



# ADVERTISEMENT BOOKING INFORMATION SYSTEM FOR A PUBLISHING COMPANY

By

MS. SUNITA SHASHI KUMAR

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

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

April, 1998



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Project Title : Advertisement Booking Information System  
For A Publishing Company  
\*The title has been changed according to the final approval the committees

Name : Mrs.Sunita Shashi Kumar


Project Advisor : Dr.Ouen Pin-ngern

Academic Year : April, 1998

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

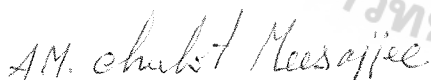
Approval Committee :



(Dr.Ouen Pin-ngern)  
Advisor



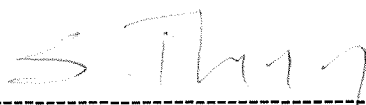
(Prof. Dr. Srisakdi Charmonman)  
Chairman



(Air Marshal Dr. Chulit Meesajjee)  
Dean and Co-advisor



(Dr. Sudthiporn Patumtaewapibal)  
Member



(Assoc. Prof. Somchai Thayanyong)  
MUA Representative

April, 1998

## ABSTRACT

The study of this project was undertaken at an established newspaper publication firm. The company currently employs a manual-based system serving the user through information service system. Currently the company lacks enough information to make decision. Therefore, this study covers the analysis, design and implementation of a computer-based information system. The study emphasizes on operational customer service system for the benefit of advertising revenue.

After we considered the requirements of users, the new system was designed to provide the accurate information. This study uses structured analysis and design techniques. The application program, various management level reports, system documentation and user's manual have been provided for users benefit and further implementation.



## ACKNOWLEDGMENTS

This project development of Advertisement Booking Information System for a Publishing Company is under the supervision of Dr. Ouen Pin-ngern . I wish to express my gratitude to Dr. Ouen Pin-ngern for his instructions, suggestion, advice and correction on the use of Structured System Analysis and Design Techniques.

I would like to thank all MS CIS Committee members for providing me an opportunity to propose this project.

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# I. INTRODUCTION

## 1.1 Background of the Project

During my research for a suitable organization on which to conduct my System Development Project, I came across Nation Publishing Group Public Company Limited. Concerned with the publishing business it issued its first newspaper "The Nation" in 1974 and became well known as wholly Thai owned and operated, presenting unbiased news and information. After discussing with Mr. Jamil Hassan , Technical Manager, I decided to study their Advertisement Booking System as the topic for my Master Project.

During my discussions with Mr. Jamil Hassan, I came across a number of problems being faced with existing system of Advertisement Booking. Most of the problems were associated with lack of proper data processing and report generation facility. Though earlier an Atex system called IAS (Integrated Advertising system) was used for all the functions required in an Advertising system, it was found to be very difficult to manage by the staff. So, currently, most of the work is being carried out manually.

This Advertisement Booking Information System is developed to help manage the advertising spaces, controlling the sales, and providing necessary information to the managers. The development of the data processing system aims to reduce manpower in producing documents such as issuing any advertisement sales documents and preparing advertisement information reports for all levels of management.

## **1.2 Objective of the Project**

The objective of the project on Advertising Information System for Nation are as follows :-

1. To investigate the existing system and information needs in order to identify a group of systematic data, and then organize the data into a database file.
2. To design a computer-based information system for managing the advertisement spaces and controlling the sales.
3. To design a system which would reduce errors and improve accuracy while recording data.
4. To design a low-cost PC-based software package for Advertising Information System using Microsoft Access 97



which would provide user-friendly interfaces and flexibility to accommodate expansion.

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

The project will cover the following basic requirements of the Advertisement Booking Information System :-

#### **1. Issue of Customer Advertising Contract**

The system generates the Advertisement Contract which provides the information about the customer and the details of the advertisement.

#### **2. Recording Current Status of an Advertisement**

An Advertisement system usually assigns a status to every advertisement. An advertisement can be a running advertisement, expired advertisement or void advertisement. This current status information will be recorded in the database.

#### **3. Verify Credibility of the Customer during placement of the Advertisement**

Another feature of the Advertisement Booking Information System is to check for credit limit allowed for each customer and what action must be taken when a customer exceeds his credit limit.

#### **4. Update the Master File**

Accurate and up-to-date information about the customers will be kept in the Master file to help generate the reports required by the Management.

5. **Record and Maintenance of Customer and all Advertisement Information**

All information are recorded to keep track of customers and to follow-up on a customer to encourage them to continue with the advertisement.



## 1.4 Deliverables

The deliverables for the project on the Advertising Information System for Nation are as follows :-

1. A software package written in Microsoft Access 97.
2. Screen layout for all data input program for user-interface.
3. The following are the minimum hard copies that shall be produced by the proposed system :-
  - 3.1. Advertisement Application Form
  - 3.2. Advertising Space Information Report
  - 3.3. Contract document
  - 3.4. Customer Contract list
  - 3.5. Paste-up Information Report
  - 3.6.\* Daily Revenue Report
  - 3.7. New Advertisements Report
  - 3.8. Expired Advertisements Report
  - 3.9. Repeat Advertisement Report
  - 3.10. Sales Summary report
  - 3.11. Customer Credit Limit Report
  - 3.12. Customer Mailing List

## 1.5 Project Plan

The project started on December 1, 1997. It can be classified into three main steps as :-

1. System Analysis
2. Detail Analysis and Design
3. Implementation

The project has been done according to the project time schedule which is represented in the form of Gantt chart in Table 1.1 in the following page.

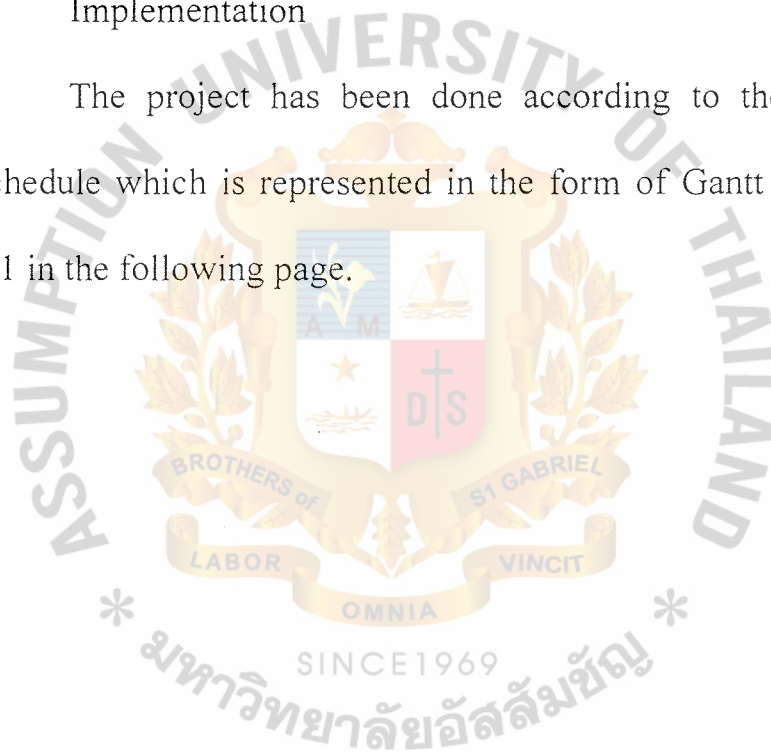




Table 1.1. Project Time Schedule

Activities	1997				1998											
	December				January				February				March			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<u>System Analysis</u>																
• Context Diagram	X															
• Identify the area under study		X														
• Develop the physical DFD of the existing system		X	X													
• Identify the contents of the existing data stores				X												
• Develop the logical DFD of the existing system				X												
<u>Detail Analysis and Design</u>																
• Develop the logical DFD of the new system					X	X										
• Identify the contents of the data stores for the new system							X									
• Data Dictionary								X								
• Structure Charts								X	X							
• Develop the physical DFD of the new system								X	X							
<u>Implementation</u>																
• Programming										X	X	X				
• Report Layout												X	X			
• Screen Layout												X	X			
• Data conversion													X	X	X	
• Testing													X	X	X	
• Documentation					X	X	X	X	X	X	X	X	X	X	X	X

## II. EXISTING SYSTEM

### 2.1 Background of the Company

The Nation Publishing Group is the original company of The Nation Multimedia Group established to provide and disseminate information and news to the public without restriction. It is the founder of a network of companies which shares the same goal of promoting equal opportunity for the perception of unbiased news and information presented for the good and benefit of the public. It issued its first newspaper 'The Nation' in 1974 and became well-known as wholly Thai owned and operated, presenting unbiased news and information. The newspaper has become a medium for delivering and advertising messages. Newspaper advertising revenue is an income to support the newspaper as earnings from the publication selling.

The process of newspaper production can be divided into two distinct areas :

1. Preparation of the news, pictures, graphics and advertisement for the newspaper and laying out the news in a newspaper format (Pre-press operation)
2. Printing (Press operation)

The bulk of computerization work takes place in the pre-press departments of the newspaper organization. The pre-press departments are the Editorial and Classified Advertising Departments. The Editorial Department is responsible for preparing page contents (news, pictures and graphics) and layout for the news pages, while the Classified Advertising Department is responsible for preparing page contents and layout for the classified advertisement section of the newspaper.

The success of the organization is attributed to the following factors :-

- The editorial environment of the newspaper leads authority and credibility to the advertising and so is able to reach a wide general audience.
- The visual quality of the newspaper tends to be excellent on high-quality printing.
- Efficient representatives who have full knowledge of the physical format of the newspaper, the editorial policy, the market cover and the potential advertiser.

## **2.2 The Existing Business Function :**

The company has six departments :

### **1. The Financial Department**

The functions of Financial Department is concerned with cash and cheque disbursement for day to day operations, and to collect receipt of payment from their customers. The financial department is responsible for the recording of accounts receivable informations and reporting of income statement, developing cash flow statement and preparing balance sheet for management.

### **2. The Marketing Department**

Though the promotion of the newspaper is its main function, the Marketing Department also provides various merchandising services to assist the advertiser in ensuring the success of their advertising campaigns.

### **3. The Accounting Department**

The function of the Accounting Department is to keep record of the company's financial revenues and expenses.



#### 4. **The Editorial Department**

This department is concerned with the selection of the news item for its news, business, sports, features and classified sections. The process of selection involves writing of the news item by the reporters, editing and formatting and deciding their respective positions on the page.

#### 5. **The Classified Advertising Department**

The functions of this department is to obtain maximum advertisement revenue. So the advertising manager and his representatives must know what is available to sell. This requires the advertising manager to co-ordinate with editorial and production staffs, and decide precisely what advertising space can sell. This department has to keep a track of its sales and its advertising space.

#### 6. **The Press Department**

The functions of this department is to print the editorial content and advertisement with high quality printing techniques.

The company's Organization Chart is shown in figure 2.1.

