
- (2) The users would like the system to be user-friendly. The system should be easy to use or easy to understand.
- (3) The information should be easy to search. The office of the registrar provides request forms on the screen for models. The users want to use the information in the forms, such as Model's ID, to search for an individual record.
- (4) The new system has to minimize the human error for input of the information to system and the interface has to be well organized and designed. The system has to have some verification function to validate any input from users.

- (5) The proposed system has to reduce the paper work in the office. Any report, which is required by owner, is generated in the screen rather than paper work.

In order to provide the above requirement, the system specification is developed. The system specification depicts the feature of the proposed system in various aspects as follows:

- (1) Computer Hardware

An existing system does not have the computer hardware. New computer hardware is set up to support the computerized system. New hardware is designed according to the client/server system. There is one database server and two clients in the network. Each computer connects to the server by LAN network.

- (2) Database Redesign

An existing system keeps all information on the paper. The proposed system keeps the information in the computer rather than paper. The relational database theory is applied to the database. New relational database tables are designed in order to minimize the redundancy of database. The new database system facilitates users to manage the data within company.

- (3) Output, Input, and Interface Redesign

The users require the easy-for-use interface for input of the data. New interfaces specification aims to meet the requirement of the users. Many common GUI objects such as textbox, list box, combination box, and etc are used in new interface. Each common GUI object is used for the different types of data. The new interface can reduce the human-generated error by

reducing the typing from user. The proposed system has preprinted forms for each output. The preprinted form can shorten the response time for printing the document.

• 3.2 System Design

After receiving various requirements of the system, the next phase of the project is system design. The system design of this project primarily focuses to fulfill the business requirement of Massy Models Agency Company as well as user friendliness. The new system will be changed from manual system to a computer-based system. So the system design is evaluation of alternative solutions and specifications of a detailed computer based system. It is necessary to point out that the flexibility and expandability must be concerned due to backtrack previous phases to make corrections or respond to the new requirements

With regard to the system design, we should consider the feasibility of the system in terms of technical, economic, legal, and timing, management and social aspects according to company's background. It deals with the physical aspects of the system as hardware, software, database and other services.

To gain a better understanding of the new system requirement, the logical model is drawn to depict the system independent of any technical implementation. In this project, data modelling and process modelling techniques are used to document business requirement, and serve as the logical design of the proposed system. The detail of each technique can be explained as follows:

Data Modelling

Data modelling is a technique for organizing and documenting a system's data. Data modelling is sometimes called database modelling because a data model is eventually implemented as a database. Data modelling is depicted in graphical, which

is called an entity-relationship diagram, or ERD. There are three levels of entity-relationship diagram: context data model, key-based data model, and fully attributed data model. The context data model represents only the entity and relationship between each entity. There are nine entities, which are discovered in the system: Customers Information, Customer Order Information, Hiring Information, Model Information, Commission Information, Photo Information, Photo Lab Information, Develop Film Information and Payment information. Each entity has relationship, when combined with the entity name, in form of simple business sentences or assertions.

In key-based data model, the primary key must be added to each entity to exhibit the unique characteristic of each entity. The foreign key is a primary key of one entity that is contributed to (duplicated in) another entity to identify instances of a relationship. A foreign key (always in a child entity) always matched the primary key (in a parent entity).

The final data model is a fully attributed data model that shows all attributes of each entity. To identify all attributes, it requires the understanding of the data attributes for the system. These facts can be discovered through studying the existing reports and documents to be naming standard for attribution.

The following Figure 3.1. is the context data model of the proposed system.

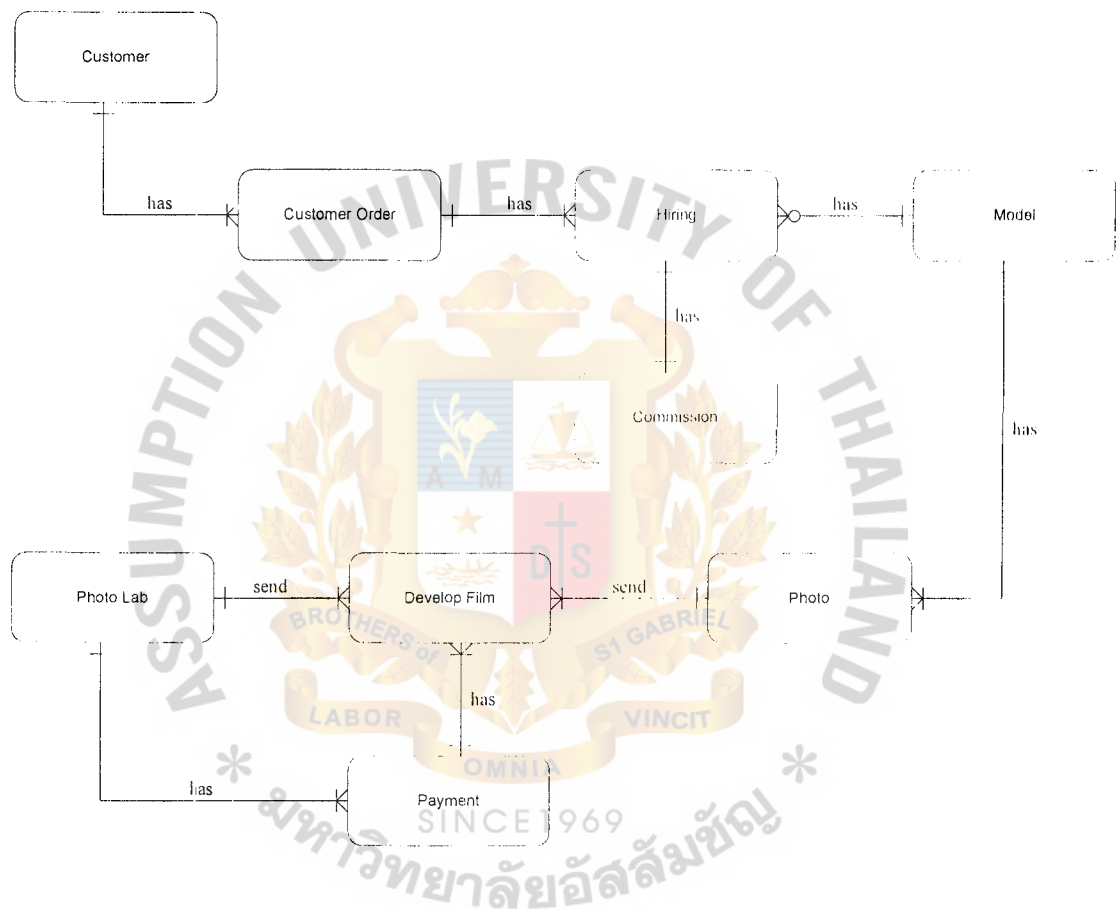


Figure 3.1. Context Data Model of the proposed system.

Process Modelling

Process modelling is a technique for organizing and documenting the structure and flow of data through a system's process and/or the logic, policies, and procedures to be implemented by a system's processes.

Moreover, this phase is related to the input and output designs, both input and output specifications have been derived from user requirements. We, therefore, must be careful to solicit their ideas and suggestions; the input screen must be developed to be user-friendly. The precise format of output and control must be specified to ensure that outputs are not lost, misused, or incomplete.

To construct the process model, the context diagram is first drawn to establish the initial project scope, which defines how the developed system interacts with other systems and the business as a whole. Figure 3.2 illustrates the context diagram of Proposed System. Six external entities, which are Customer, Model, Photographer, Finance, Owner and Film Shop, interact with the system.

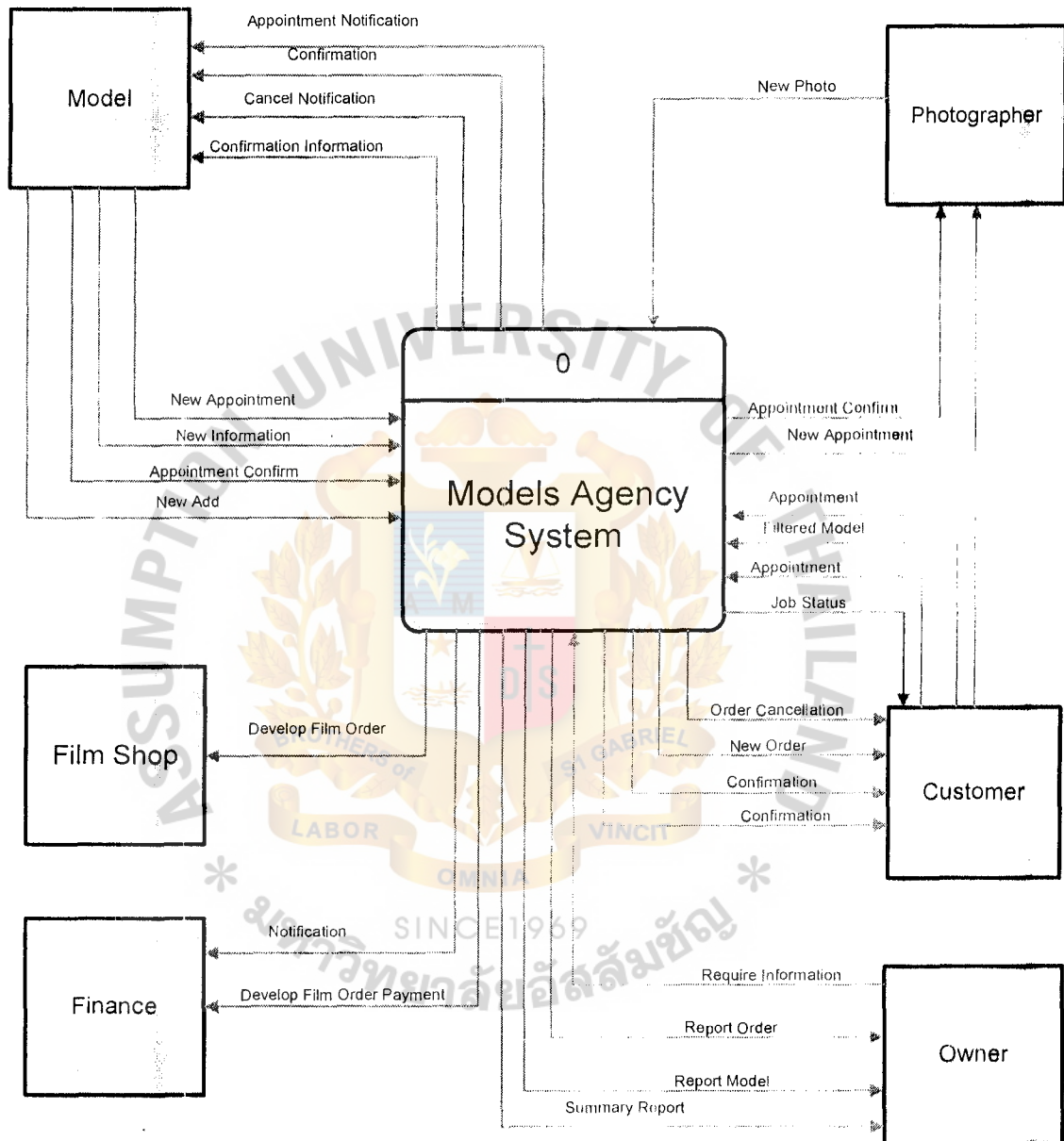


Figure 3.2. Context Data Flow Diagram of Proposed System.

Next, the functional decomposition diagram is created to show the top-down functional decomposition and structure of the system. This diagram also serves as an outline for drawing the data flow diagram for better understanding of the system. The functional decomposition diagram of proposed system is shown in Figure 3.3.



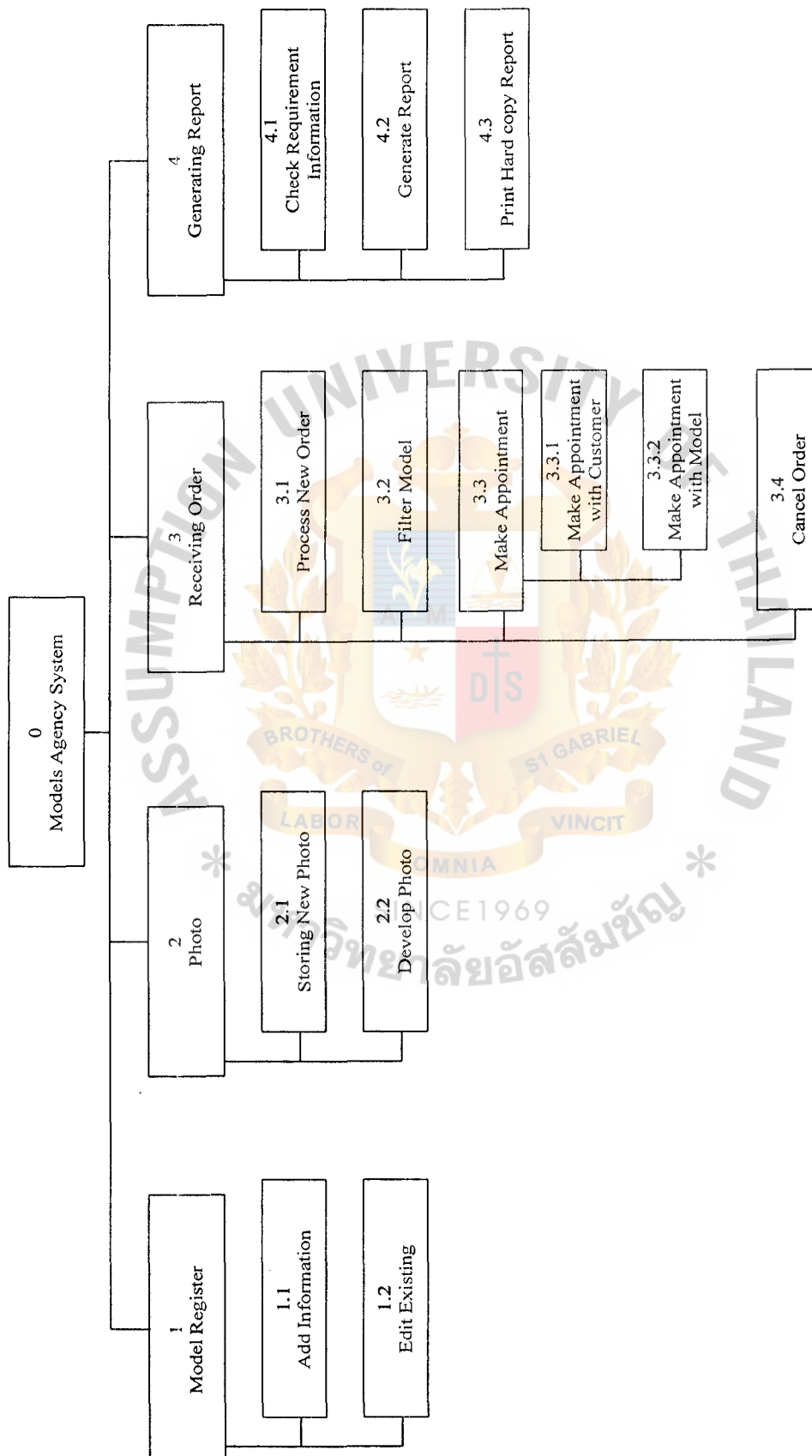


Figure 3.3. Functional Decomposition Diagram of the Proposed System.