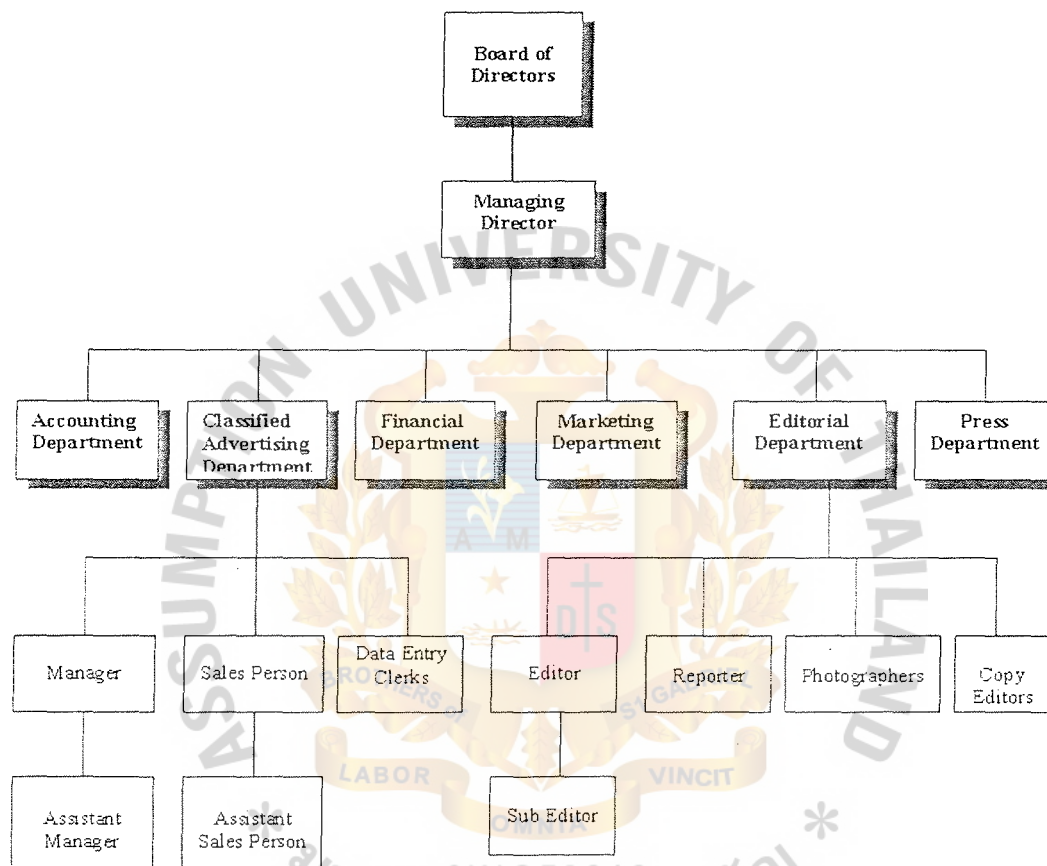


Figure 2.1. Organization Chart of the Company

### 2.3 Overview of the Current System

The existing system is a manual system. The Nation Classified Advertising Department's copy flow starts from advertisement booking when a sales person fills in all details in a simple form. The sales person will also check the advertising space available. If the space required is available, then the sales person will reserve the spaces. The customer is notified of the charge of placing the advertisement and discount (if any). The cost of the advertisement depends on the space of the advertisement and the discount offered. The Advertisement application form is considered as a formal documentation for the company.

The Salesman then sends a contract document to the customer to be signed and returned. The Customer may send the advertisement material or ask the design section of the Nation newspaper to design a suitable advertisement.

Each advertisement can be a running advertisement, expired advertisement or void advertisement. After an advertisement is booked, a running status is recorded in the advertisement status file. If a mistake is made during advertisement booking, a void status is

recorded in the advertisement status file. Once the advertisement is in the advertisement status file, traffic staff or supervisor finds the new advertisements that require printing on a particular day. The printing staff picks up the same copy, type in the text, put in the composition formats and fit the copy to the required size. Once the copy is ready, sales assistant or the sales person concerned proof-reads by calling up the same copy. After everybody is satisfied, an advertisement is ready for printing. As for the repeat advertisements, the finished copies of advertisements are kept until they expire. Once an advertisement expires an expired status is recorded in the advertisement status file.

Credit facility for each customer may range from 30-90 days depending on the customer. An Advertisement is kept for 15 days before it is deleted. At the end of the month the clerk in the Classified Advertisement Department will prepare a report of the advertisement space sales made and the details of the customers. This is done to estimate the revenue from the advertising space selling and to estimate whether a customer will place advertisement in future.



Therefore, the management has to rely on their experience and estimate how much advertisement target they can achieve in order to support the expenditure of the newspaper. Refer to Figure 2.2 and Figure 2.3 for the Context Diagram and the Level 0 Data Flow Diagram for the Existing System respectively.



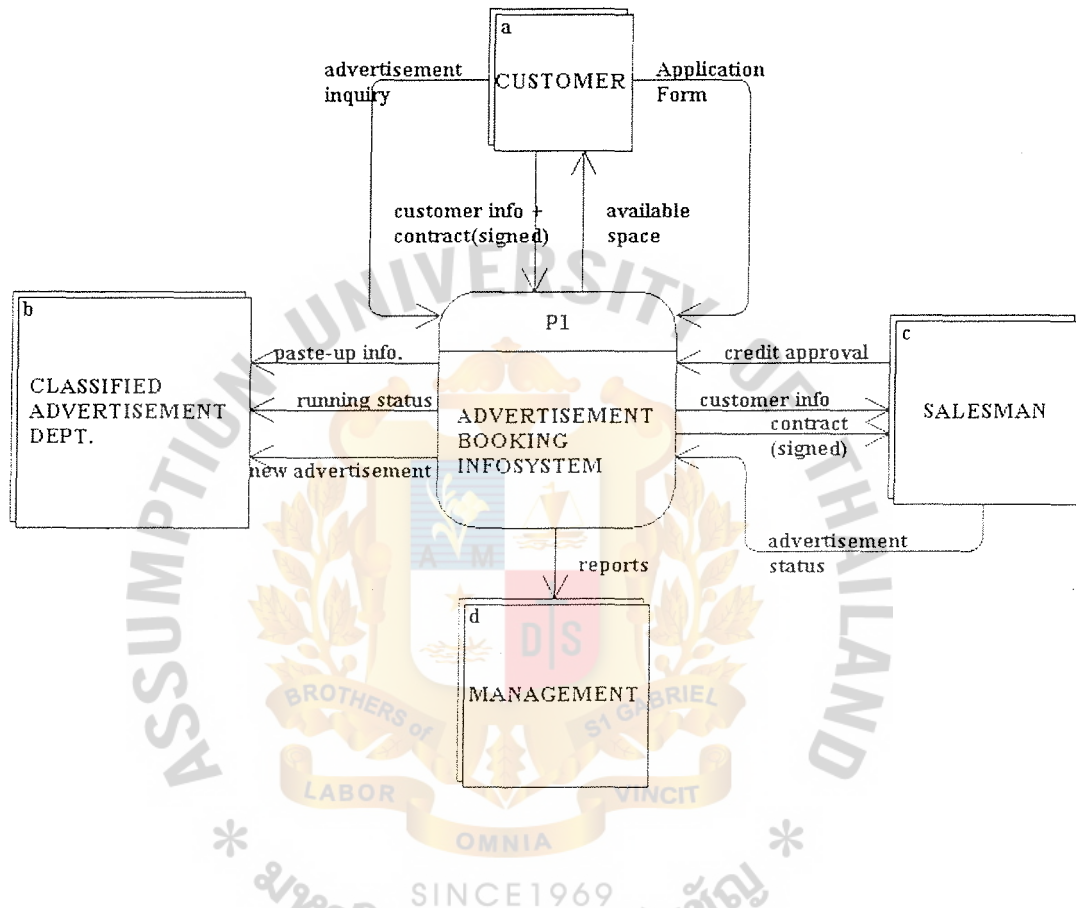


Figure 2.2. Context Diagram for the Existing System

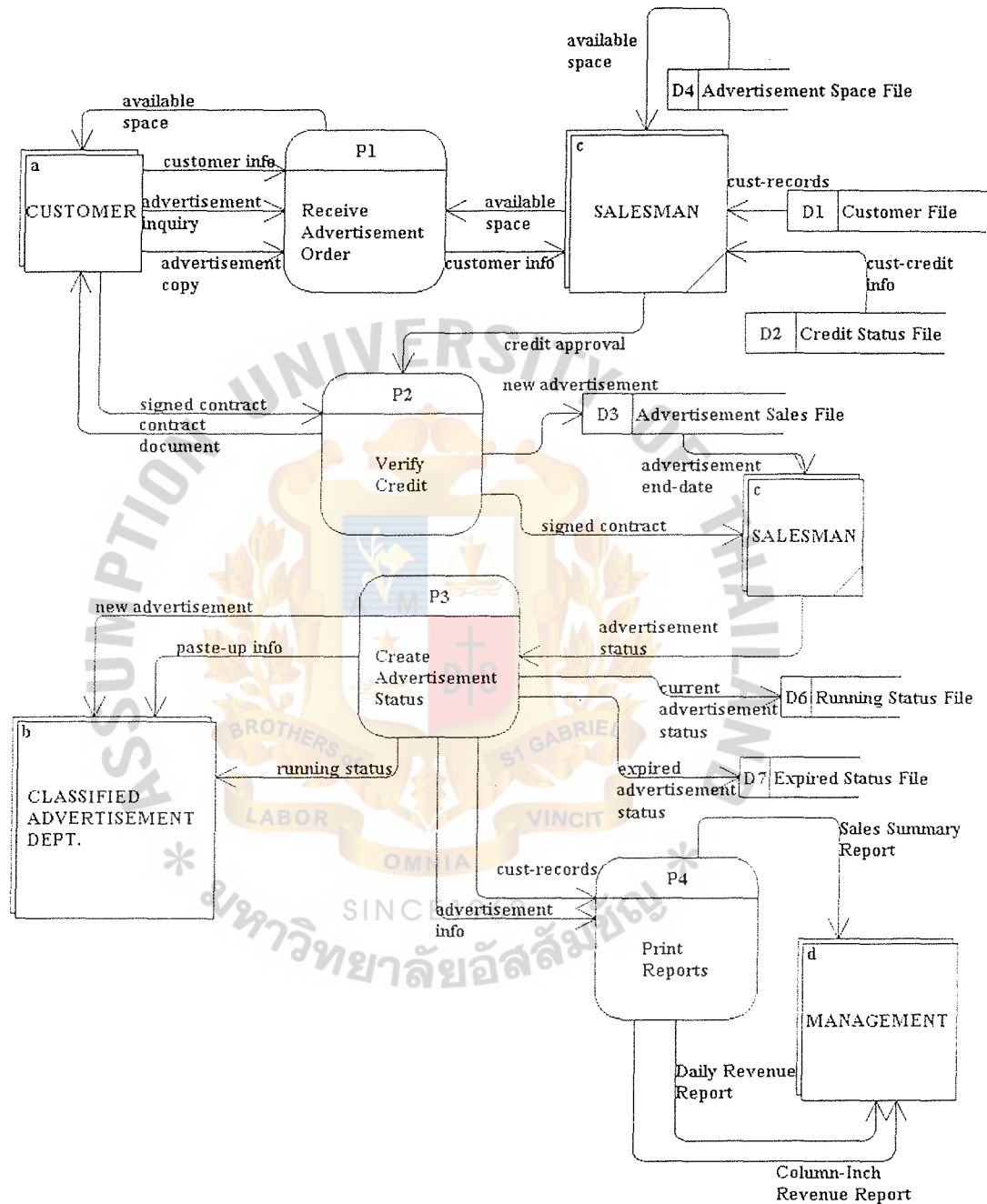


Figure 2.3. Level 0 DFD for the Existing System

## **2.4 Current Problems and Areas for Improvement**

### **1. Inefficient Document Operations**

All process in the Advertisement Department are done manually. Since proper cross checking was not done on vital facts, errors used to occur regarding the size, position, cost, discount of an advertisement. Sometimes the same space would be sold to two advertisers. The slow issue of documents results in the loss of potential advertising revenue. Thus, one of the objective was set after identifying this as an area of improvement. The aim was to eliminate the problem by creating an Advertisement Booking Information System which would store all the advertisement booked by the Classified Advertising Department as a database. This ensures that an advertisement can be stored alongwith additional related information, which can later be used to search and retrieve the stored information

### **2. Inefficient Reporting System**

Management do not get reports on time. They do not get Advertisement Sales Report, Advertisement Status Reports and



the Revenue Information Reports on time. Since, these reports help the management in decision making they needed a system that could generate accurate information as and when required. To solve this problem, the new system is designed to create daily reports from the advertisement stored in the database according to the user requirement.