After finishing the previous two diagrams, a data flow diagram (DFD) can be drawn to depict the flow of data to, from, and within the system. A data flow diagram has many levels of details. The lower the level of data flow diagram, the more details of processes within the system has. The details of each process can be explained briefly as follows:

(1) Subsystem 1: Model Register.

This subsystem is created for setting up the identification number of each model, and add or edit all the information of the model. Also model's information will be kept in the model database.

(2) Subsystem 2: Photo.

This subsystem is focused on the photo of the models to add to the models register information by using digital camera. The Company also uses film camera to take the photo. And then the company will send the films to the film shop to develop the photo.

(3) Subsystem 3: Receiving Ordering.

This subsystem is created for taking customers orders and input them into the system. The information gathered from customer's order by mail, phone, fax and then the officer will key in the information into the system. Also, order's information will be kept in order database. And then the Company can send the model's photo by mail and by sending the photo by mail, the company also can save the transportation cost.

(4) Subsystem 4: Generating Report.

This process will focus purely on generating various types of reports to the owner. These reports are mainly about order, model, and summary, which will be generated both daily and monthly. For the owner purpose, monthly

summary report is substantially useful. It will conclude all the orders and match with the models that get the job from the company.

Figure 3.4 illustrate level 0 data flow diagram of Proposed System. The lower levels of data flow diagram are shown in the Appendix A.



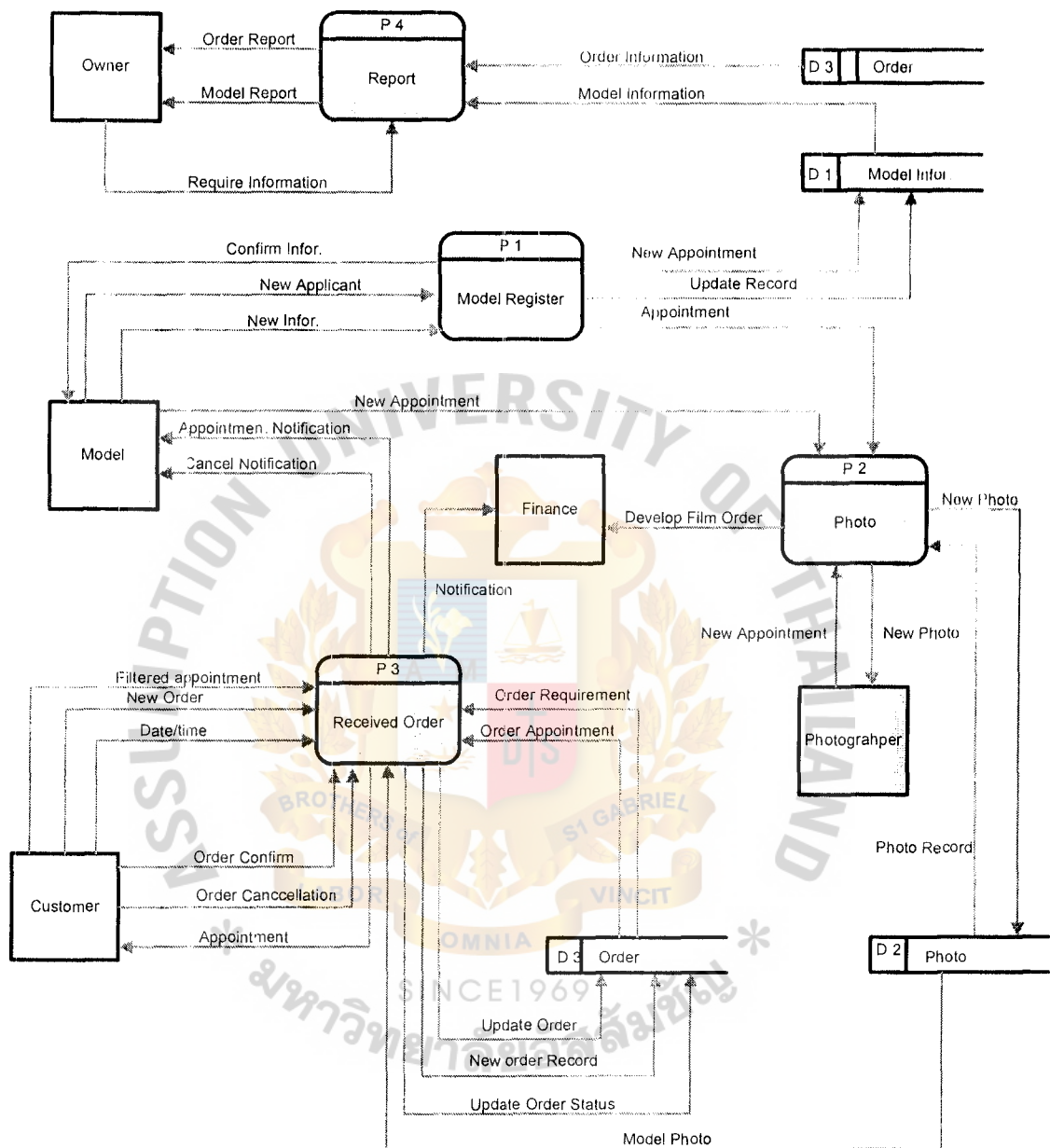


Figure 3.4. Level 0 Data Flow Diagram of Proposed System.

3.3 Candidate Solutions

In order to accomplish the system specifications, various types of solutions are designed as alternatives. There are 3 types of solutions designed for Massy Models Agency Company to set up the Models Agency System. Each solution is shown as follows:

(1) Package Solution

This solution is designed based on the ready-to-use software package, which is available in the market. There are many software packages in the market that are concerned about managing the information of the organization. This solution is developed easily and quickly. The cost of acquiring this solution is relatively cheap when compared with other solutions. However, this solution has one major disadvantage that is the inflexibility of the solution. The package is designed generally to suit the operating environment of most organizations. However, it cannot specifically match the entire requirements of a specific company. The compatibility of the solution is limited. The package solution has to be modified to satisfy the specific needs of the company.

(2) Custom Solution of MS Access

This is the custom-made application that will be developed by Borland Delphi 7. The MS Access 2002 is used to develop the database and software. Because database of the company not large. This solution takes a longer time to develop when compared with the previous solution. The development cost is also higher. The advantage of this solution is the flexibility of the solution. The solution is developed specifically to match the entire requirements of the company. The growth and change of the company are also considered when designing the application. The operation cost is reduced but the efficiency of the operation will increase.

(3) Custom Solution with Oracle

This solution uses Borland Delphi 7 as a tool to develop the application and Oracle to develop the database. Oracle support a larger amount of database than MS Access. The database is stored in server and the processing is done at the client. The application is designed to fit the requirement of the user. The application is very flexible and easy to use. The period to develop the application is even longer than the previous solution. The cost of developing this solution is also higher than the previous solution due to the cost of the Oracle Package. The cost of the development is too high and the database is too large for the company.

This feasibility analysis helps the company to make a decision to choose the most suitable solution. After all the candidate solutions are identified, the feasibility analysis is conducted to weigh each candidate solution with the interested criteria.

The criteria that are used in this feasibility analysis are as follows:

(1) Operational Feasibility

As mentioned earlier, candidate 2 and candidate 3 can fulfill this requirement of the user. This criterion measures each candidate whether it fulfills the user's requirement or not.

(2) Technical Feasibility

The level of expertise of company's user, which is the skills needed for the user is also measured by this criterion. This criterion measures the compatibility of the candidate with the existing technology of the company. In this sense, candidate 2 gets the highest score in this criterion.

(3) Economic Feasibility

Candidate 2 also gets the highest score in this criterion. The criterion compares all candidates about the economic value such as the investment for setting up the system, payback period, or the net present value of the system.

(4) Schedule Feasibility

For this criterion, candidate 1 gets the highest score. The schedule criterions measure the periods for the development of the solution. The longer period gets the lower score.

The feasibility analysis of all candidates is shown in Table 3.1.

Table 3.1. Feasibility Analysis Matrix.

Feasibility Criteria	Wt.	Candidate 1	Candidate 2	Candidate 3
Operational feasibility:	40%	The solution has to be modified to match with the requirement of the user. Score: 70	Fully support user requirement functionally. Score: 95	Same as candidate 2. Score: 95
Technical Feasibility	30%	Programmer is familiar with Microsoft products so this reduces development process.	Programmer is familiar with Microsoft products so this reduces development process.	Oracle is the leading DBMS software that provides high efficiency. But programmers are not familiar with oracle product.

Table 3.1. Feasibility Analysis Matrix (Continue).

Feasibility Criteria	Wt.	Candidate 1	Candidate 2	Candidate 3
		Required to hire the programmer to modify and integrate the solution with existing system. Score: 65	Required to train the employee to use the solution. Score: 75	Required to train the employee to use the solution Score: 70
Economic Feasibility Cost to develop: Overall cost:	20%	Approximately 417,400 baht Approximately 3,344,234 baht Score: 60	Approximately 505,400 baht Approximately 2,769,168 baht Score: 75	Approximately 524,400 baht Approximately 2,788,168 baht Score: 70
Schedule Feasibility	10%	3 Months Score: 95	8 months Score: 80	10 months Score: 75
Total Score	100%	69.00	82.50	80.50

Process Specification

The purpose of process specification is to define what the system does to transform inputs into outputs. It provides the details of system processes in table format, which is easier to look at all related input, output, and relevant process than in a diagram. All specified tables, which are processes from the logical DFD. Process Specification is illustrated in Appendix D.

Data Dictionary

To support system design, data dictionary provides a list of terms and definitions for all data items and data stores within the developed system. The data dictionary for entity-relationship diagram is shown in Appendix E.

Database Design

Data modelling (ERD) in the previous section requires some additional process called data analysis to convert the design logical data model into implemented database. In data analysis, a normalization technique is used to transform all data in ERD into applicable database. The result of database design is database structure in table format. The database design is shown in Appendix F.

Output Design

Output requirements also come from the data flow diagram. These system outputs are easily identified and examined through the data flows that are connected to external entity. More details of output design can be gathered from interviewing the system users about their output requirements.

3.4 Hardware and Software Requirement

The existing system of the company is manual system but the proposed system is a computer-based system. Massy Models Agency Company has to purchase new hardware and develop new software.

The hardware and software that the company has to purchase are listed below:

(1) Hardware Requirement

(a) 1 set of database server

Table 3.2. Hardware specification of database server.

Hardware	Specification
CPU	Intel Pentium IV 1.5 G
Motherboard	GIGABYTE GA-8IEXP
RAM	DDR RAM 512 MB
Hard Disk	Seagate 80 GB
CD-ROM	Lite-On 50X
Monitor	Samsung 17"

(b) 2 sets of personal computer

Table 3.3. Hardware specification of client computer.

Hardware	Specification
CPU	Intel Pentium IV 1.5 G
Motherboard	GIGABYTE GA-8IEXP
RAM	DDR RAM 512 MB
Hard Disk	Seagate 80 GB
CD-ROM	Lite-On 50X
Monitor	Samsung 17"

(c) 1 printers :

Dot matrix printer (EPSON LQ 1170 ESC/P 2)

(d) 1 UPS

UPS (Uninterrupted Power Supply)

(e) Scanner

Table 3.4. Software Requirement.

Software Type	Software
Operating System	Microsoft Windows 2000
Application Software	Microsoft Office 2000 <ul style="list-style-type: none">• Microsoft Word• Microsoft Excel• Microsoft Access• Microsoft PowerPoint• Microsoft Outlook

Table 3.5. Hardware Requirement for Set up Network.

Hardware
HUB
LAN Card
Wire

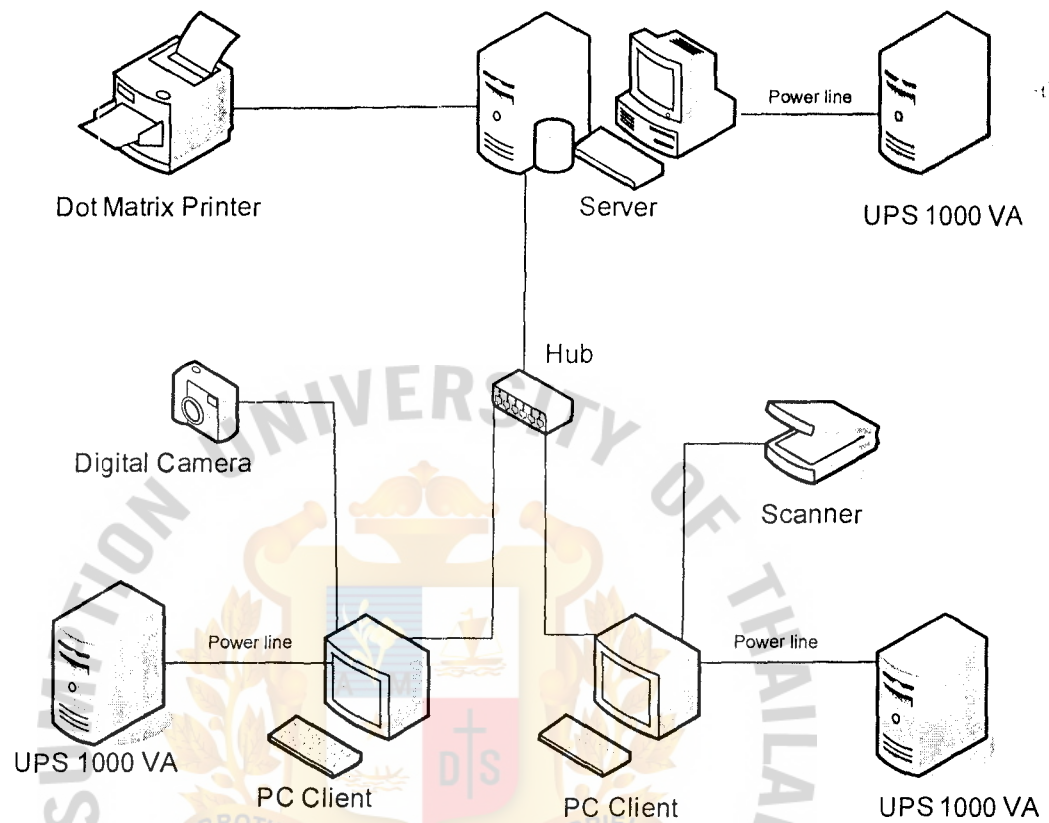


Figure 3.5. The Network Configuration of Proposed System.

3.5 Security and Control

The following minimum requirement of security standards must be applied to the computerized system to prevent unauthorized access and alteration to the system.

Security and control for the proposed system can be listed as follows:

3.5.1 System Security

- (1) To Protect against Unauthorized Access.

In order to access the system, each user must have their own login names and password to access the system. If failed to login three times, the user login name will be automatically locked to prevent unauthorized access.

3.5.2 Data Security

- (1) Eliminate Computer Downtime

Computer downtime could accidentally damage both data and the system. To prevent this disaster, we use UPS with 1000VA in order to prevent the damage of the computer and the network.

- (2) Control Configuration and Setting

Users should not authorize to change the configuration and the setting of the system. System should be periodically (3-4 months) monitored and audited to prevent loss or damage that maybe caused by the change of the configuration and setting.

- (3) To Protect Against Physical Destruction

Physically, the computer should be placed at a safe place that have authorized access. This is to prevent the system from both physical destruction and unauthorized access. The database server should be well places in a separate placed in order to avoid any physical destruction.

(4) To Protect Against Loss of Data

The system also has the back up and recovery function in order to protect the data form harmful event. All the information is backed up weekly, monthly, and annually. The software is also backed up to separate the hard disk. This hard disk is ready-for-use for the system. If the undesired event happens, the back up information and software can replace the damaged part immediately.