3. **Delayed information regarding advertisement printing**

Sometimes the printing staff do not get the information about the new advertisements to be printed for the day on time which results in confusion during the paste-up and printing process. All these bring forth a delay in the steady progress of activities. In light of this, the proposed system would involve the computerization of the entire data processing cycle.

### III. PROPOSED SYSTEM

#### 3.1. User Requirements

After analyzing the existing system the following are the users requirements to execute the operation of an Advertisement Booking Information system :-

##### 1. Input Requirements

- **Advertisement Application Form (Hard Copy) :-** This contains information about the customer and the advertisement to be placed for a particular date.
- **Advertising space Information :-** This contains information about the space available and the space already allotted for a particular advertisement.

##### 2. Output Requirements

- **Contract Document :-** This is the official document containing the information of the customers advertisement booking and the amount due by the customer.
- **Paste-up Information Report :-** This report is very useful for the paste-up staff. The paste-up staff are those who paste up a

camera-ready advertisement on the page. From this report they know what advertisements are going to appear in the next days edition.

- **The New Advertisement Report :-** This report is for the printing staff. From this they can find out the advertisements they have to produce on a given day.
- **The Expired Advertisement Report :-** This report provides information about the advertisements that expire everyday. This report is used to follow-up on a customer to encourage them to continue with the advertisement.
- **The Column-inch Information Report :-** This report calculates the column inches in the whole classified section on any given day, and if needed, it can be modified to exclude the free and in-house advertisements.
- **The Daily Revenue Report :-** This report calculates the amount of revenue generated by the advertisements appearing in the classified section on any given day.
- **Repeat Advertisement Report :-** This report contains the advertisements that are to be repeated for the days specified.
- **Sales Summary Report :-** This report consists of the sales made by each Salesman in a month.

- **Customer Mailing List :-** This is the list of all the customer's with their mailing addresses for sending regular information about placing advertisement.

## 3.2 System Design

The following aspects of system design are described :

### 3.2.1 Software Design

The following aspects are considered important in designing the software for the proposed system:

- User-friendly interfaces

- Easily understandable *modus operandi*

- Reliable

- Flexible in modifying processes according to user needs

### 3.2.2. Screen Design

The logical model of the proposed system, illustrated by data flow diagrams , are converted to the physical model of the screen design. These screens are designed according to user requirements and satisfaction. This is achieved by designing the main menu screen, submenu screens for each selection in the main menu as well as for each selection on a

submenu, data entry screens, information viewing screens, and report print preview screens. For sample interfaces, refer to the Appendix B.

### **3.2.3 Report Design**

Accurate and up-to-date information achieved through reports is the major purpose of this system. The amount of information to be displayed on each report has been designed from the Management and Classified Advertisement Department Staff's point of view. Refer to Appendix E for some sample reports.

### **3.2.4 File and Database Design**

The schema of the tables were created in Microsoft Access 97 using the table design function. Each table was kept in one separate file and physically structured as the indexed sequential file. Then, indexes were created to match the primary keys and indexes. If data is needed from more than one table, Access queries, SQL statements in embedded mode were used to merge the tables. In the data dictionary are also included the physical structure of these



tables and their relationships as presented by the Access Database Documentor. Refer to Appendix F for the conceptual schema and table.

### **3.2.5 Overview of DFD Level 0**

The proposed system is presented by using Context Diagram and the data flow diagram (DFD) as a tool for representing a structured analysis and design.

There are five process contained in the whole Advertisement Booking Information System :-

#### **Process 1.0 :      Receive Advertisement Space Order**

- To provide inquiry on advertisement space available
- To place the advertisement by filling the Advertisement Application form.
- To provide the facility to repeat advertisements
- To check the Advertisement Application form for mistakes.

#### **Process 2.0 :      Verify Credit**

- To verify the details of the existing customers in the database.
- To check for the credit limit permitted to each customer.

- To get the approval of the Management regarding request for excess credit facility.
- To prepare the Contract Document to be sent to the customer for signature.

### **Process 3.0          Create Advertisement Status**

- To check the schedule for each advertisement.
- To compare the end-date of the advertisement with the current date
- To record all running advertisement in the running advertisement file.
- To record all expired advertisement in the expired advertisement file.
- To delete records from the expired advertisement file after 15 days.

### **Process 4.0          Update Master File**

- To update all information in their respective files.
- To control Master files

### **Process 5.0          Print Report**

- To provide periodic or on-demand reports
- To provide speedy and efficient Advertisement Booking Information.

Refer to Figure 3.1 and Figure 3.2 for the Context Diagram and the Level 0 Data Flow Diagram for the Proposed System of Advertisement Booking Information System.



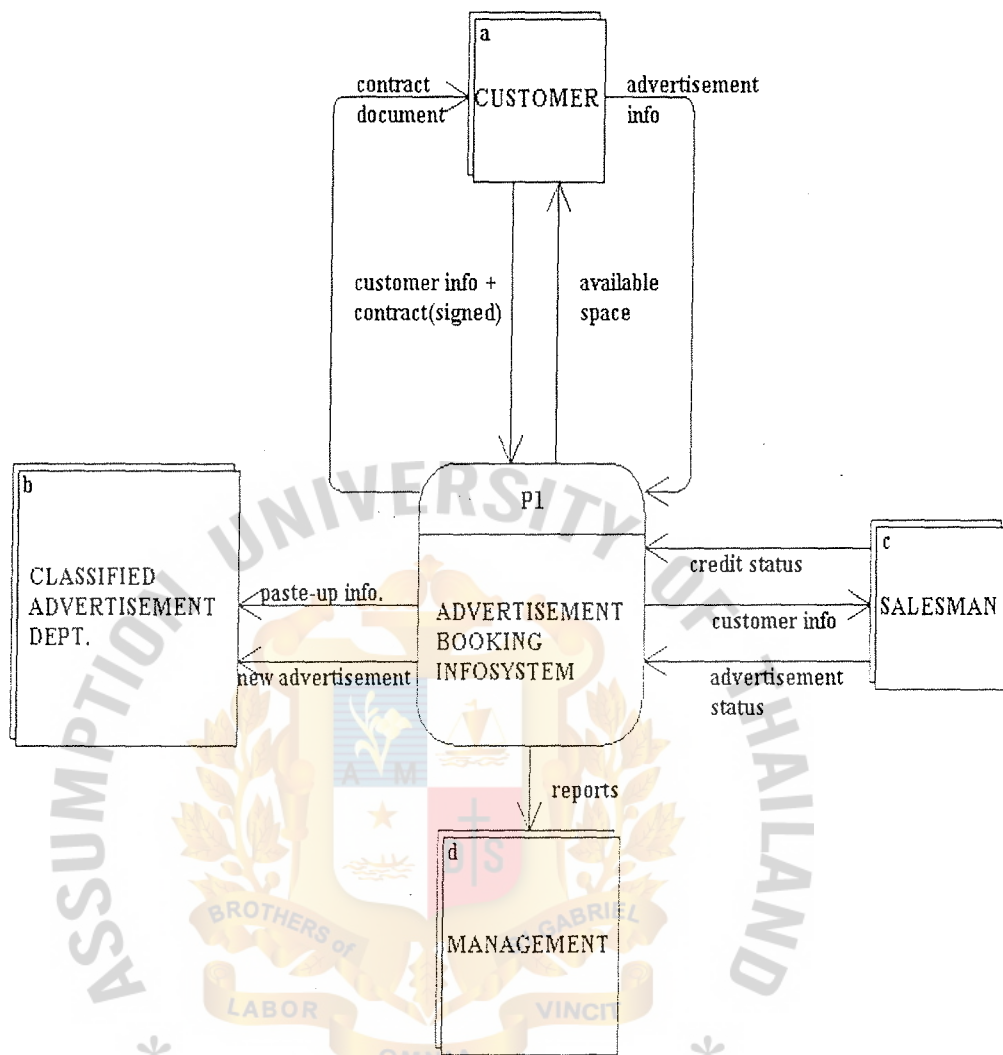
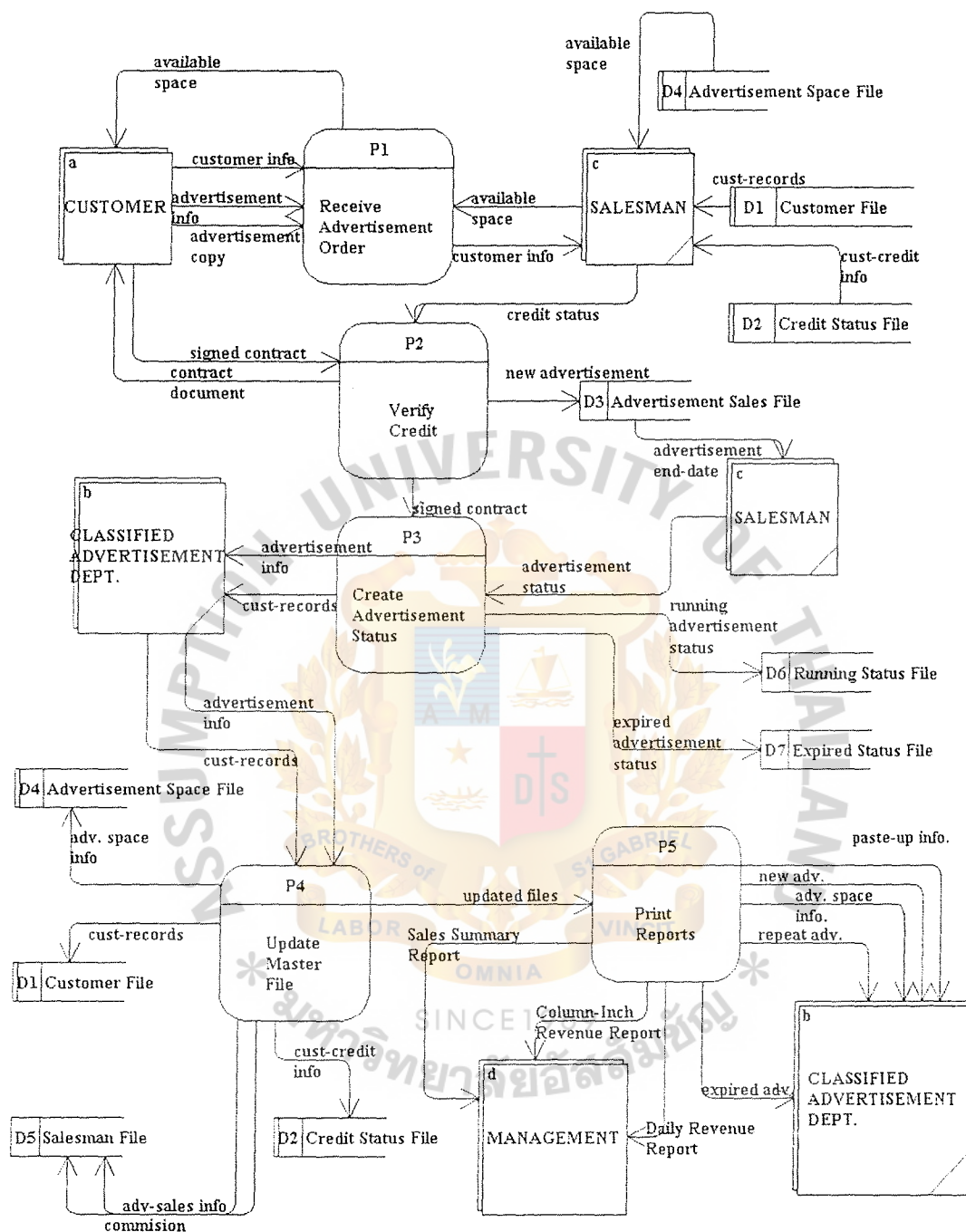


Figure 3.1. Context Diagram for the Proposed Advertisement Booking Information System



**Figure 3.2. Level 0 Data Flow Diagram for the Proposed Advertisement Booking Information System**



### **3.2.6 Proposed System detail for DFD Level 1**

#### **Process P1 : Receive Advertisement Order**

The customer requests for placing an advertisement.