3.6 Cost and Benefit Analysis

When the proposed system is developed to replace the existing system, the details of both cost and benefit of the proposed system compared with the existing system must be illustrated. Furthermore, the benefits of the proposed system are presented in both tangible and intangible terms. Finally, the analysis techniques, which are breakeven analysis and payback period, are applied to show the benefits over the cost after the implementation of the proposed system.

(1) The cost of Manual System:

Massy Models Agency Company has been working manually, and incurs both fixed cost and annual operating cost. The fixed cost is spent mainly on the office equipment such as telephones, calculators, and etc. Fixed cost is spent as an initial investment. The salary of employee, the office supplies, miscellaneous cost, and utility cost are included in the operation cost. The fixed cost is spent only once as initial investment. This cost is shown in the first year of the operation. The other type of cost is the operation cost. The operation cost is separated into two main groups as staff cost and office cost. The staff cost is a salary expense. The salary cost is expected to rise 5% of the previous year salary. The office cost includes

utilities cost, office supplies cost, miscellaneous cost, and printing material cost. The utilities cost is expected to increase by 10% of the previous cost. The office supplies cost and printing material cost also increase by 10% of the previous cost. The details of the existing system cost are summarized in Table 3.6

Table 3.6. Cost of the Existing System.

Cost Items	Years				
	1	2	3	4	5
<u>Fixed Cost</u>					
Electric typewriter 1 units@6000	6,000	-	-	-	-
Calculator 3 units@1,000	3,000	-	-	-	-
Facsimile 1 unit@5000	5,000	-	-	-	-
Telephone 2 units@1200	2,400	-	-	-	-
Camera 1 unit@24000	24,000	-	-	-	-
Total Fixed Cost	40,400	-	-	-	-
<u>Operating Cost</u>					
<u>Salary Cost:</u>					
Office Workers 3 person@10,000	360,000	378,000	396,900	416,745	437,582
Photographer 1 person@7000	84,000	88,200	92,610	97,241	102,103
Massager 1 person@7000	84,000	88,200	92,610	97,241	102,103
Total Monthly Salary Cost	54,000	56,700	59,535	62,512	65,638
Total Annual Salary Cost	582,000	611,100	641,655	673,738	707,426
<u>Office Supplies & Miscellaneous Costs:</u>					
Office Supplies Per Annual	20,000	22,000	24,200	26,620	29,282
Utilities Per Annual	45,000	49,500	54,450	59,895	65,885
Miscellaneous Per Annual	25,000	27,500	30,250	33,275	36,603
Total Annual Office Supplies & Misc.Cost	90,000	99,000	108,900	119,790	131,769
Total Annual Operating Cost	672,000	710,100	750,555	793,528	839,195
Total Current System Cost	712,400	710,100	750,555	793,528	839,195

Table 3.7. Five Years Accumulated Manual System Cost, Baht.

Year	Total Cost	Accumulated Cost
1	712,400	712,400
2	710,100	1,422,500
3	750,555	2,173,055
4	793,528	2,966,583
5	839,195	3,805,778
Total	3,805,778	—

(2) Cost of proposed system

The proposed system is a computerized system. Cost of the proposed system is mainly spent at the investment as the initial investment. Total cost of proposed system is also categorized to fixed cost and operation cost. The computer system replaces some office equipment so the cost of the replaced equipment will be removed. The fixed cost includes the computer hardware, software, and network hardware. This investment is paid to the vendor who provides the computer system. This investment is paid as the initial investment for the system. There is some office equipment, which cannot be replaced by the computer hardware such as telephone. The other cost is operation cost. As a result of setting up new computer system, company can reduce the number of employees. The other operation cost is also reduced. The computer system also brings the additional cost to company. The additional cost is the maintenance cost for maintenance of the computer system.

Table 3.8. Cost of the Proposed System.

Cost Items	Years				
	1	2	3	4	5
<u>Fixed Cost</u>					
<u>Hardware Cost:</u>					
Server Computer	40,000	-	-	-	-
Client Computers	48,000	-	-	-	-
Network Hardware	10,000	-	-	-	-
<u>Office infrastructure</u>					
Digital Camera	15,000	-	-	-	-
Scanner	4,000	-	-	-	-
Telephone 2 units@1200	2,400	-	-	-	-
Facsimile	5,000	-	-	-	-
Camera	24,000	-	-	-	-
Printers and Other Peripherals	30,000	-	-	-	-
Total Hardware And Office Infrastructure Cost	178,400	-	-	-	-
<u>Software Cost:</u>					
Operating System Cost	15,000	-	-	-	-
Office Application Cost	42,000	-	-	-	-
Written Software Cost	180,000	-	-	-	-
Total Software Cost	237,000	-	-	-	-
<u>Implementation Cost:</u>					
Training Cost	20,000	-	-	-	-
Setup Cost	70,000	-	-	-	-
Total Implementation Cost	90,000	-	-	-	-
Maintenance Cost		5,000	10,000	15,000	20,000
Total Fixed Cost	505,400	5,000	10,000	15,000	20,000
<u>Operating Cost</u>					
<u>Salary Cost:</u>					
Office Workers 2 person@10,000	240,000	252,000	264,600	277,830	291,722
Photographer 1 person@7000	84,000	88,200	92,610	97,241	102,103
Total Monthly Salary Cost	27,000	28,350	29,768	31,256	32,819
Total Annual Salary Cost	324,000	340,200	357,210	375,071	393,825
<u>Office Supplies & Miscellaneous Costs:</u>					
Office Supplies Per Annual	16,000	17,600	19,360	21,296	23,426
Utilities Per Annual	40,000	44,000	48,400	53,240	58,564
Miscellaneous Per Annual	15,000	16,500	18,150	19,965	21,962
Total Office Supplies & Misc. Cost	71,000	78,100	85,910	94,501	103,951
Total Annual Operating Cost	395,000	418,300	443,120	469,572	497,776
Total Proposed System Cost	900,400	423,300	453,120	484,572	517,776

Table 3.9. Five Years Accumulated of Proposed System.

Year	Total Current Cost	Accumulated Cost
1	900,400	900,400
2	453,300	1,353,700
3	453,120	1,806,820
4	484,572	2,291,392
5	517,776	2,809,168
Total	2,809,168	-

- (3) The Comparison of the System Costs between Computerized System and Manual System:

After both the existing system cost and the proposed system cost are identified, the comparison table is constructed to reveal the cost saving after implementing the new proposed system. Since Massy Models Agency Company has been working manually, everything is recorded on paper. So the operating costs of the computerized system must be higher than manual system in the first period and will be decrease later as time passes by. The figures of the comparison of the system cost are summarized on Table 3.13.

Table 3.10. The Comparison of the System Costs, Baht.

Year	Existing System	Proposed System
1	712,400	900,400
2	1,422,500	1,353,700
3	2,173,055	1,806,820
4	2,966,583	2,291,392
5	3,805,778	2,809,168

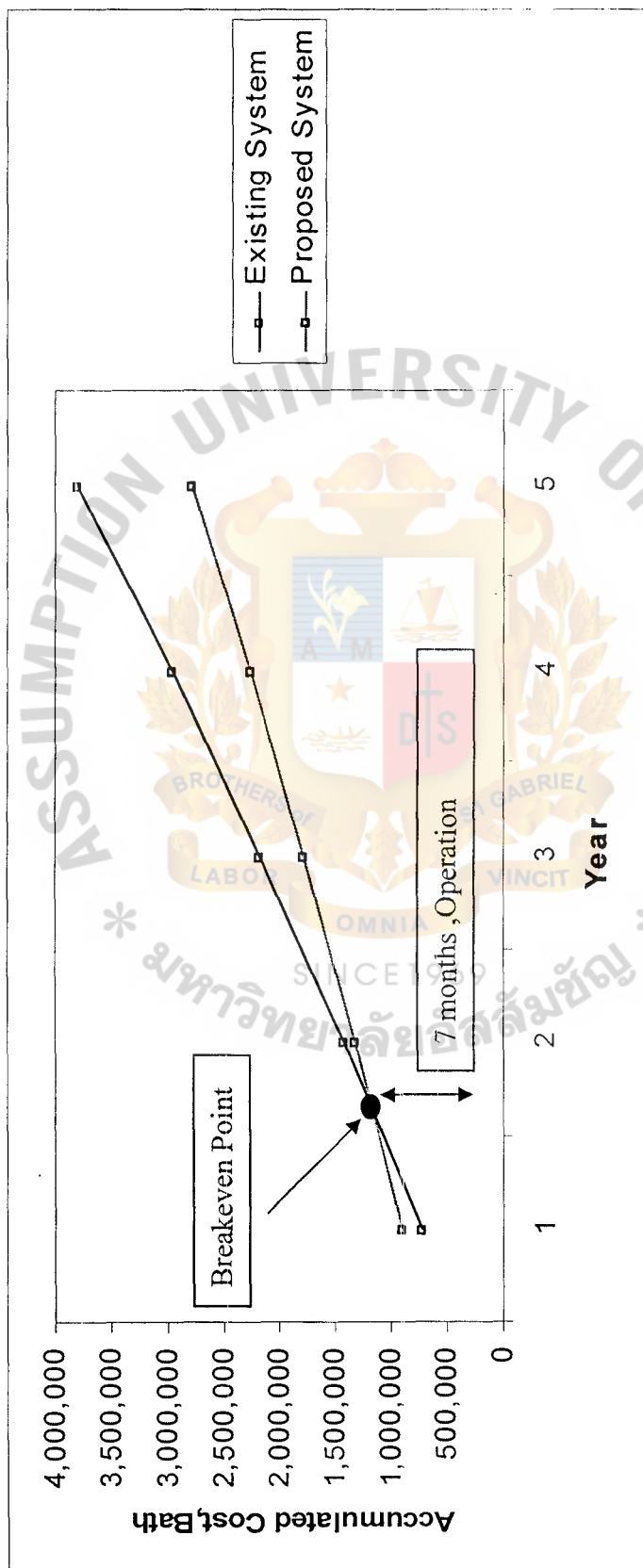


Figure 3.6. Cost Comparisons between Manual and Computerized System.

(4) Benefit Analysis

In the previous section, it can be clearly seen that the total cost of the proposed system in the first year is higher than the total cost of the existing system. Nevertheless, in the following year, the total cost of the proposed system is much lower than the total cost of the existing system. This can happen due to lower operation cost of the proposed system.

The benefit from the proposed system can be categorized into two main types, tangible and intangible benefits which will be described as follows:

- (a) The tangible benefit is the benefit that can be depicted in a quantitative amount. This benefit can be calculated and shown in a numeric form. This is the benefit from increase in sales, increase in performance, as well as decrease in operation cost.

Annual Tangible Benefits (baht) can be estimated as follows:

(1) Profit on decreased costs	870,000
(2) Response time decreases	25,000
(3) Total salary decreases	320,000
(4) Productivity increases	250,000
(5) Production error decreases	<u>75,000</u>
Total	<u>1,540,000</u>

- (b) Intangible benefits: The proposed system also brings some benefits that cannot be measured by the quantitative value. The customer satisfaction is one of intangible benefits of setting up the new proposed system. The customers are concerned only about the response time and the output of the system. They require only a short

response time and the reliable output. The proposed system can increase the customer satisfaction indirectly by increasing the speed and reliability of the system. The faster speed and more reliable output is a result of minimizing data redundancy, increasing security and control of the system, and facilitating processes among relevant units.

(5) Cost-Benefit Evaluation

(a) Break-even Analysis

It is a technique for illustrating the point that the accumulated manual cost equates the accumulated proposed cost. Initially, the cost of the proposed system is higher than the cost of the manual system. The higher cost of the proposed system is a result of the high investment for setting up the computer and network hardware. The accumulated cost of both proposed system and existing system increases over time but the rate of increasing cost of the proposed system is lower than the existing system. The lower rate of increasing cost of the proposed system comes from the low operation cost. So, the accumulated cost of the proposed system at the end of the year 5 is lower than the accumulate cost of the existing system. In Figure 3.6, the break-even point can be found to be approximately 7 months.

(b) Payback Period

It is a technique for evaluating the project in a quantitative manner. The payback period shows the point of time that the accumulated benefits can cover the accumulated costs of the project. The payback period of this project is approximately 2 year and 8

months. This technique provides the rough decision criterion for the manager to make decisions. The illustration of the payback period will be shown in Table 3.11 and Figure 3.7:



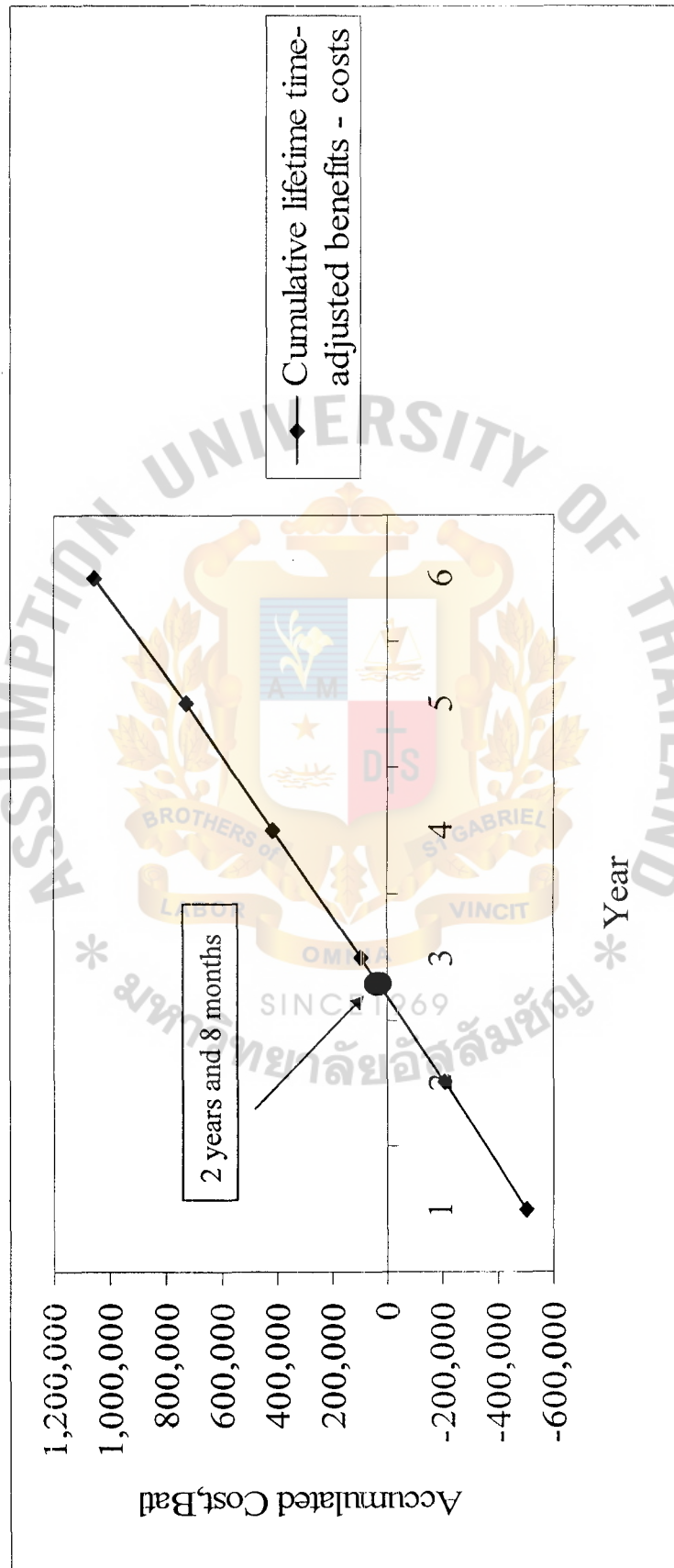


Figure 3.7. Payback Period Analysis of the Proposed System.

Table 3.11. Net Present Value for Proposed System, Baht.

Cash Flow Description	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Develop Cost	-505,400					
Operation & Maintenance Cost		-395,000	-418,300	-443,120	-469,572	-497,776
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Costs	- 505,400	- 352,735	-333,385	- 315,502	- 298,648	- 282,239
Cumulative time-adjusted costs over lifetime	- 505,400	- 858,135	1,191,520	- 1,507,022	- 1,805,670	-2,087,909
Benefit derived from operation of new System		730,000	803,000	883,300	971,630	1,068,793
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Benefits	0	651,160	639,991	628,026	616,985	606,006
Cumulative time-adjusted benefits over lifetime	0	651,160	1,291,151	1,919,177	2,536,162	3,142,168
Cumulative lifetime time-adjusted benefits - costs	-505,400	- 206,975	99,631	412,155	730,492	1,054,259

(c) Net Present Value (NPV)

Net Present Value derives from the Estimated Lifetime Benefits minus the Estimated Lifetime Costs. It shows the net amount of money that this project will contribute to the company. The NPV of this project can be calculated as follows:

$$\begin{aligned}\text{NPV} &= \text{Estimated lifetime benefits} - \text{Estimated lifetime costs} \\ &= 3,142,168 - 2,087,909 \\ &= 1,054,259 \text{ baht}\end{aligned}$$

This amount of NPV states that during 5 years of operations, this project will contribute 1,054,259 baht to the company. In other words, if the company invests 1,054,259 baht at 12 percent for five years, the profit will be the same as that of this project.

(d) Return-on-Investment (ROI)

ROI is a percentage rate that measures the relationship between the amount the business gets back from an investment and the amount invested. The lifetime ROI for a project is calculated as follows:

$$\begin{aligned}\text{ROI} &= \text{Net present value} / \text{Estimated lifetime costs} \\ &= 1,054,259 / 2,087,909 \\ &= 50.49\%\end{aligned}$$

V. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation

System implementation is the planned and orderly conversion from an existing system to the proposed system. The final design should be evaluated first to make sure that the proposed system can meet the desired goals and objectives, and then the other remaining processes will be performed. The typical processes of the System Implementation are:

- (1) Hardware and Software acquisition, development and installation:

The proposed system must newly purchase and install both file and database server and clients. The database must also be newly designed for the proposed system.

- (2) Personnel training:

This process is aimed to train the existing user for using the proposed system. The users are trained to operate the proposed system to solve some problems of the proposed system. The objectives of training are to give more understanding of the proposed system.

- (3) Prepare Conversion Plans:

This process is setting up the plan for converting the existing system to the proposed system. The conversion plan is set up like a guideline. The conversion technique is applied to set up the conversion plan.

- (4) Testing:

Testing is conducted to ensure that the proposed system is working properly. Stub testing, unit testing, and system testing are done to fulfill this objective.

(5) Conversion:

Before converting the existing system to the proposed system, the conversion plan must be prepared to serve as a guideline for the entire conversion process.

4.2 Source Code

The written software can be started for coding after acquisition of all hardware and software packages. The proposed program is designed in a module approach, which facilitates the programmer to code the program and test it simultaneously module by module (stub testing). After every module is finished, they are combined together as a program and the program testing will be conducted to test the compatibility and cooperation among each module. After the written software has been coded and tested successfully, it will be installed into the computer hardware.

4.3 Test Plan

The purpose of test plan is to certify that the system is free of errors and ready to be placed in to final operation. The test plan can be categorized into three main tests: database testing, network testing and program testing.

- (a) Network testing. The Company infrastructure must be built and tested. As the Company database must be shared or used or accessed, the Company has to ensure that the network that links between the server and 2 clients can work.
- (b) Database testing. The database testing must immediately precede other programming activity because the databases are the resources shared by the computer programs to be written. This process is relatively important since the existing database is in paper form and it must be converted into a

computer-based database format. All the data will be kept in the database server.

- (c) Program testing. Testing should not be deferred until after the entire program has been written. There are three levels of testing to be performed: Stub testing, unit or program testing, and systems testing.

Stub testing is the test performed on individual events or modules of a program. A single program works properly does not mean that it works properly with other modules. Unit or program testing is needed to test all the events and modules as an integrated unit. It is the testing of an entire program. A system testing is performed to test all the set of programs, which should be run through the systems test to make sure one program properly accepts, as input, the output of other programs.

4.4 Conversion

The final process of implementation for the system is to convert the existing system to the new proposed system. The conversion is performed according to the conversion plan, which is set up from earlier process. The parallel conversion will be applied to this system. Under this approach, both the old and new systems are operated for some time. This ensures that all major problems in the new system have been solved before the old system is discarded. In addition, this approach will help the users to gradually get acquainted to the new system over time.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This project studies the problems of the existing system of Massy Agency Models Company that is a manual system. The problems occur due to ineffective information system that causes the company to not fully utilize the information to its best use.

The new computerized information system has been introduced to replace the existing one. The new system costs 505,400 baht initially to develop and the accumulated cost over 5 years is 2,769,168 baht. The break-even point would be within 1 year and 7 months where the accumulated cost of new project equates the accumulated cost of the existing one. Payback period would be around 2 year and 8 months that the net cash flows of the project will turn out to be of positive value. The Net present value and Return on investment are 1,054,259 baht and 50.49% respectively. All of these indicators indicate that this project is worth investing.

This project will also provide many contributions to the company which will be listed as follows:

- (1) Management: The input process is in a standardized format and then the data will be stored properly.
- (2) Information Technology: The new system consists of the best combination of the hardware, software, and network that will help manage the flow of data in the system.
- (3) Organization: Due to better information management, the service time provided to the customers will be lesser. In addition, the errors will decrease.

- (4) Information: The data retrieval and query system will be much more efficient so that it will take very little time to do such required action.
- (5) Business Solution: With the use of the new system, revenue will increase so profit increases by 870,000 baht in the first year. Response time will decrease resulting in the monetary benefit of 25,000 baht. Total salary will decrease by 320,000 baht. Productivity increases in the monetary value of 250,000 baht. And finally, production error will decrease which results in the benefit of 75,000 baht.

The degree of achievement of the proposed system is shown in the following table:

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

Process	Existing System	Proposed System
Data Entry (per record)	10 minutes	5 minutes
Data Calculation (per record)	2 minute	2 seconds
Data Verification (per record)	5 minutes	2 seconds
Search, Inquiry (per one information)	15 minutes	2 minute

From the table, it is obvious that the response time of the proposed system will be much faster than the existing system.

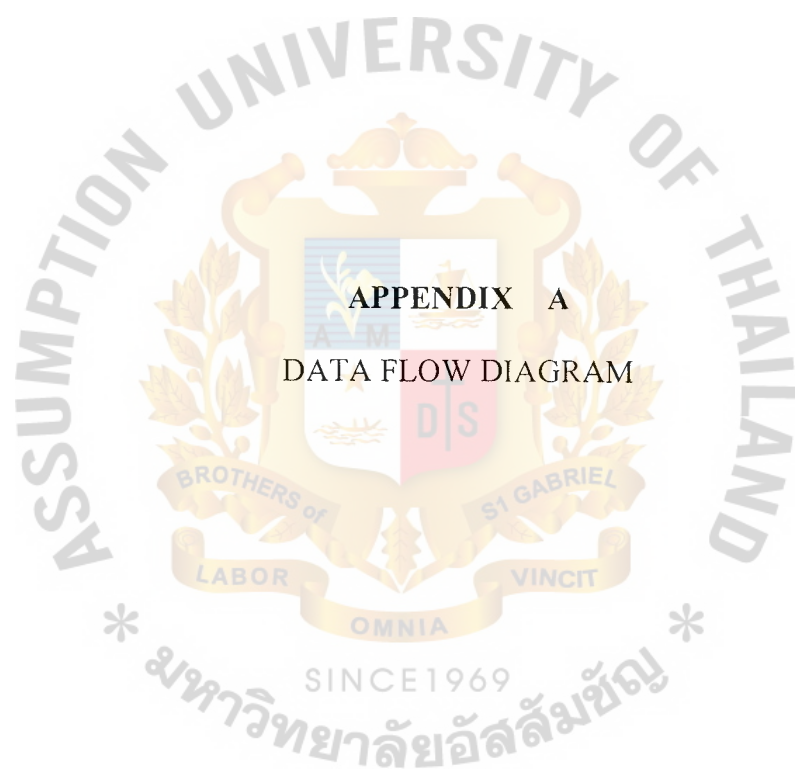
5.1 Recommendations

At present, information technology plays an important role in operating a business. Some people may gain competitive advantage if they apply the information system in their business properly. According to all the reasons mentioned in this report, it is strongly recommended that the new system should be implemented by Massy Models Agency Company. This project is an example of applying information system in

Models Agency Company. This project is an example of applying information system in some business processes. The management should monitor and study it carefully because it provides valuable information that can be taken into consideration before applying its concept throughout the Models Agency Company.

The new information system for Massy Models Agency Company will also be designed for future change and growth, for example, to use web page implemented by Visio.Net and database implemented by MS Access.





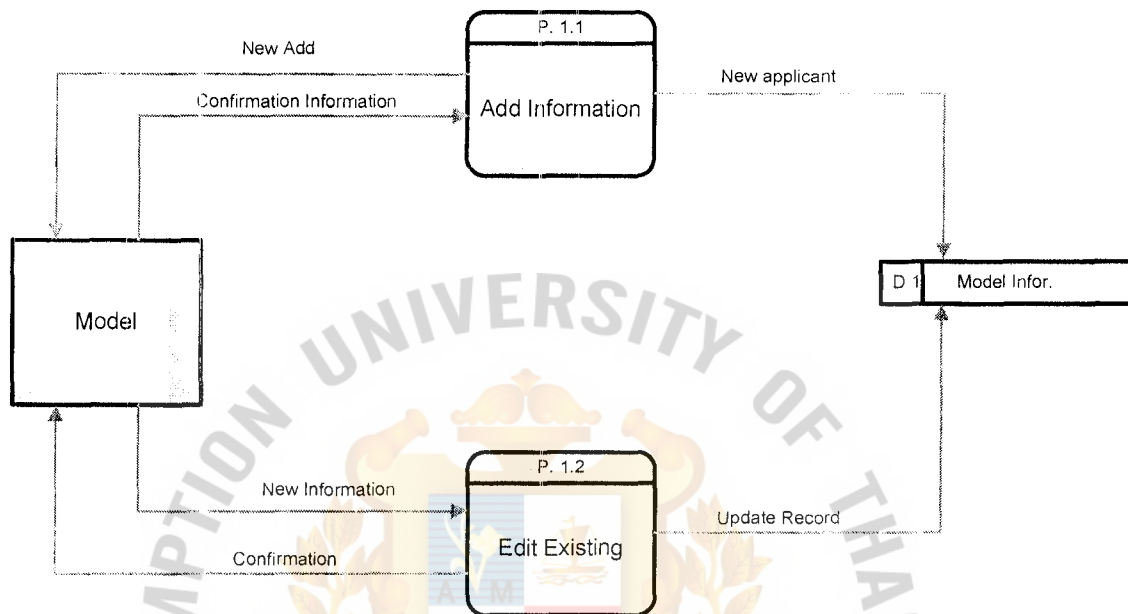


Figure A.1. Level 1 Data Flow Diagram of Model Register Process.

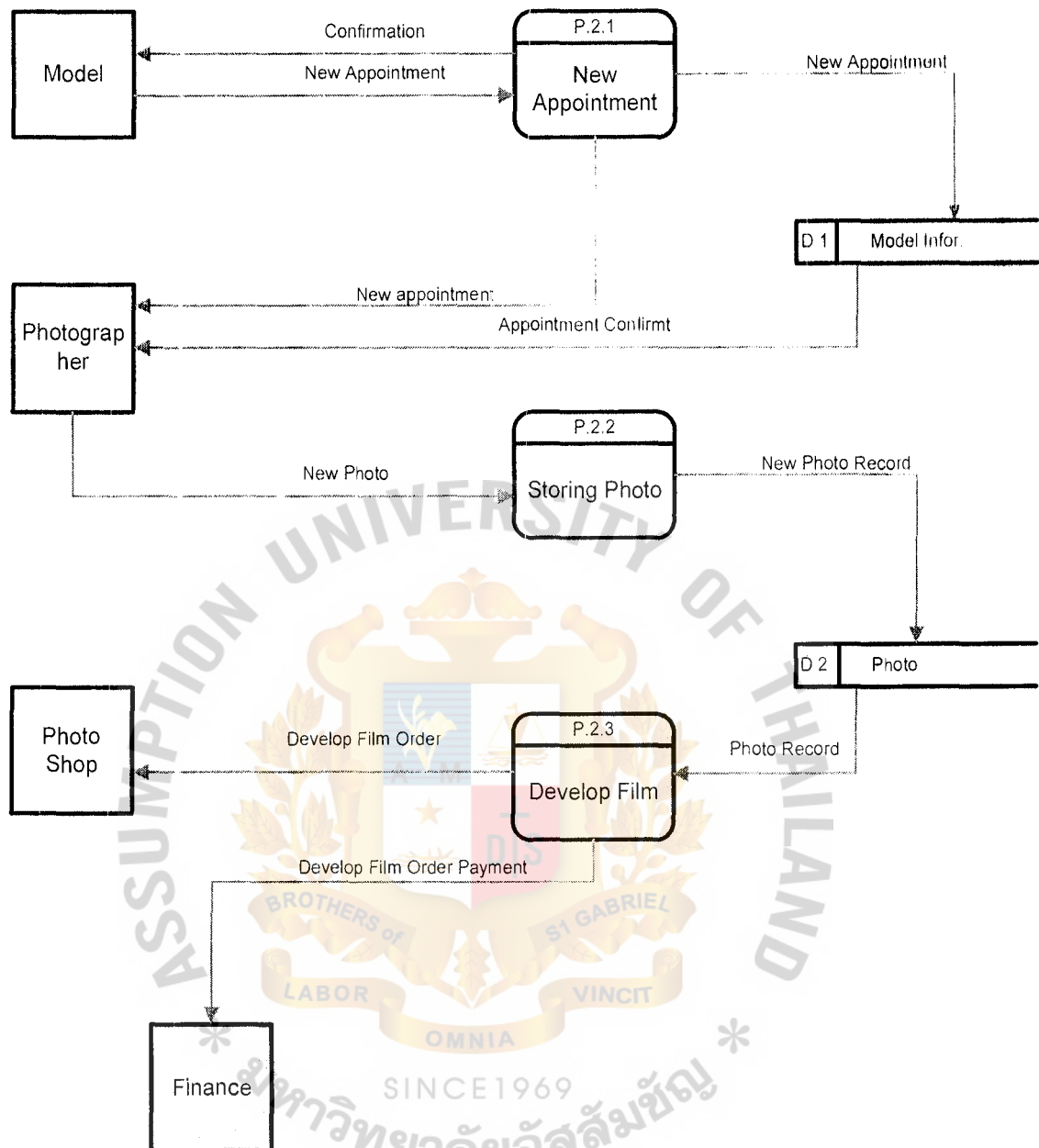


Figure A.2. Level 1 Data Flow Diagram of Photo Process.