The salesperson looks into the Advertisement Space File to find out the spaces available for the specific date as requested by the customer. Then the customer is required to fill an Advertisement Application Form stating the nature of the advertisement, the size and on what dates the advertisement should be published. The salesman then verifies to check that all relevant informations are provided by the customer. If there is any doubt about any information, the customer is requested again to provide the necessary information. In case of a repeat advertisement, since the customer has already given the details of the advertisement earlier, a new Advertisement Application Form is automatically created for the customer. This application is also manually verified by the salesman for accuracy.

**Process P2 :****Verify Credit**

In this process the salesman verifies the credit limit permissible for each customer. The salesman reads the Credit Status File for checking if the customer's credit request is within the credit limit allowed. If the request is found to be in excess of the credit limit then the management is approached for reviewing each customer's request. Then it is on the recommendations given by the management that the necessary actions are taken.

**Process P3 :****Create Advertisement Status**

In this process the system usually assigns a status to every advertisement. Each advertisement can be a running advertisement, expired advertisement or void advertisement. After an advertisement is booked, a running status is recorded in the Running Status File. Once an advertisement expires an expired status is recorded in the Expired Status File. If a mistake is made during advertisement booking, a void status is recorded in the Expired Status File.

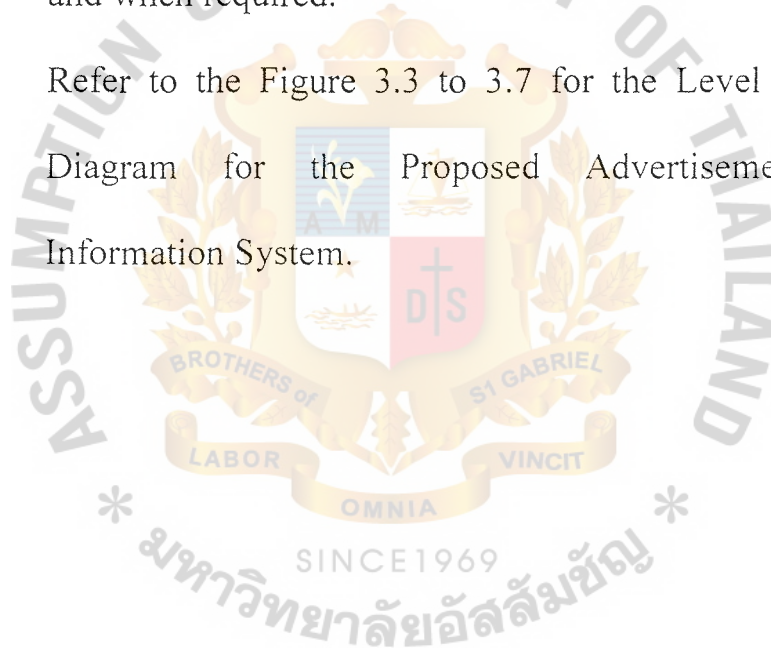
#### **Process P4 :        Update Master File**

All informations are recorded in their respective files and thus the Master File is kept up-to-date, since the Advertising staff and the Management need accurate and reliable information.

#### **Process P5 :        Print Reports**

Finally, this process prints all the necessary reports as and when required.

Refer to the Figure 3.3 to 3.7 for the Level 1 Data Flow Diagram for the Proposed Advertisement Booking Information System.



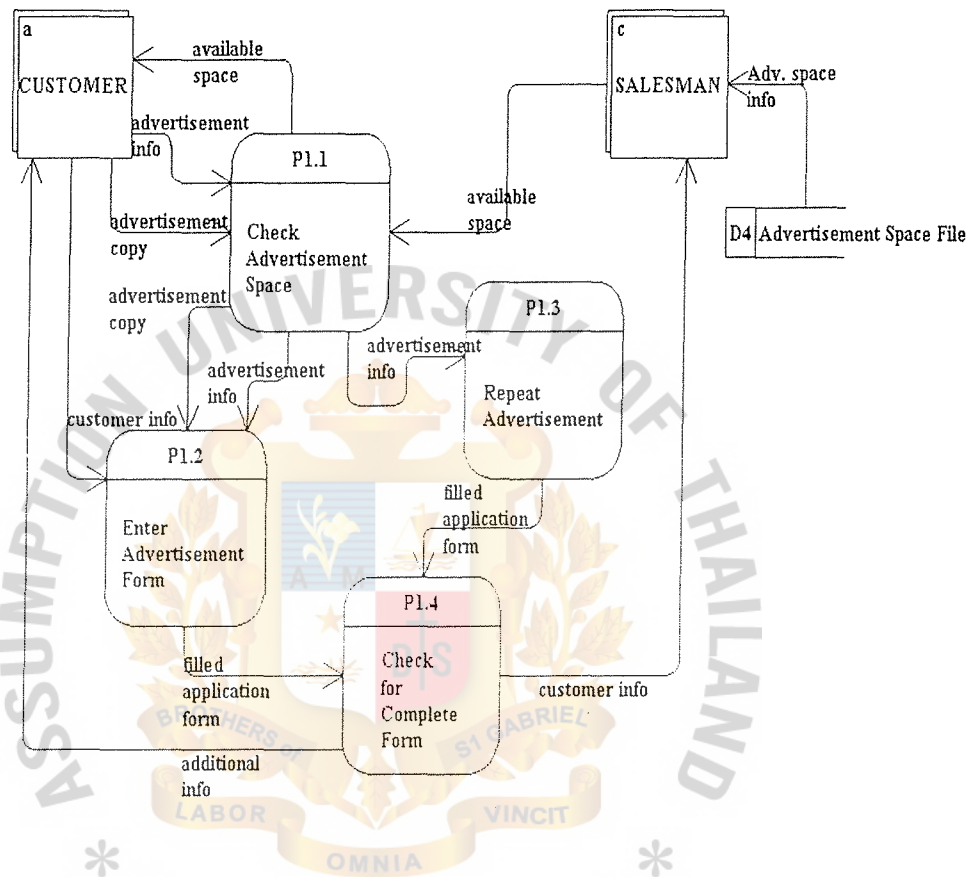


Figure 3.3. Level 1 Data Flow Diagram for  
Process 1.0 - Receive Advertisement Order

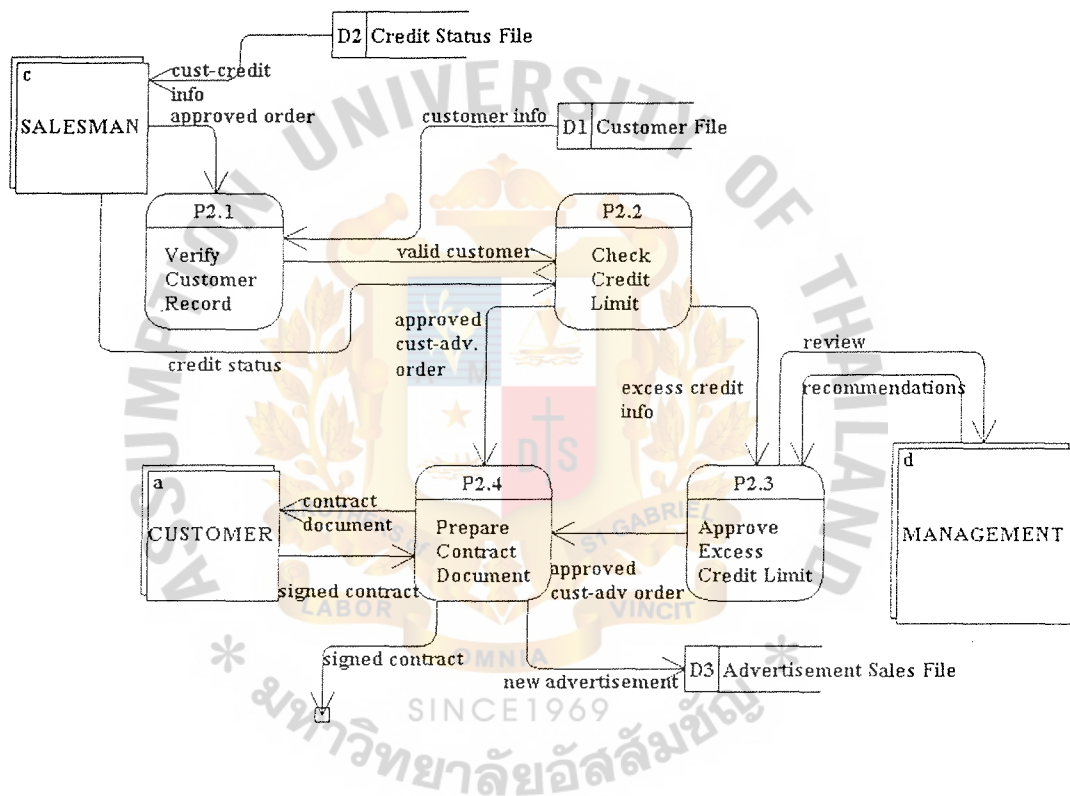


Figure 3.4. Level 1 Data Flow Diagram for  
Process 2.0 - Verify Credit



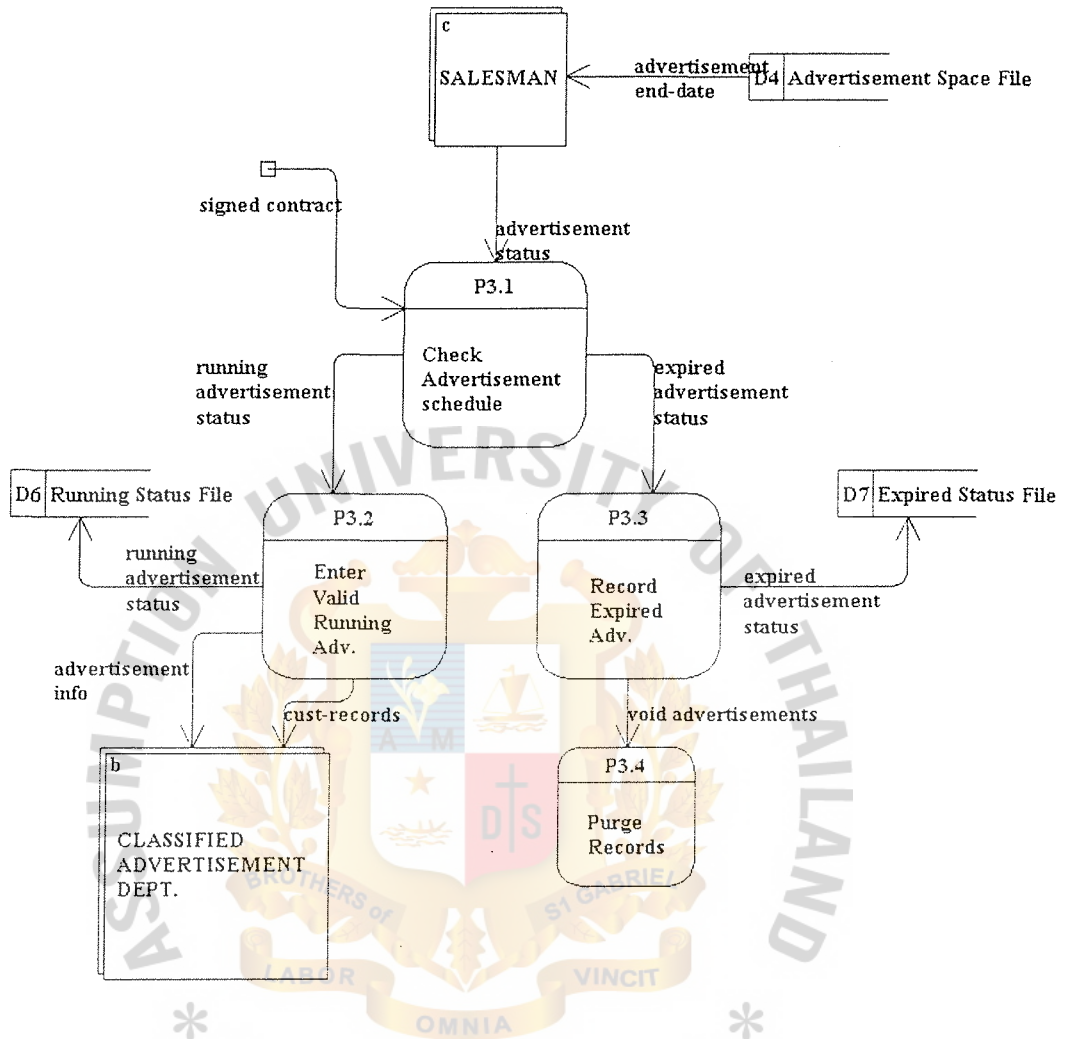


Figure 3.5. Level 1 Data Flow Diagram for  
Process 3.0 - Create Advertisement Status

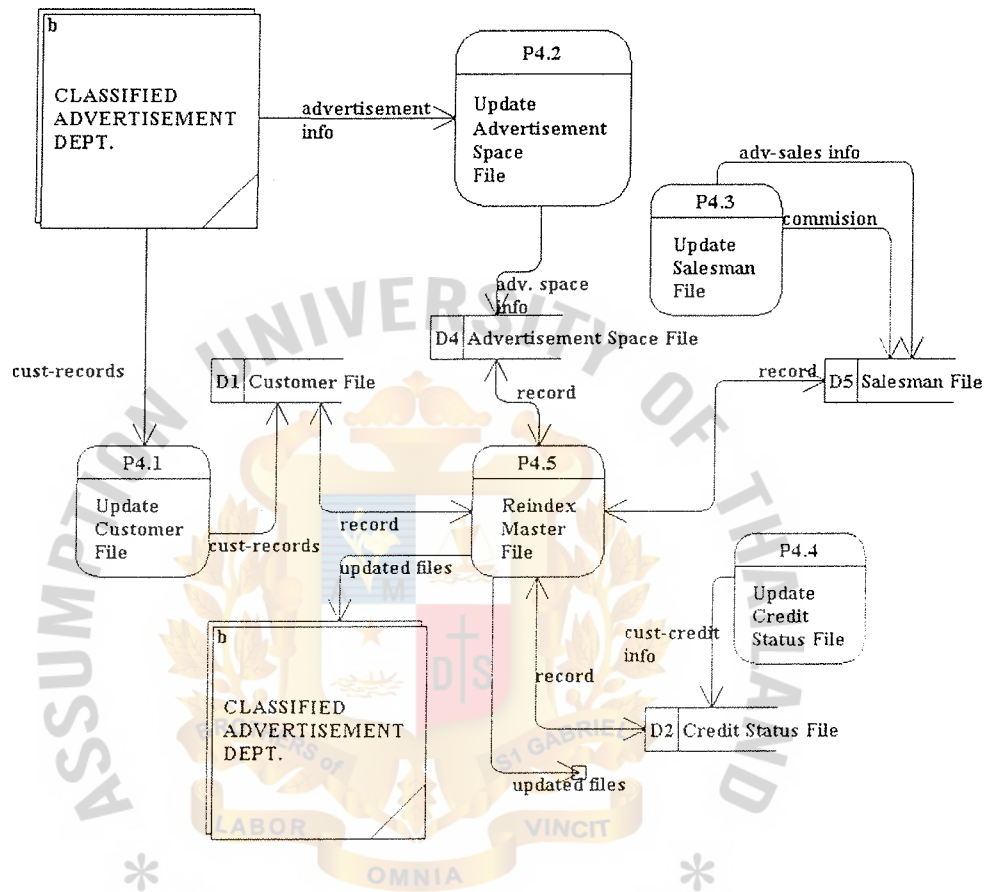
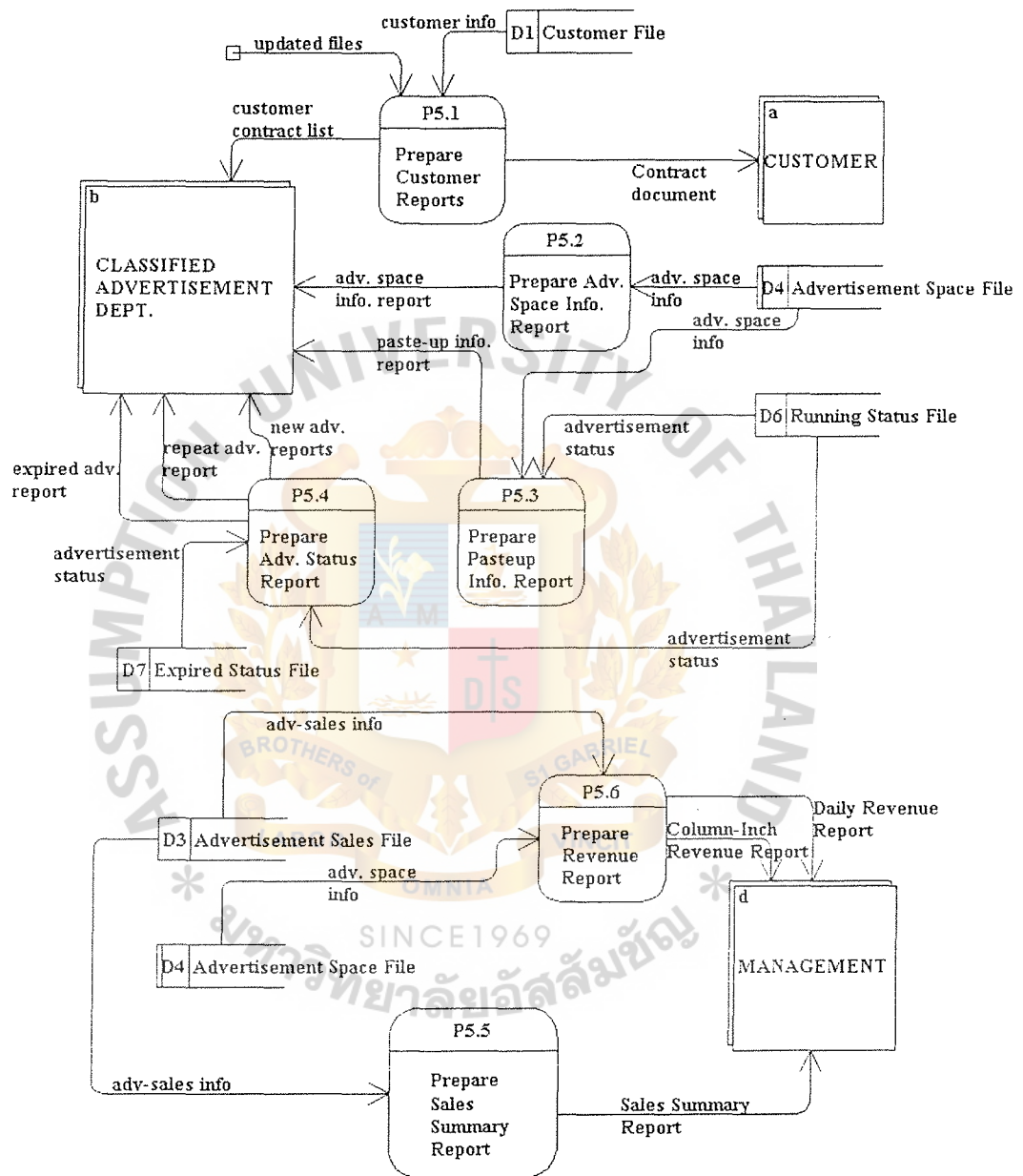


Figure 3.6. Level 1 Data Flow Diagram for  
Process 4.0 - Update Master File

The following are the Software requirements :-

- Operating System
  - MS DOS (version 6.2)
  - MS Windows 95
- Network Operating System
  - Microsoft Windows NT
  - (version 4)
- System Development Software-
  - MS Access (version 7)
  - for Windows 95
  - MS Office 97





**Figure 3.7. Level 1 Data Flow Diagram for  
Process 5.0 - Print Reports**

### **3.3 Hardware and Software Requirements**

The system would employ PC workstations to run. All computers would be connected to one another on a small LAN network. One set of computer would be dedicated as a file server, which would be used to store data sharable to all workstations. File server is used because most of the transactions of the system deal with database, and the server usage will help to reduce time and cost of separate storage.

The network of the Ethernet type connecting to a concentrator (HUB) using coaxial cable. The network adapter cards are installed in all computer sets. There will be 3 printers to print all the documents and reports.

#### **3.3.1 Hardware Configuration**

The configuration of the Hardware are as follows :-

1. The File Server (1 SET)
  - CPU 80586 Intel Pentium 200 Mhz
  - Monitor SVGA Colour
  - 32 MB Main Memory



- 1.44 MB Floppy Drive
- 1.6 Giga Byte Hard Disk Drive
- 2 Serial, 2 Parallel Port
- AZERTY keyboard

## 2. Workstation (4 sets)

- CPU 80586 Intel Pentium 133 Mhz
- Monitor SVGA Colour
- 32 MB Main Memory
- 1.44 MB Floppy Drive
- 820 Mega Byte Hard Disk Drive
- 2 Serial, 2 Parallel Port
- AZERTY keyboard and mouse

## 3. Laser Printer (2 Sets)

- HP Laser Jet 6P
- TONER
- A4 Paper

## 4. HUB (1 Set)

- Linkbuilder FMS Stackable Ethernet (TP HUB)

- LAN Port JT 500 (JIANT 500VA)
- LAN Port, Model OA1 500VA.6 9601 (Leonics)
- Built-in repeater

## 5. Network Interface Card and Coaxial Cable

- Coaxial interface

### 3.3.2 Software Configuration

The Advertisement Booking Information System would be implemented using a database program called Microsoft Access 97 for Windows 95. This software provides a development tool for programmers to interface users with the database. The tool provides developers with GUI. Thus, it allows the programs to be developed with user-friendly features. Moreover, the programs can be designed to run on a network system.