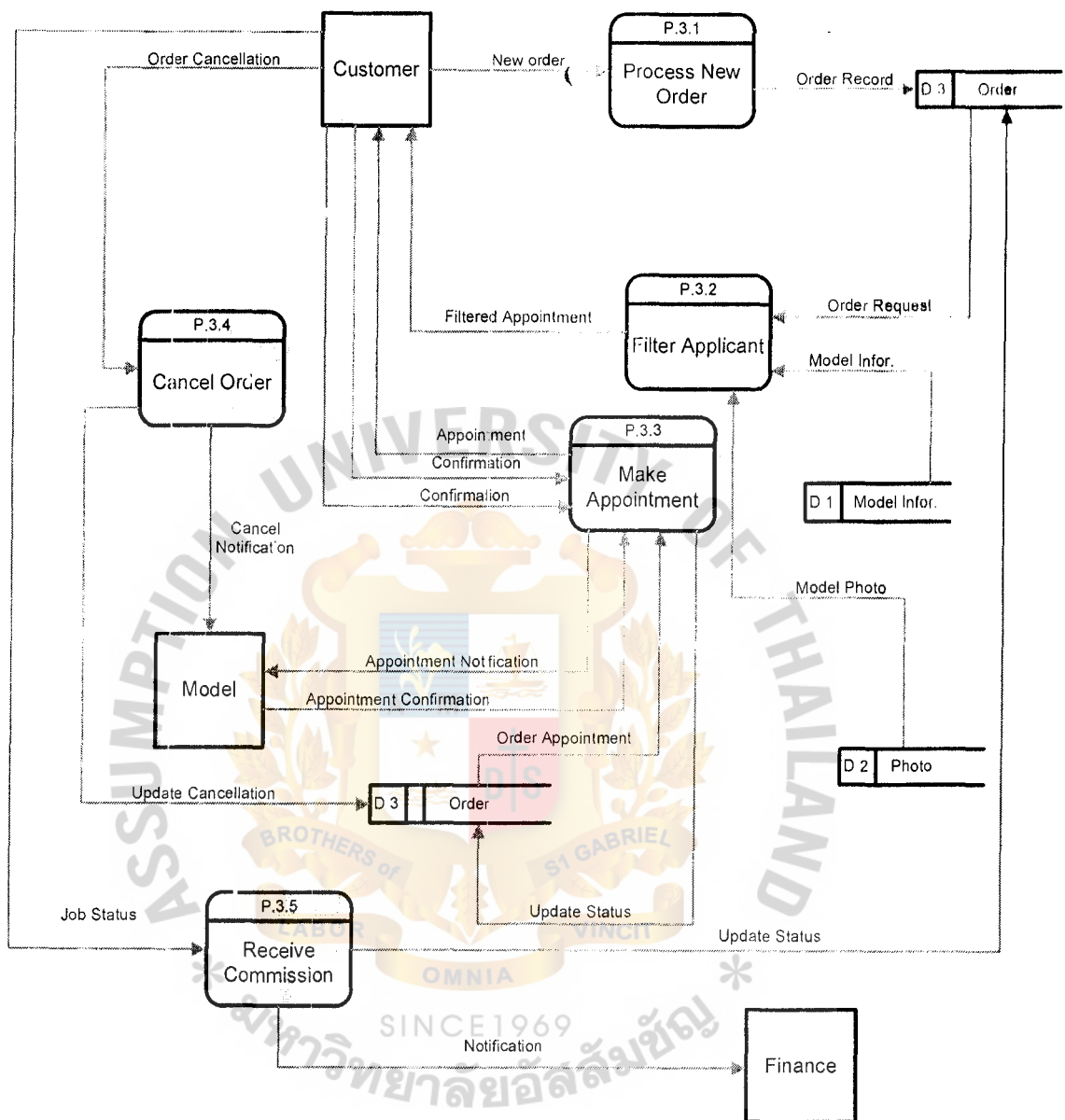


Figure A.3. Level 1 Data Flow Diagram of Received Order Process

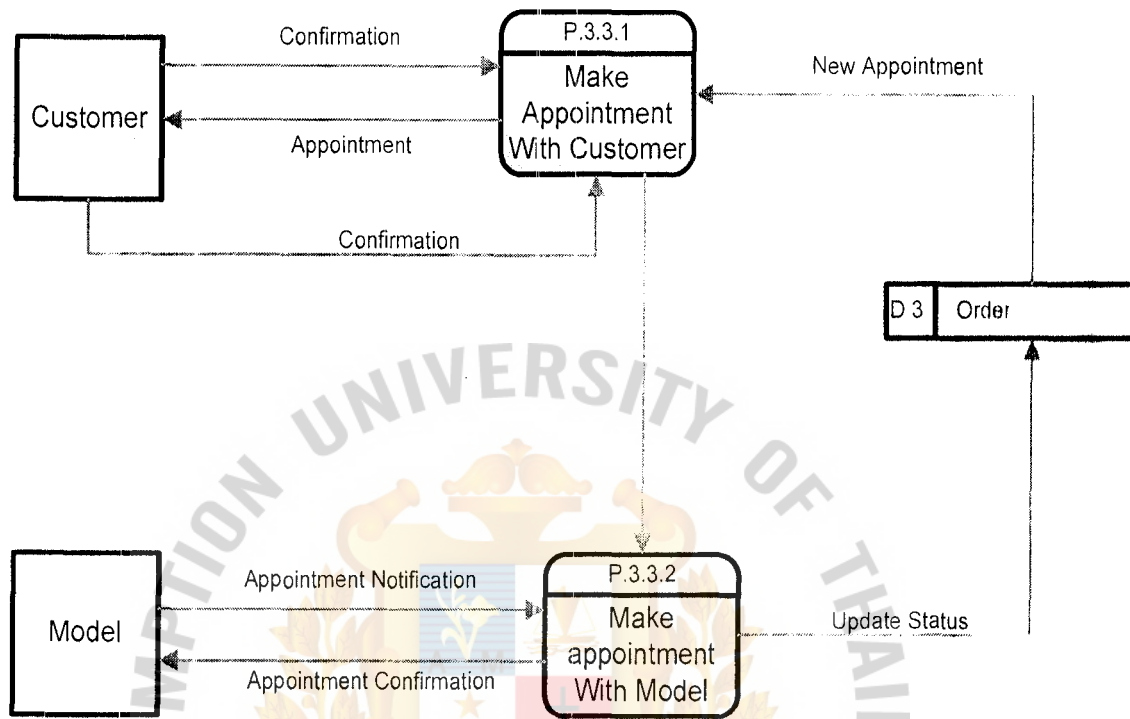


Figure A.4. Level 2 Data Flow Diagram of Making Appointment Process.

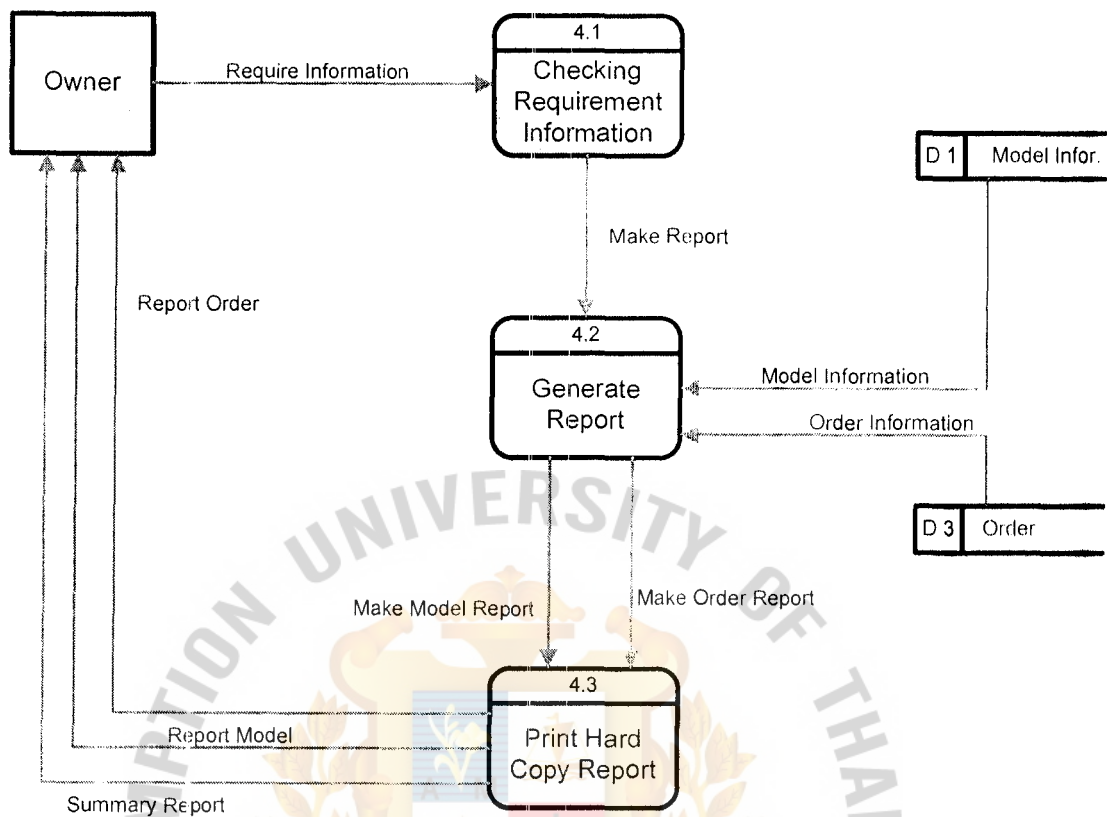
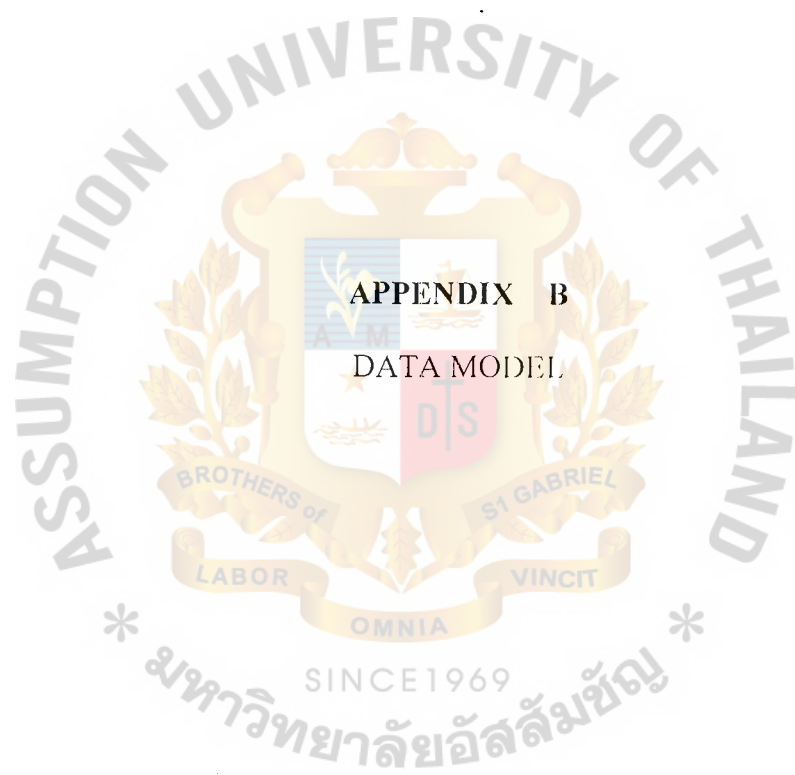


Figure A.5. Level 1 Data Flow Diagram of Generating Report Process.



APPENDIX B

DATA MODEL

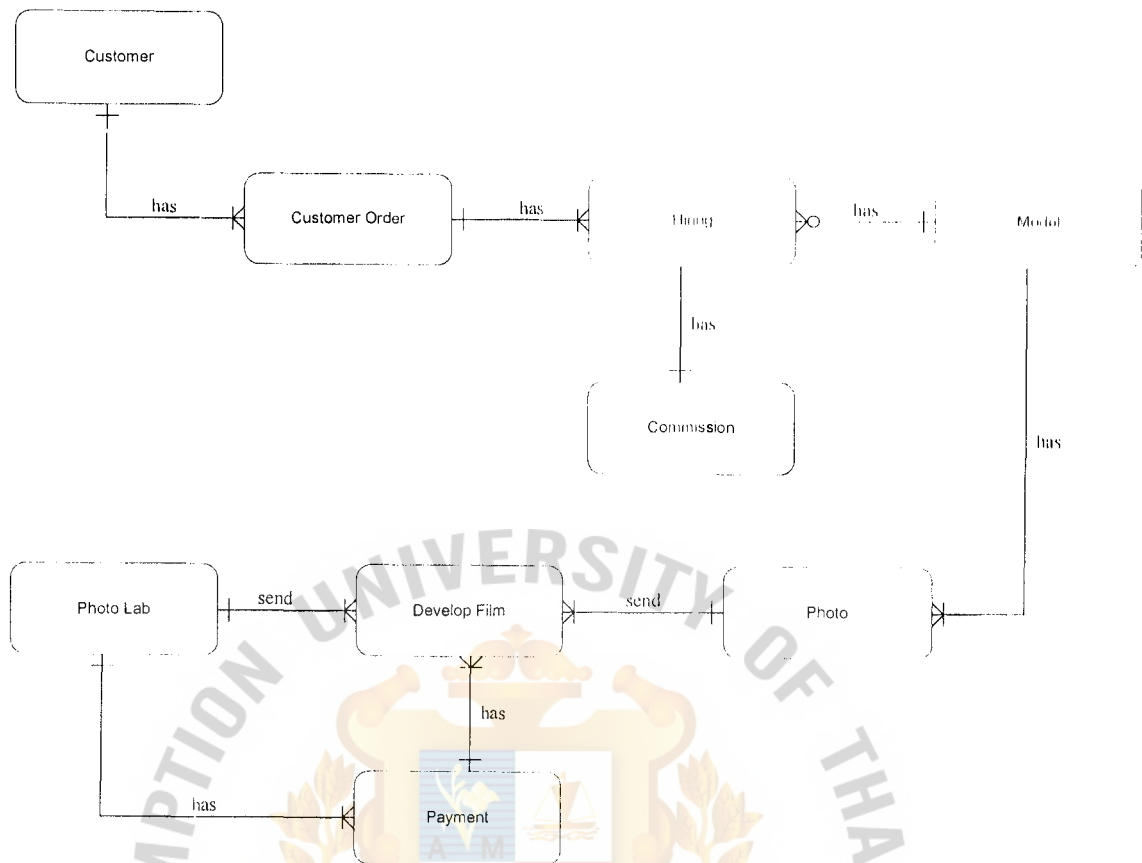


Figure B.1. Context Data Model of the Proposed System.

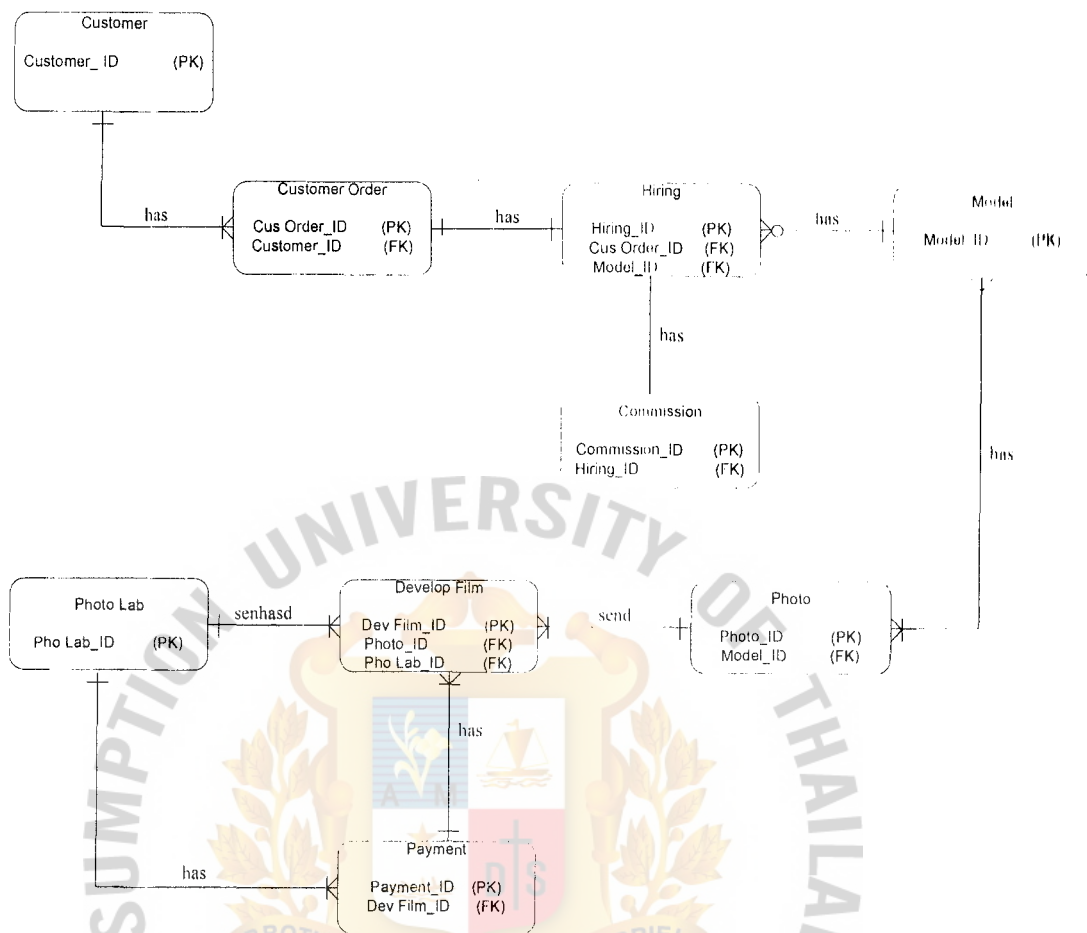


Figure B.2: Key-Based Data Model of the Proposed System.

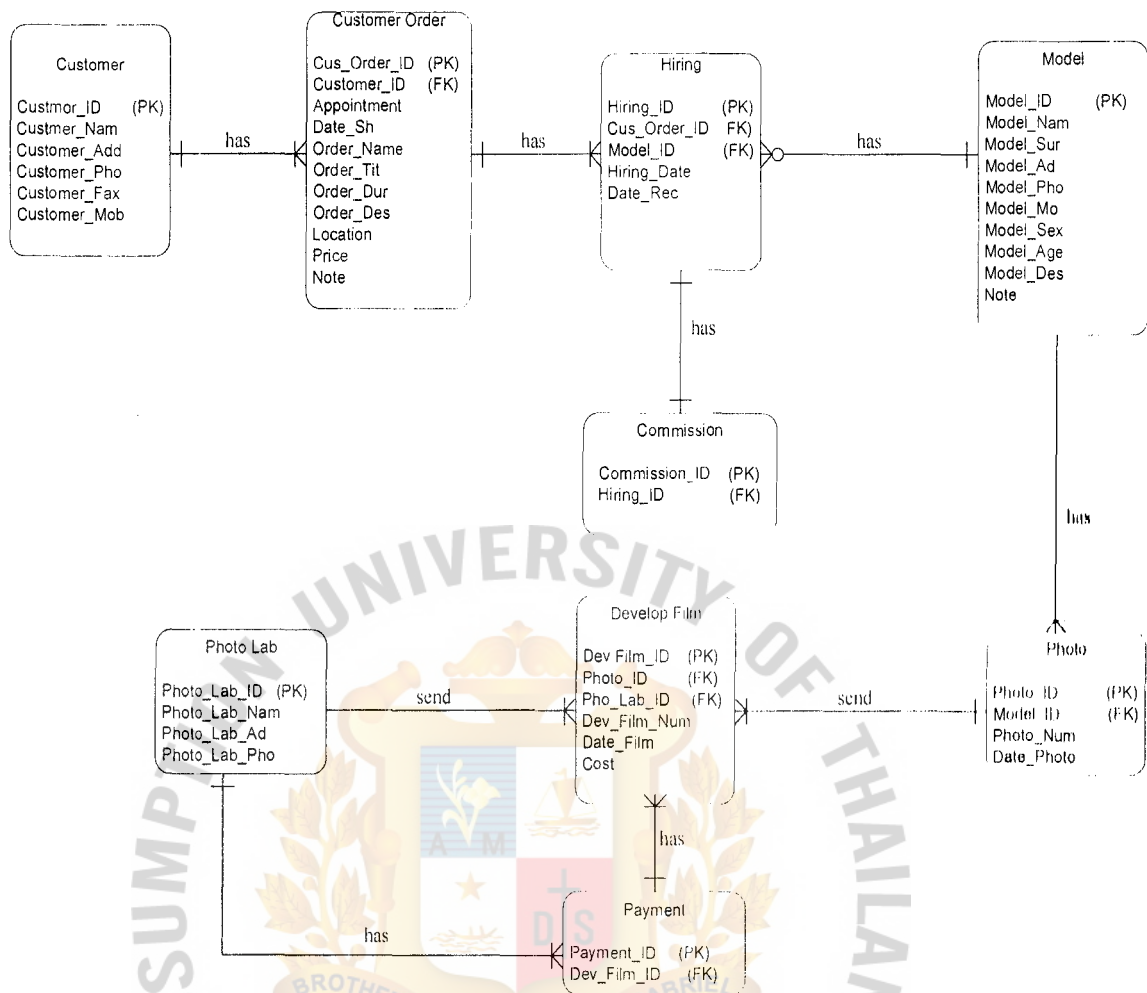


Figure B.3. Fully Attributed Data Model of the Proposed System.



Table C.1. Estimated Cost of Candidate 1, Baht.

Cost Items	Years				
	1	2	3	4	5
<u>Fixed Cost</u>					
<u>Hardware Cost:</u>					
Server Computer	40,000	-	-	-	-
Client Computers	48,000	-	-	-	-
Network Hardware	10,000	-	-	-	-
<u>Office infrastructure</u>					
Digital Camera	15,000	-	-	-	-
Scanner	4,000	-	-	-	-
Telephone 2 units@1200	2,400	-	-	-	-
Facsimile	5,000	-	-	-	-
Camera	24,000	-	-	-	-
Printers and Other Peripherals	30,000	-	-	-	-
Total Hardware And Office Infrastructure Cost	178,400	-	-	-	-
<u>Software Cost:</u>					
Operating System Cost	15,000	-	-	-	-
Office Application Cost	42,000	-	-	-	-
Package Software Cost	120,000	-	-	-	-
Total Software Cost	177,000	-	-	-	-
<u>Implementation Cost:</u>					
Training Cost	12,000	-	-	-	-
Setup Cost	50,000	-	-	-	-
Total Implementation Cost	62,000	-	-	-	-
Maintenance Cost		5,000	10,000	10,000	15,000
Total Fixed Cost	417,400	5,000	10,000	10,000	15,000
<u>Operating Cost</u>					
<u>Salary Cost:</u>					
Office Workers 3 person@10,000	360,000	378,000	396,900	416,745	437,582
Photographer 1 person@7000	84,000	88,200	92,610	97,241	102,103
Total Monthly Salary Cost	37,000	38,850	40,793	42,832	44,974
Total Annual Salary Cost	444,000	466,200	489,510	513,986	539,685
<u>Office Supplies & Miscellaneous Costs:</u>					
Office Supplies Per Annual	16,000	17,600	19,360	21,296	23,426
Utilities Per Annual	40,000	44,000	48,400	53,240	58,564
Miscellaneous Per Annual	15,000	16,500	18,150	19,965	21,962
Total Office Supplies & Misc. Cost	71,000	78,100	85,910	94,501	103,951
Total Annual Operating Cost	515,000	544,300	575,420	608,487	643,636
Total Proposed System Cost	932,400	549,300	585,420	618,487	658,636

Table C.2. Estimated Cost of Candidate 2, Baht.

Cost Items	Years				
	1	2	3	4	5
<u>Fixed Cost</u>					
<u>Hardware Cost:</u>					
Server Computer	40,000	-	-	-	-
Client Computers	48,000	-	-	-	-
Network Hardware	10,000	-	-	-	-
<u>Office infrastructure</u>					
Digital Camera	15,000	-	-	-	-
Scanner	4,000	-	-	-	-
Telephone 2 units@1200	2,400	-	-	-	-
Facsimile	5,000	-	-	-	-
Camera	24,000	-	-	-	-
Printers and Other Peripherals	30,000	-	-	-	-
Total Hardware And Office Infrastructure Cost	178,400	-	-	-	-
<u>Software Cost:</u>					
Operating System Cost	15,000	-	-	-	-
Office Application Cost	42,000	-	-	-	-
Written Software Cost	180,000	-	-	-	-
Total Software Cost	237,000	-	-	-	-
<u>Implementation Cost:</u>					
Training Cost	20,000	-	-	-	-
Setup Cost	70,000	-	-	-	-
Total Implementation Cost	90,000	-	-	-	-
Maintenance Cost		5,000	10,000	15,000	20,000
Total Fixed Cost	505,400	5,000	10,000	15,000	20,000
<u>Operating Cost</u>					
<u>Salary Cost:</u>					
Office Workers 2 person@10,000	240,000	252,000	264,600	277,830	291,722
Photographer 1 person@7000	84,000	88,200	92,610	97,241	102,103
Total Monthly Salary Cost	27,000	28,350	29,768	31,256	32,819
Total Annual Salary Cost	324,000	340,200	357,210	375,071	393,825
<u>Office Supplies & Miscellaneous Costs:</u>					
Office Supplies Per Annual	16,000	17,600	19,360	21,296	23,426
Utilities Per Annual	40,000	44,000	48,400	53,240	58,564
Miscellaneous Per Annual	15,000	16,500	18,150	19,965	21,962
Total Office Supplies & Misc. Cost	71,000	78,100	85,910	94,501	103,951
Total Annual Operating Cost	395,000	418,300	443,120	469,572	497,776
Total Proposed System Cost	900,400	423,300	453,120	484,572	517,776

Table C.3. Estimated Cost of Candidate 3, Baht.

Cost Items	Years				
	1	2	3	4	5
<u>Fixed Cost</u>					
<u>Hardware Cost:</u>					
Server Computer	40,000	-	-	-	-
Client Computers	48,000	-	-	-	-
Network Hardware	10,000	-	-	-	-
<u>Office infrastructure</u>					
Digital Camera	15,000	-	-	-	-
Scanner	4,000	-	-	-	-
Telephone 2 units@1200	2,400	-	-	-	-
Facsimile	5,000	-	-	-	-
Camera	24,000	-	-	-	-
Printers and Other Peripherals	30,000	-	-	-	-
Total Hardware And Office Infrastructure Cost	178,400	-	-	-	-
<u>Software Cost:</u>					
Operating System Cost	15,000	-	-	-	-
Office Application Cost	42,000	-	-	-	-
Written Software Cost	190,000	-	-	-	-
Total Software Cost	247,000	-	-	-	-
<u>Implementation Cost:</u>					
Training Cost	24,000	-	-	-	-
Setup Cost	75,000	-	-	-	-
Total Implementation Cost	99,000	-	-	-	-
Maintenance Cost		5,000	10,000	10,000	15,000
Total Fixed Cost	524,400	5,000	10,000	10,000	15,000
<u>Operating Cost</u>					
<u>Salary Cost:</u>					
Office Workers 2 person@10,000	240,000	252,000	264,600	277,830	291,722
Photographer 1 person@7000	84,000	88,200	92,610	97,241	102,103
Total Monthly Salary Cost	27,000	28,350	29,768	31,256	32,819
Total Annual Salary Cost	324,000	340,200	357,210	375,071	393,828
<u>Office Supplies & Miscellaneous Costs:</u>					
Office Supplies Per Annual	16,000	17,600	19,360	21,296	23,426
Utilities Per Annual	40,000	44,000	48,400	53,240	58,564
Miscellaneous Per Annual	15,000	16,500	18,150	19,965	21,962
Total Office Supplies & Misc. Cost	71,000	78,100	85,910	94,501	103,951
Total Annual Operating Cost	395,000	418,300	443,120	469,572	497,776
Total Proposed System Cost	919,400	423,300	453,120	479,572	512,776

Table C.4. Accumulated Cost of Candidate 1, Baht.

Year	Total Cost	Accumulated Cost
1	932,400	932,400
2	549,300	1,481,700
3	585,420	2,067,120
4	618,487	2,685,607
5	658,636	3,344,243
Total	3,344,243	-

Table C.5. Accumulated Cost of Candidate 2, Baht.

Year	Total Current Cost	Accumulated Cost
1	900,400	900,400
2	453,300	1,353,700
3	453,120	1,806,820
4	484,572	2,291,392
5	517,776	2,809,168
Total	2,809,168	-

Table C.6. Accumulated Cost of Candidate 3, Baht.

Year	Total Cost	Accumulated Cost
1	919,400	919,400
2	423,300	1,342,700
3	453,120	1,795,820
4	479,572	2,275,392
5	512,776	2,788,168
Total	2,788,168	-

Table C.7. Net Present Value of Candidate 1, Baht.

Cash Flow Description	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Develop Cost	-417,000					
Operation & Maintenance Cost		-515,000	-544,300	-575,420	-608,487	-643,636
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Costs	- 417,000	- 459,380	- 433,807	- 409,124	- 386,389	- 364,942
Cumulative time-adjusted costs over lifetime	- 417,000	- 876,380	-1,309,642	-1,718,765	- 2,105,154	-2,470,096
Benefit derived from operation of new System		730,000	803,000	883,300	971,630	1,068,793
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Benefits	0	651,160	639,991	628,026	616,985	606,006
Cumulative time-adjusted benefits over lifetime	0	651,160	1,291,151	1,919,177	2,536,162	3,142,168
Cumulative lifetime time-adjusted benefits - costs	-417,000	- 225,220	- 18,491	200,412	431,008	672,072

Table C.8. Net Present Value of Candidate 2, Baht.

Cash Flow Description	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Develop Cost	-505,400					
Operation & Maintenance Cost		-395,000	-418,300	-443,120	-469,572	-497,776
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Costs	- 505,400	- 352,735	- 333,385	- 315,502	- 298,648	- 282,239
Cumulative time-adjusted costs over lifetime	- 505,400	- 858,135	-1,191,520	-1,507,022	- 1,805,670	-2,087,909
Benefit derived from operation of new System		730,000	803,000	883,300	971,630	1,068,793
Discount Factors for 12%	1.000	0.892	0.797	0.711	0.635	0.567
Time-adjusted Benefits	0	651,160	639,991	628,026	616,985	606,006
Cumulative time-adjusted benefits over lifetime	0	651,160	1,291,151	1,919,177	2,536,162	3,142,168
Cumulative lifetime time-adjusted benefits - costs	-505,400	- 206,975	99,631	412,155	730,492	1,054,259

Table C.9. Net Present Value of Candidate 9 ,Baht.