### 3.4 Security and Controls

Security in computing is a vital issue. The major assets of computing system are hardware, software, and data. They are susceptible to attacks. An attack to a hardware renders data being processed as lost or unusable. There's a risk of theft or malicious destruction of hardware. Software faces the threat of illicit copying of programs. Software can also be destroyed maliciously or it could be modified or deleted. Data attack is another serious problem as an unauthorized party might gain access to it and modify it. Considering the attacks that the computer system faces, the following security and control methods are proposed for the Advertisement Booking Information System.

1. Only authorised parties are permitted physical access to the system.
2. Password is installed into the application for the users to have access to certain sensitive areas of the database.
3. To prevent loss of data during power failure, a UPS (Uninterrupted Power Supply) is recommended.

4. All input forms should be checked and verified by an authorized person before data entry.
5. All files should be copied to diskettes and stored in a safe and secure place. A backup process should be performed at the end of each day.
6. Data entry, modification, and correction should be made by authorized person only.
7. Hardware and printer should not be left unattended during the printing process.
8. Backup copies should be created every time the database is updated or modified. (Access enables the implementation of this measure)
9. The computer hardware must be locked in the office at closing time, and the key should be entrusted to an authorized person.
10. Authorized persons should be instructed to sign source documents such as the Contract documents.
11. Staff should be provided adequate training on the use of the system.
12. The dates printed on the reports should be checked at the time the computer is turned down.

13. The distribution of reports should be controlled to ensure that they are sent to the proper destination.
14. The recovery of data could be brought about by using backup diskettes, PC tools, and Norton Utilities, in case of accidental deletion of data.

Care and precautionary measures are required to be applied to the major components of the computer system. Furthermore, protection of the data from hardware theft or destruction should be ensured. In the case of software, measures to prevent illegal copying of programs necessitate enforcement.

With regard to the security issue, the database must be secured properly, in view of its extreme prominence as a component of the system. To ensure this, the following security measures are proposed for the system.

- Establish 2 types of users, namely, the "Admin" and the "User"
- "User" is granted access rights to only a portion of the system which is required to carry out his/her part in the data processing cycle.



- "Admin" has the privilege to access the entire system and define accessing restrictions for all personnel concerned.

### 3.5 Cost/Benefit Analysis

When computer information systems are concerned, costs are difficult to calculate. Benefits can be even harder to determine than costs. I have categorized benefits into 2 types : Tangible Benefits and Intangible Benefits.

- **Tangible Benefits :**

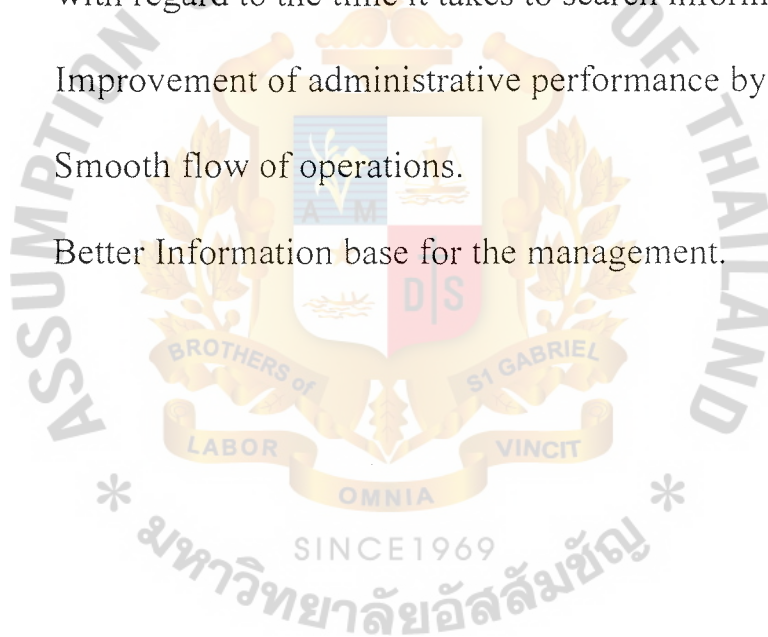
These are realized when the proposed system is projected to generate or save the financial resources of the company. The tangible benefits of the Advertisement Booking Information System is also about solving the problem of accurate information about the status of the advertisements and timely generation of reports. These problems can be solved, and converted to monetary terms as follows :

1.	Reduce order cancellation	120,000.00/Year
2.	Faster issuing of Contract Documents	50,000.00/Year
3.	Decreased over-time charges	<u>45,000.00/Year</u>
<b>Total Saving</b>		<b><u>2,15,000.00/Year</u></b>

- **Intangible Benefits :**

These are those delivered, indefinable improvement, the values to which are elusive. The intangible benefits expected from the system are as follows :

1. Improved customer services.
2. Higher efficiency in conducting inquiries into the database.
3. Time-savings due to sound database management, especially with regard to the time it takes to search information.
4. Improvement of administrative performance by staff.
5. Smooth flow of operations.
6. Better Information base for the management.



### 3.5.1 Cost Analysis

There are three categories that must be taken into consideration when developing the proposed system. These three categories are :

1. **Investment Cost** : These are non-recurring capital outlays to acquire or develop the proposed system.

#### Hardware

Server 1 set	55,000 Baht
Workstation 4 set	72,000 Baht
UPS	15,000 Baht
Laser Printers 2 set	32,000 Baht
LAN Card	6,000 Baht
UTP Cable and RJ-45	6,000 Baht
* HUB	8,000 Baht

#### Software

Microsoft Windows NT	30,000 Baht
Microsoft Windows 95	20,000 Baht
Microsoft Office 97	<u>20,000 Baht</u>

**Total Investment Cost                      2,64,000 Baht**

2. **Implementation Cost :** These are one time cost to create and install the proposed system.

Software Development

(450 hours x 200 Baht/Hour) 90,000 Baht

Training Cost

(5 hours x 400 Baht/Hour) 2,000 Baht

**Total Implementation Cost 92,000 Baht**

3. **Annual Operating Cost :** These are the recurring cost required to operate the proposed system on a year to year basis.

Paper with Company Logo 4,500 Baht

(9" x 11" 10 Boxes @ 450 Baht)

\* Toner 25,900 Baht

(14 Boxes @ 1850 Baht)

Diskettes 3.5 " HD 2,100 Baht

(5 Boxes @ 420 Baht)

Maintenance Cost	86,000 Baht
(1 staff @ 8000 Baht/Month)	
Miscellaneous Cost	<u>50,000 Baht</u>
<b>Total Annual Operating Cost</b>	<b><u>1,68,500 Baht</u></b>
<b>Grand Total Investment Cost</b>	<b><u>5,24,500 Baht</u></b>

### Pay Back Period

Payback period is the exact amount of time required for the company to recover its initial investment as calculated from cash inflows. The after taxes payback period is

$$P = \frac{I}{(1-T) R}$$

where P = Payback period (after taxes)

I = Initial or capital expenditure

R = Annual saving realized by investment

T = Corporate Tax rate in percent (30%)

The payback period of the proposed system can be evaluated as follows :-

$$P = 5,24,500 / (1 - 0.3) * 2,15,000$$
$$= 3.49 \text{ years}$$





Table 3.1. Cost comparison between the existing system v.s. the proposed system

Existing System	Year 1	Year 2	Year 3	Year 4	Year 5
Hardware	1,15,000	-	-	-	-
Software	35,000	-	-	-	-
Peopleware	2,200,000	2,464,000	2,759,680	3,090,842	3,461,742
Overhead cost	1,15,000	1,38,000	1,65,600	1,98,720	2,38,464
<b>Total (Baht)</b>	<b>2,465,000</b>	<b>2,602,000</b>	<b>2,925,280</b>	<b>3,289,562</b>	<b>3,700,207</b>
<b>P r o p o s e d</b>					
Hardware	2,00,000	-	-	-	-
Software	85,000	-	-	-	-
Implementation Cost	15,000	-	-	-	-
Peopleware	2,150,000	2,465,000	2,601,500	2,861,650	3,147,815
Overhead Cost	250,000	375,000	302,500	332,750	366,025
<b>Total (Baht)</b>	<b>2,700,000</b>	<b>2,840,000</b>	<b>2,904,000</b>	<b>3,194,400</b>	<b>3,513,840</b>

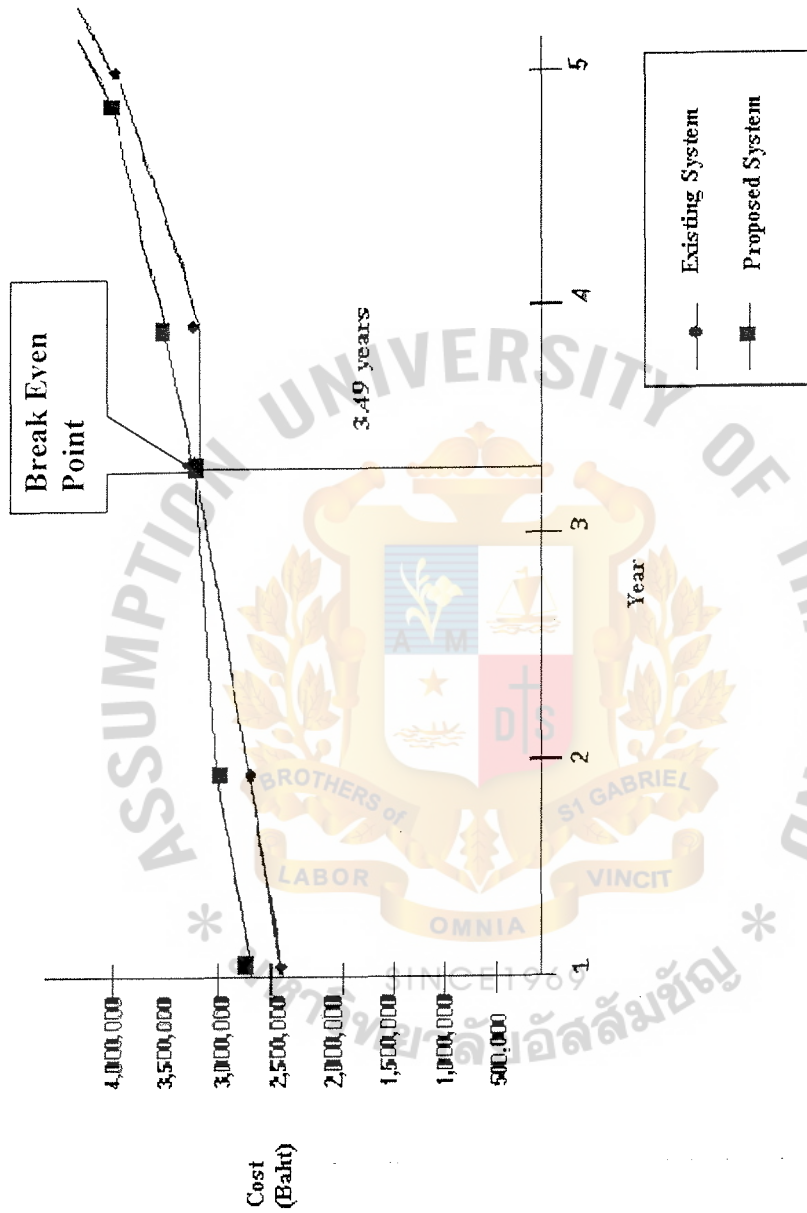


Figure 3.8. Break-Even Analysis between the Existing System and the Proposed System

## IV. PROJECT IMPLEMENTATION

### 4.1 Implementation Plan

System implementation places the new system into operation. This important step includes software development, personnel training, data preparation, installation, testing, start-up and operation. Once system implementation takes place, the system would be up and running.

In this project, Microsoft Access 97 was chosen as the prime DBMS because of its characteristic ability to manipulate an unlimited number of databases. Due to the extent and complexity of the Advertisement Booking Information System prevents the implementation of all modules at once. Besides, the problems of the existing system over a period of time have instilled some aversion on the personnel towards a complex automation system.

Thus, the following solutions are suggested, in accordance to views of Kendall and Kendall [1] when a decision on implementing a complete computerized system for the Classified Advertisement Department.

- Divide all systems into subsystems
- Implement from small subsystems or submodules. A starting is made from a relatively simple module or one that would not affect the main functions of the system. (Refer to A-1 for structure charts of the modules).
- Coding the programs to be implemented. A programmer should invariably check whether the results of programs are up to the satisfaction of users or not. This could be an effective method instrumental in clearing the misunderstanding between the system analyst and the users.
- Testing the programs for errors
- After the testing stage, conversion of the new program would take place. The process of conversion should occur parallel to the existing system so that users are able to adapt themselves to the new system. The effectiveness of the new system could be verified by comparing it

with the existing system as they are functioning in parallel to each other.

- Training users to disseminate the knowledge and skill required to operate the new system.

Keeping in mind the problems associated with the existing system and the aversion it has created in the users, and also their previous experience with a computerized system, a direct cutover conversion method would be unwise. This is because in the event of adoption of this method, if a bottleneck were to unfortunately occur, the functions would be disrupted. Moreover, concerned users are new to the Access software. Thus, the conversion of the new system should occur gradually in a step-wise manner. This shaped the author's thoughts towards the prototyping approach of using the new system in parallel to the existing one. A system running in parallel ensures safety and minimizes chances of failure jeopardizing operations.

## 4.2 Training and System Maintenance

### 4.2.1 Training Activities

These fall under 2 categories. One is Operation Training and the other is User Training.

- **Operation Training** : involves computer staff and system administration personnel who are responsible for keeping the equipment running, providing the necessary support service, or introducing the application to the end-users. Their training covers the handling of all possible operations, and the performance of routine operations (for example, starting the system, entering data, producing reports) should be considered thoroughly.

Training also involves familiarization with loading of disks, copying files, backup data. Operators are required to know when the various procedures are appropriate and how to accomplish them.

This training covers system malfunctions as well. The concerned parties need to know what the most likely malfunctions are, how to detect them, and what steps to follow when they arise.



- **User Training** : The bulk of user training deals with the users of the system itself. Training in data handling or entry of details into the system includes both learning how to enter the data and recognizing what the data should look like. Users are shown how to add data, make changes, or edits, formulate inquiries to retrieve specific information, and delete records of data. Most of these, however, have been designed into on-screen forms with extreme clarity. As these are the basic functions of the system, the effectiveness of the training session proves vital to the proper and optimum usage and operation of the system.

#### 4.2.2 System Maintenance

When the system has been installed and implemented in its entirety, i.e. it has replaced the existing one, improvements should be made to correct errors, meet new management needs, or to adopt new technology.

## **V. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. Conclusions**

The system was designed to meet the objectives set at the beginning of the system analysis phase when the problem had been identified and studied from different perspective.

The key issues that were taken into account were the fact that the new system should effectively take care of all the data processing activities and most importantly provide users with a user-friendly interface of data entry and easy to understand-and-remember operating procedures to use the system.

Since the database was designed with Access which possess its own design tools and fully featured command languages, as well as generators, we have the flexibility to make modifications according to the user's needs. Furthermore, being a commercially available software, Access could be learnt and mastered by interested users.

## 5.2. Recommendations

To ensure the continuous effectiveness of the system, it is recommended:

- periodic post implementation reviews and checks be done by the system analyst and maintenance staff
- backup copies be stored on diskettes of the Advertisement Booking Information System database
- no tampering takes place with the design of the files and queries in the database for this could damage their structure.
- with the growth of the organization in the future the amount of the data and information required would increase proportionally, thus the current file server may not be able to accommodate the increase. In view of this, the file server should be upgraded.
- the DBMS be able to accommodate increase in size of the database and upgrade to a new version.
- the system be able to extended to the internet, for example the DBMS could be connected to an email program, so that an emailing list is created by which concerned parties would be contacted. The

other example would be the publishing of a web page with on-line advertisement booking facilities. The web-based database, in this case, would be linked to the Access database.

- security and protection of database be enforced at all times.
- It is recommended that when the Accounting Department designs a system it should create an additional report regarding the Monthly Revenue from Advertisement Sales. This would help the Management in making important decisions.

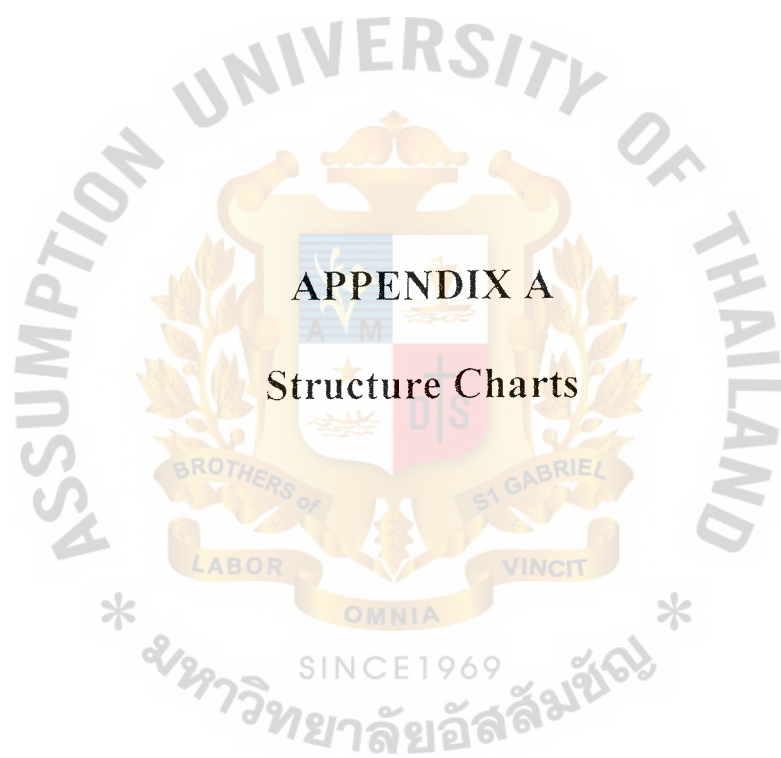


## BIBLIOGRAPHY

1. System Analysis and Design, Kendall & Kendall, Prentice Hall,  
Third edition.
2. System Development - Analysis, Design, and Implementation,  
Allan L. Eliason, Second Edition.
3. Fundamentals of System Analysis, Jerry FitzGerald and Ardra  
FitzGerald, Wiley & Son, Inc. 1987.
4. Fundamentals of Data Normalization, Alan K. Dutka & Howard H.  
Hanson, Addison-Wesley
5. The Practical Guide to Structured System Design, Page-Jones,  
Meilir, Prentice - Hall International, Inc. 1988.
6. Ready-Made Access Applications, Ed Jones, Windcrest/McGraw-  
Hill.
7. Special Edition, Using Microsoft Access 97, Roger Jennings, Que  
Corporation, 1997.