Cash Flow Description	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Develop Cost	-524,000					
Operation & Maintenance Cost		-395,000	-418,300	-443,120	-469,572	-497,776
Discount Factors for 12%	1	0.892	0.797	0.711	0.635	0.567
Time-adjusted Costs	-524,000	-352,735	-333,385	-315,502	-298,648	-282,239
Cumulative time-adjusted costs over lifetime	-524,000	-876,753	-1,210,120	-1,525,622	-1,824,270	-2,106,509
Benefit derived from operation of new System		730,000	803,000	883,300	971,630	1,068,793
Discount Factors for 12%	1	0.892	0.797	0.711	0.635	0.567
Time-adjusted Benefits	0	651,160	639,991	628,026	616,985	606,006
Cumulative time-adjusted benefits over lifetime	0	651,160	1,291,151	1,919,177	2,536,162	3,142,168
Cumulative lifetime time-adjusted benefits - costs	-524,000	-225,593	81,031	393,555	711,892	1,035,659



APPENDIX D
PROCESS SPECIFICATION

Table D.1. Process Specification of Add Information Process.

Items	Description
Process Name:	Add Information.
Data In:	Applicant Information
Data Out:	Applicant ID & Applicant Information
Process:	Generate Identification Number for Applicant
Attachment:	(1) Model (2) Model Information Database

Table D.2. Process Specification of Edit Existing Information Process.

Items	Description
Process Name:	Edit Existing Information
Data In:	Applicant ID & Applicant Information
Data Out:	Latest Applicant Information
Process:	Edit ,Delete Some Information Of Applicant
Attachment:	(1) Model (2) Model Information Database

Table D.3. Process Specification of New Appointment Process.

Items	Description
Process Name:	New Appointment
Data In:	Model ID ,Date
Data Out:	Update Model status
Process:	(1) Receive Appointment Date Of Model. (2) Enter Appointment Data. (3) Update Model status to Model Database.
Attachment:	(1) Model (2) Photographer (3) Model Information Database

Table D.4. Process Specification of Storing Photo Process.

Items	Description
Process Name:	Storing Photo
Data In:	Model ID
Data Out:	Photo's Model information.
Process:	(1) Photographer Takes The Model's Photo (2) Photographer Upload The Picture Into Model Information. (3) Update Model Status to Photo database.
Attachment:	(1) Photographer (2) Photo Database

Table D.5. Process Specification of Develop Film Process.

Items	Description
Process Name:	Develop Film
Data In:	Model Photo ID
Data Out:	Update Model Photo Status
Process:	(1) Check Model's Photo Status. (2) Sending the film to Photo
Attachment:	(1) Photo Shop (2) Photo Database (3) Finance

Table D.6. Process Specification of New Order Process.

Items	Description
Process Name:	New Order
Data In:	Customer order
Data Out:	Order information
Process:	(1) Receive Information order from customer (2) Create order according to Table No. (3) Update order information status to Orders Database
Attachment:	(1) Customer (2) Orders Database

Table D.7. Process Specification of Filtered Model Process.

Items	Description
Process Name:	Filtered Model
Data In:	Order Request
Data Out:	Updated order information
Process:	(1) Checking table order from Order Database. (2) Matching the Order Status with Model's Information (3) Checking Model's Information. (4) Checking Photo Database (5) Sending Model's Information And Photo to Customer.
Attachment:	(1) Customer (2) Orders Database (3) Model Information Database

Table D.8. Process Specification of Making Appointment Process.

Items	Description
Process Name:	Making Appointment
Data In:	Order Request
Data Out:	Update Order Request Status.
Process:	(1) Checking table order from Order Database (2) Confirm date to Customer (3) Confirm date to Model (4) Update Order Status
Attachment:	(1) Customer (2) Orders Database (3) Model

Table D.9. Process Specification of Making Appointment with Customer Process.

Items	Description
Process Name:	Making Appointment with Customer
Data In:	Order Request
Data Out:	Update Order Request Status.
Process:	(1) Checking table order from Order Database (2) Confirm date to Customer (3) Update Order Status
Attachment:	(1) Customer (2) Orders Database

Table D.10. Process Specification of Making Appointment with Model Process.

Items	Description
Process Name:	Making Appointment with Model
Data In:	Order Request
Data Out:	Update Order Request Status.
Process:	(1) Checking table order from Order Database (2) Confirm date to Model (3) Update Order Status
Attachment:	(1) Model (2) Order Database

Table D.11. Process Specification of Cancelled Order Process.

Items	Description
Process Name:	Cancelled Order
Data In:	Cancelled order request
Data Out:	Updated order information
Process:	(1) Receive cancelled order request from customer (2) Checking table order from Orders Database (3) Delete Order Requests from table order. (4) Update order information status to Orders Database
Attachment:	(1) Customer (2) Order Database (3) Model

Table D.12. Process Specification of Receiving Commission Process.

Items	Description
Process Name:	Receiving Commission
Data In:	Job Status
Data Out:	Update Order status
Process:	(1) Receive Job Status (2) Calculation 30% from Net Price. (2) Update order status to Orders Database
Attachment:	(1) Customer (2) Order Database (3) Finance

Table D.13. Process Specification of Checking Require Information Process.

Items	Description
Process Name:	Checking Require Information
Data In:	Require Information
Data Out:	Update Require status
Process:	(1) Receive Require Information. (2) Checking Both of Model and Order Information.
Attachment:	(1) Owner

Table D.14. Process Specification of Generate Report Process.

Items	Description
Process Name:	Generate Report
Data In:	Model and Order Information.
Data Out:	Update Model and Order Information Report.
Process:	(1) Receive Model Information Database. (2) Receive Order Database. (3) Generate Report.
Attachment:	(1) Model Information Database. (2) Order Database.

Table D.15. Process Specification of Print Hard Copy Report Process.

Items	Description
Process Name:	Print Hard Copy Report
Data In:	Make Order and Model Report
Data Out:	Report Order and Model.
Process:	(1) Receive Model Information Report (2) Receive Order Information Report (3) Print Report.
Attachment:	(1) Owner.



APPENDIX E
DATA DICTIONARY

Table E.1. Data Dictionary of the Proposed System.

Field	Meaning
Customer_ID	Customer Identification Number
Custmer_Nam	Customer Name
Customer_Ad	Customer Address
Customer_Phc	Customer Phone Number
Customer_Fax	Customer Fax Number
Custmer_Mob	Customer Mobile Phone
Cus_Order_ID	Customer Order Identification Number
Appointment	Appointment Of Customer
Date_Sh	Date Of Shooting
Order_Nam	Order Name
Order_Dur	Order Duration
Order_Tit	Order Title
Order_Des	Order Description
Location	Location Of Shooting
Price	Price of Order
Hiring_ID	Hiring Identification
Hiring_Date	Hiring Date
Date_Rec	Date Of Receiving The money
Model_ID	Model Identification Number
Model_Nam	Model Name
Model_Sur	Model Surname
Model_Add	Model Address
Model_Pho	Model Phone Number
Model_Mo	Model Mobile Phone
Model_Sex	Model Sex
Model_Age	Model Age
Model_Des	Model Description
Commission_ID	Commission Identification
Photo_ID	Photo Identification
Photo_Num	Photo Number
Date_Photo	Date Of Taking The Photo
Dev_Film_ID	Develop Film Identification
Dev_Film_Num	Develop Film Number
Date_Film	Date Of Receiving The Photo
Cost	Cost Of Develop Film
Payment_ID	Payment Identification
Photo_Lab_ID	Photo Lab Identification
Photo_Lab_Nam	Photo Lab Name
Photo_Lab_Add	Photo Lab Address
Photo_Lab_Pho	Photo Lab Phone Number



APPENDIX F
DATABASE DESIGN

Table F.1. Structure of Model Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Model_ID	Charater (7)	Not Null	Photo Table	-	Primary Key
Model_Nam	Charater (20)	Not Null	-	-	Attribute
Model_Sur	Charater (50)	Not Null	-	-	Attribute
Model_Ad	Charater (50)	Not Null	-	-	Attribute
Model_Photo	Number (20)	Not Null	-	-	Attribute
Model_Mo	Number (20)	Not Null	-	-	Attribute
Model_Sex	Number (2)	Not Null	-	-	Attribute
Model_Age	Charater (10)	Not Null	-	-	Attribute
Model_Des	Charater (255)	Not Null	-	-	Attribute
Note	Charater (255)	Null	-	-	Attribute

Table F.2. Structure of Customer Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Customer_ID	Charater (7)	Not Null	Customer Order Table	-	Primary Key
Customer_Add	Charater (50)	Not Null	-	-	Attribute
Customer_Phno	Charater (20)	Not Null	-	-	Attribute
Customer_Fax	Charater (20)	Not Null	-	-	Attribute
Customer_Mob	Charater (20)	Not Null	-	-	Attribute

Table F.3. Structure of Customer Order Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Cus_Order_ID	Charater (7)	Not Null	Hiring Table	-	Primary Key
Customer_ID	Charater (7)	Not Null	-	-	Foreign Key
Appointment	Date	Not Null	-	<01-Aug-2004	Attribute
Date_Sh	Date	Not Null	-	<01-Sep-2004	Attribute
Order_Name	Charater (50)	Not Null	-	-	Attribute
Order_Tit	Charater (50)	Not Null	-	-	Attribute
Order_Dur	Charater (50)	Not Null	-	-	Attribute
Order_Des	Charater (255)	Not Null	-	-	Attribute
Location	Charater (255)	Not Null	-	-	Attribute
Price	Integer	Not Null	-	<2,000	Attribute
Note	Charater (255)	Null	-	-	Attribute

Table F.4. Structure of Hiring Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Hiring_ID	Charater (7)	Not Null	Commission Table	-	Primary Key
Cus_Order_ID	Charater (7)	Not Null	-	-	Foreign Key
Model_ID	Charater (7)	Not Null	-	-	Foreign Key
Hiring_Date	Date	Not Null	-	<01-Sep-2004	Attribute
Date_Rec	Date	Not Null	-	<15-Sep-2004	Attribute

Table F.5. Structure of Commission Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Commission_ID	Integer	Not Null	-	-	Primary Key
Hiring_ID	Charater (7)	Not Null	-	-	Foreign Key

Table F.6. Structure of Photo Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Photo_ID	Charater (7)	Not Null	-	-	Primary Key
Model_ID	Charater (7)	Not Null	-	-	Foreign Key
Photo_Num	Charater (20)	Not Null	-	-	Attribute
Date_Photo	Date	Not Null	-	<01-Aug-2004	Attribute

Table F.7. Structure of Develop Film Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Dev_Film_ID	Character (7)	Not Null	Payment Table	-	Primary Key
Photo_ID	Character (7)	Not Null	-	-	Foreign Key
Pho_Lab_ID	Character (7)	Not Null	-	-	Foreign Key
Dev_Film_Num	Integer	Not Null	-	<500	Attribute
Date_Film	Date	Not Null	-	<08-Aug-2004	Attribute
Cost	Integer	Not Null	-	<1,000	Attribute

Table F.8. Structure of Payment Table.

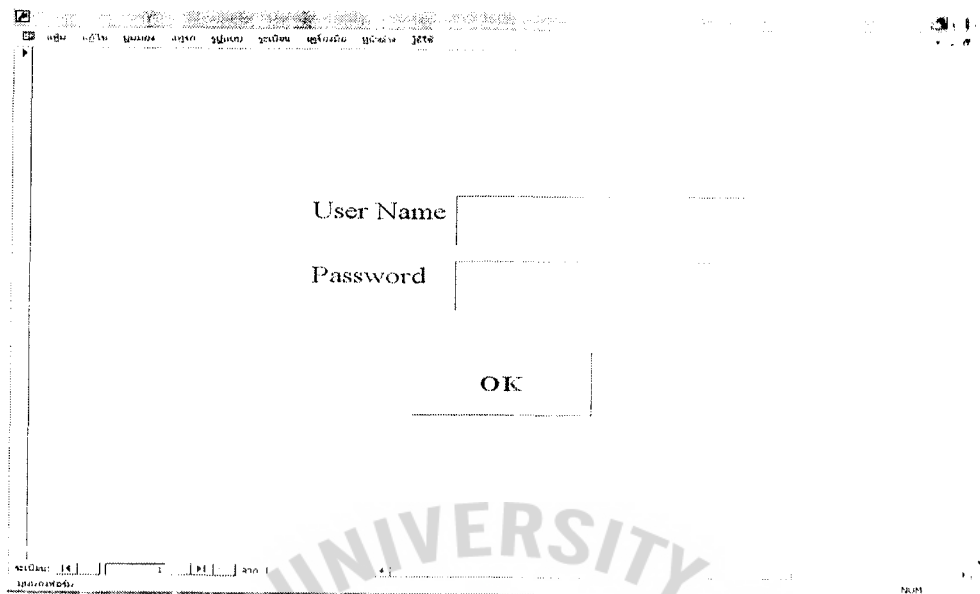
Name	Type	Null	Foreign Key To Table	Check	Key Type
Payment_ID	Charater (7)	Not Null	-	-	Primary Key
Dev_Film_ID	Charater (7)	Not Null	-	-	Foreign Key

Table F.9. Structure of Photo Lab Table.

Name	Type	Null	Foreign Key To Table	Check	Key Type
Photo_Lab_ID	Charater (7)	Not Null	-	-	Primary Key
Photo_Lab_Nam	Charater (20)	Not Null	-	-	Attribute
Photo_Lab_Ad	Charater (50)	Not Null	-	-	Attribute
Photo_Lab_Ph	Charater (20)	Not Null	-	-	Attribute



APPENDIX G
INTERFACE DESIGN



A screenshot of a login window. It contains two text input fields: the first is labeled "User Name" and the second is labeled "Password". Below these fields is a button labeled "OK". The window has a standard title bar and a small status bar at the bottom.

Figure G.1. Login Interface.



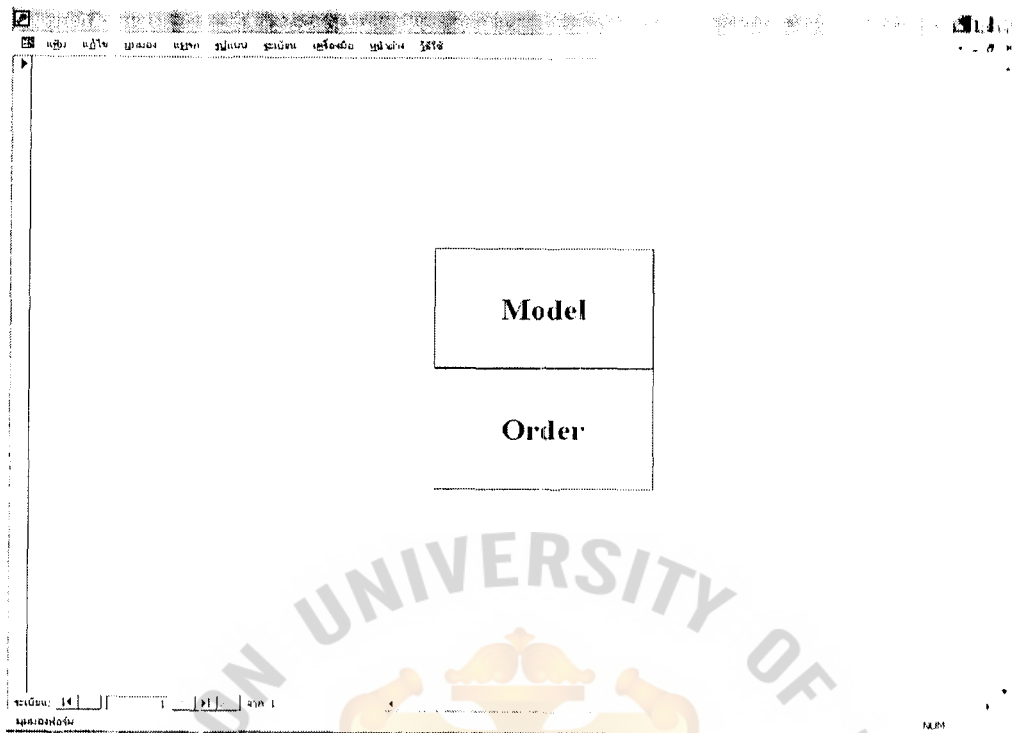
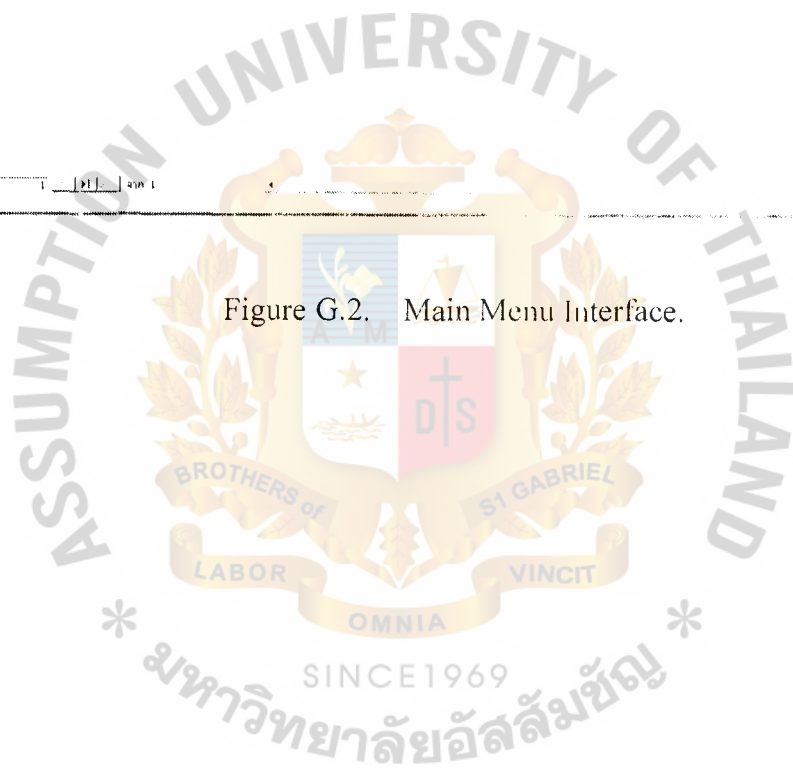


Figure G.2. Main Menu Interface.



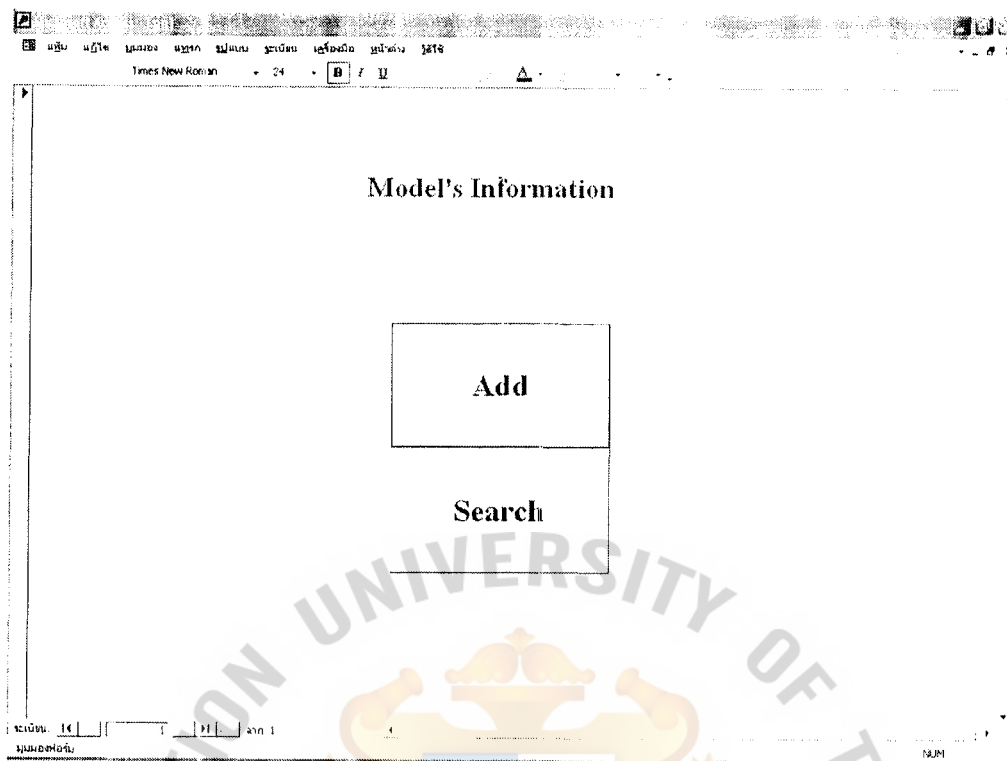


Figure G.3. Model's Information 1 Interface.

Model's Information 2 Interface

ID

Name

Surname

Sex ☐ Male ☐ Female

Age

Birth Date

Address

Zip code

Phone

Mobile

Remark

Next

Page 1 of 1

NUM

Figure G.4. Model's Information 2 Interface.

The screenshot displays a software interface for entering body measurements. The measurements are listed on the left, and each has a corresponding input field (a small box with a downward arrow). The measurements are arranged in two columns. The first column includes Neck, Bust, Front sigh, Back sigh, Shoulder, Armpit, Lower arm measurements, Upper arm measurements, Sleeve, Waist, Upper hip, and Lower hip. The second column includes Inseam, Thigh, Upper leg measurements, Ankle, Shoe size, and an 'OK' button. The 'Upper leg measurements' field is unique as it consists of two adjacent input boxes separated by a minus sign. At the bottom left, there is a status bar with the text 'หน้าจอที่ 1' and 'ข้อมูลส่วนตัว'.

Neck	<input type="text"/>	Inseam	<input type="text"/>
Bust	<input type="text"/>	Thigh	<input type="text"/>
Front sigh	<input type="text"/>	Upper leg measurements	<input type="text"/> - <input type="text"/>
Back sigh	<input type="text"/>	Ankle	<input type="text"/>
Shoulder	<input type="text"/>	Shoe size	<input type="text"/>
Armpit	<input type="text"/>		
Lower arm measurements	<input type="text"/> - <input type="text"/>		
Upper arm measurements	<input type="text"/> - <input type="text"/>		
Sleeve	<input type="text"/>		
Waist	<input type="text"/>		
Upper hip	<input type="text"/>		
Lower hip	<input type="text"/>	OK	<input type="text"/>

หน้าจอที่ 1 ข้อมูลส่วนตัว

Figure G.5. Model's Information 3 Interface.

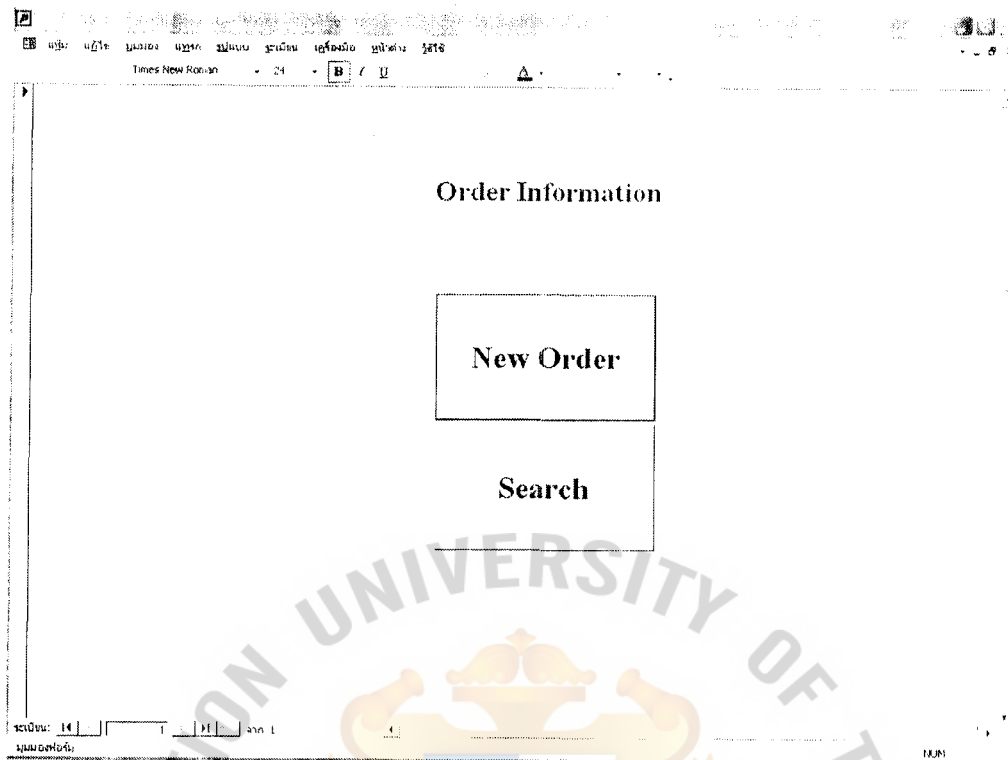


Figure G.6. Order Information 1 Interface.

Order ID

Customer Name

Order Title

Order Name

Appointment

Date

Requirement

Sex ☐ Male Person(s) Age

☐ Female Person(s) Age

Shooting Date

Location

Price

Remark

Ok Delete

Figure G.7. Order Information 2 Interface.

MS-Sang Sord

Search

ID

Sex ☒ Male
☐ Female

Age -

Page 1 of 1

NUM

Figure G.8. Model Search Interface.

MS Sans Serif 8 B U

Search Order

Order ID

Date

Page 1 of 1

Figure G.9. Order Search Interface.



Massy Models Agency Company

Model List Report

26/01/04

Table H.1. Models List Table.

Date	ID	Name	Address	Telephone	Date Of Birth	Age
25/01/04	100250	นาย ฤทธิ มาศสุวรรณศรี	1222/17 ถ.พระราม 4 คลองเตย คลองเตย กทม. 10110	(06)323-2522	03/07/81	22
26/01/04	100251	นาย สุชาติ รัชกาลาพ	251/15 สาทรใต้ หุ้่งหม่อม สาทร กทม. 12420	(06)542-8544	25/02/80	23
26/01/04	100252	Mr. Eng Gorge	102/10 สุขุมวิทการเค้น คลองตัน คลองตัน กทม. 101200	(01)621-5422	07/05/85	17
26/01/04	100253	นางสาว ปิยะนาค มรรคเวช	245/15 ถ.ลาดพร้าว จัตุจักร กทม. 10400	(06)3312203	28/07/80	23
26/01/31	100254	เด็กชาย บารมี ศรีสุวรรณ	84/12 ซอย สามพลู สาทร หุ้่งหม่อม กทม. 10420	(02)3772245	09/12/1994	10

Massy Models Agency Company

Order List Report

26/01/04

Table H.2. Order List Table.

Date	ID	Name	Telephone	Product Name	Casting	Date of Shooting	Age	Sex	Type	Price	Note
20/01/04	023	Far East	(02)249-6895	Sunsilk	21/01/04	25/01/04	17-20	Female	Main	300,000	Long Black Hair
20/01/04	016	Matching	(02)533-5000	Mama	20/01/04	29/01/04	20-25	Male	Main	240,000	-
21/01/04	005	Den Su	(02)422-8474	Toyota	22/01/04	01/02/04	5-7	Male	Extra	10,000	Japanese Look
23/01/04	016	Matching	(02)533-5000	รถสกู๊ตเตอร์	24/01/04	01/02/04	20-25	Female	Extra	8,000	-

Massy Models Agency Company
Summary Report

31/01/04

Table H.3. Summary Report Table.

Date of Shooting	Product Name	ID	Customer Name	ID	Model Name	Type	Net Price	Revenue
2/01/04	Honda	008	The Bandits	100330	Mr. Ian Slater	Main	400,000	120,000
11/01/04	Mirinda	016	Matching	100122 100065	นางสาว อีวรณ์ พิพัฒน์ ชัย นาย ไพบลั วรเดชะวิชัย	Extra Extra	10,000 10,000	3,000 3,000
15/01/04	Oishi Green Tea	001	Gate House	100022	Mrs. Madoko Kaisho	Main	130,000	39,000
20/01/04	Mama	016	Matching	100231	นาย กำพล มาศสุวรรณศรี	Main	240,000	72,000
25/01/04	Sunsilk	023	Far East	100044	Ms. Rena Kovac	Main	300,000	90,000

IBLIOGRAPHY

1. Date, C. J. An Introduction to Database Systems. MA: Addison-Wesley, 1995.
2. Date, C. J. An Introduction to Database Systems Volume 1, Sixth Edition. Reading, MA: Addison Wesley, 1996.
3. Forouzan, B. A. Introduction to Data Communication and Networking, MA: McGraw-Hill International, 1998.
4. Goldman, J. E. Client/Server Information System: A Business Oriented Approach. NY: John Wiley & Sons, Inc., 1999.
5. Greer, Tyson. Understanding Intranets. Redmond, WA: Microsoft Press, 1998.
6. Kosiur, David. Understanding Electronic Commerce. WA: Microsoft Press, 1997.
7. Laudon, Kenneth and Jane P. Laudon. Management Information System. NJ: Prentice Hall International Company, 2000.
8. Loomis, Mary E. S. Data Management and File Structures, Second Edition. London: Prentice-Hall International, 1989.
9. Meesajjee, Chulit. The Guidelines for MS (CIS) CS 6998 Project and CS 7000 Thesis, Fourth Edition. Bangkok: Assumption University, 2000.
10. Microsoft Corporation. The Windows Interface Guidelines for Software Design. USA: Microsoft Press, 1996.
11. Pratt, J. Philip and Joseph. J. Adamski. Database Systems Management and Design, Third Edition. Cambridge: Course Technology, 1994.
12. Schewalbe, Kathy. Information Technology Project Management. MA: Course Technology, 1999.
13. Trepper, Charles. E-Commerce Strategies. USA: Microsoft Press, 2000.
14. Whitten, L. Jeffrey and Lonnie D. Bentley. System Analysis and Design Methods, Fourth Edition. Boston: Irwin McGraw-Hill International, 1998.
15. Whitten, L. Jeffrey, Kevin C. Dittman, and Lonnie D. Bentley. System Analysis and Design Methods, Fifth Edition. Boston: Irwin McGraw-Hill International, 2002.
16. Business Policy. NJ: Prentice-Hall, 2000.