## APPENDIX A

### Structure Charts

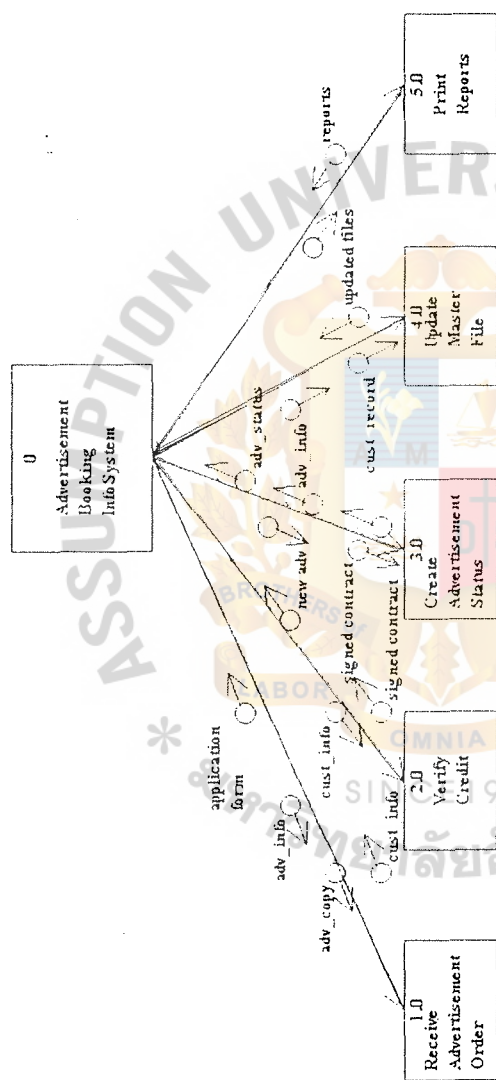


Figure A.1. Structure Chart for Advertisement Booking Information System

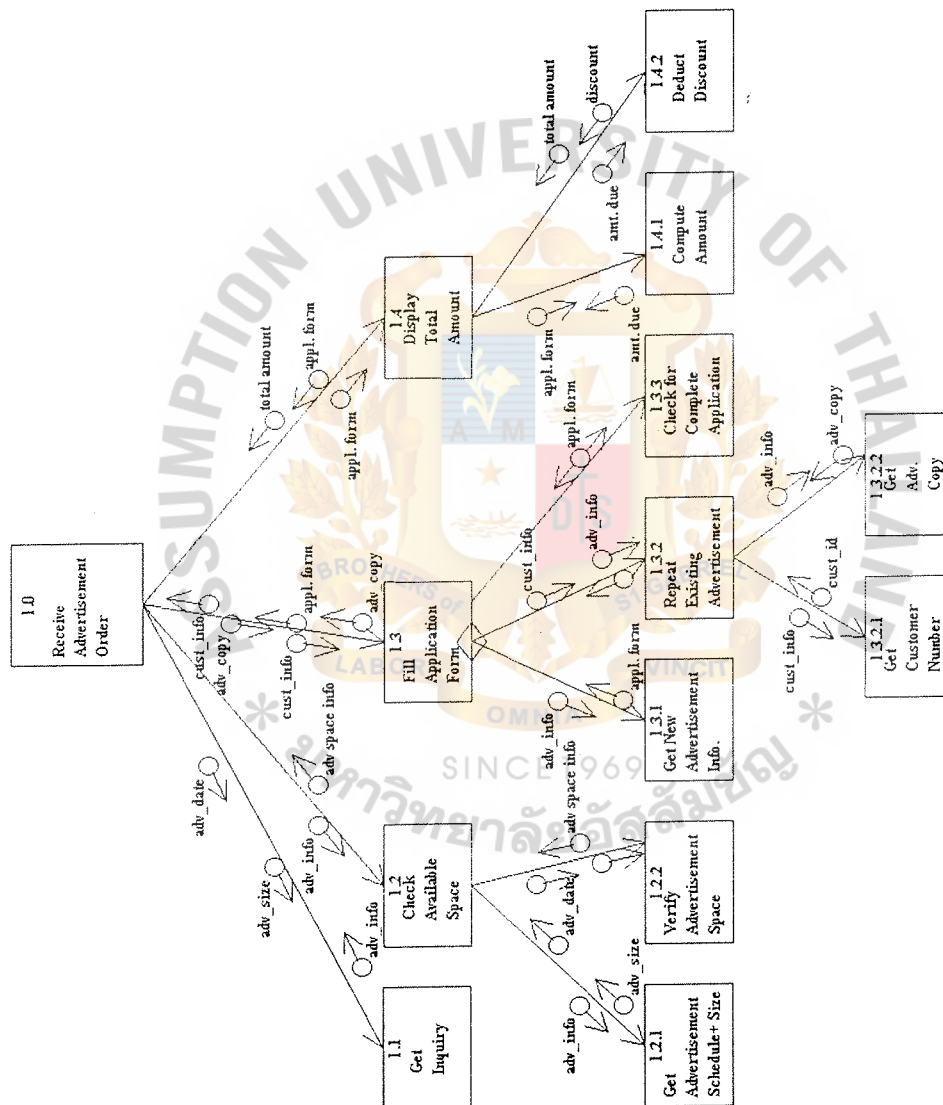


Figure A.2. Structure Chart for Process Receive Advertisement Order

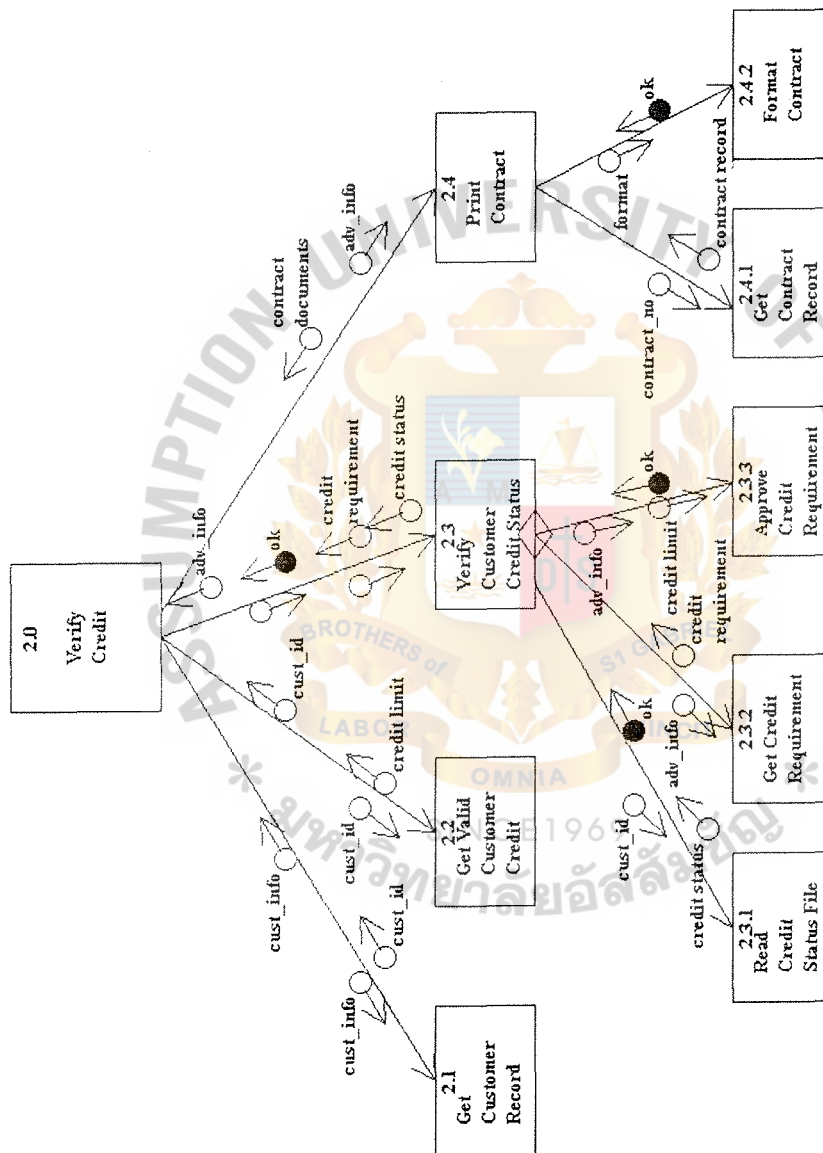


Figure A.3. Structure Chart for Process Verify Credit

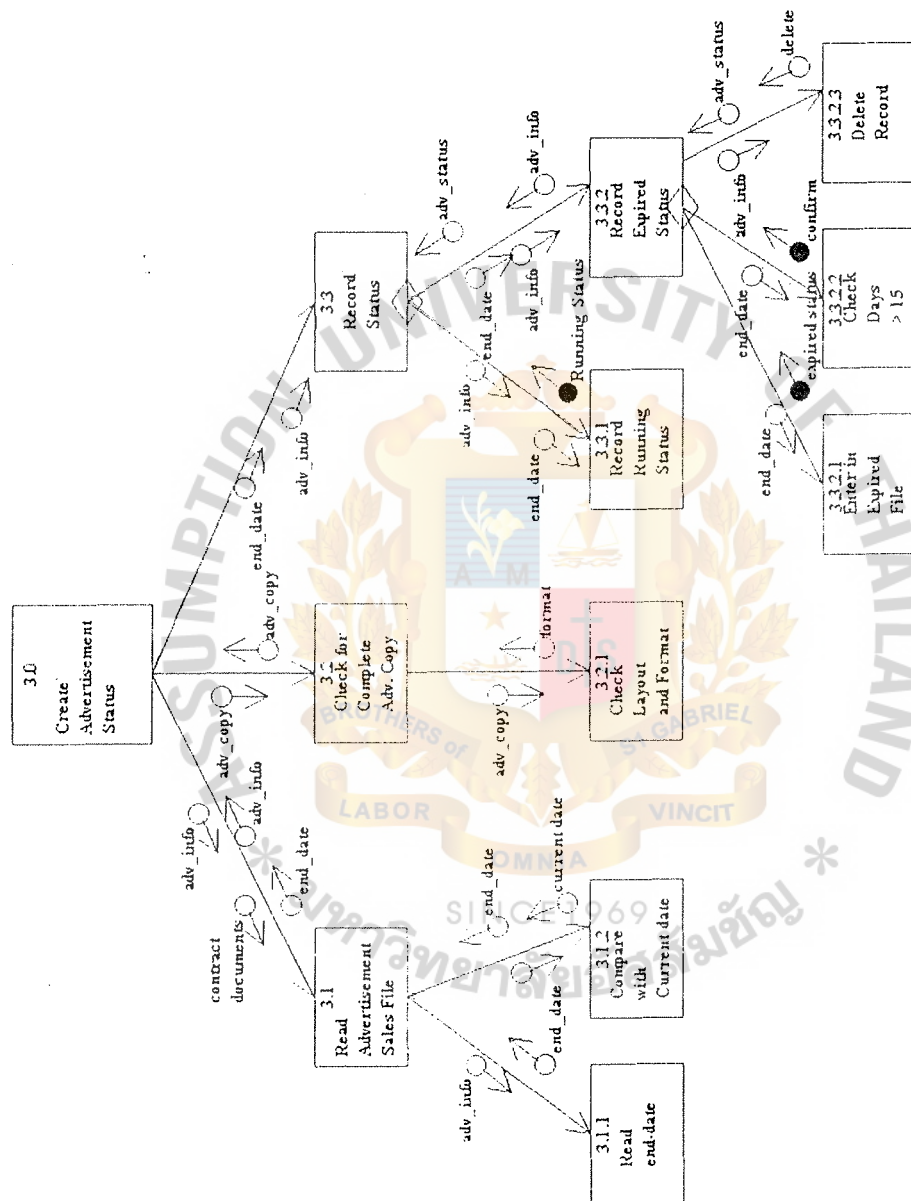


Figure A.4. Structure Chart for Process Create Advertisement Status

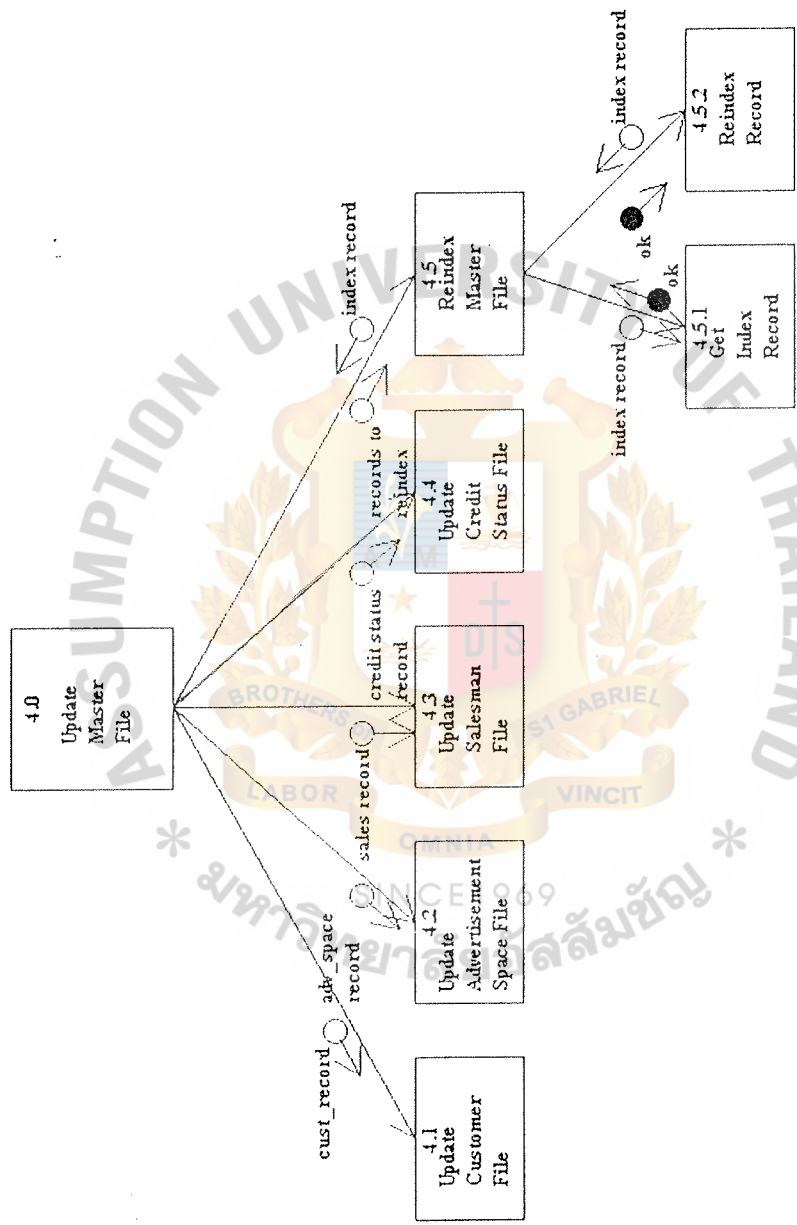


Figure A.5. Structure Chart for Process Update Master File





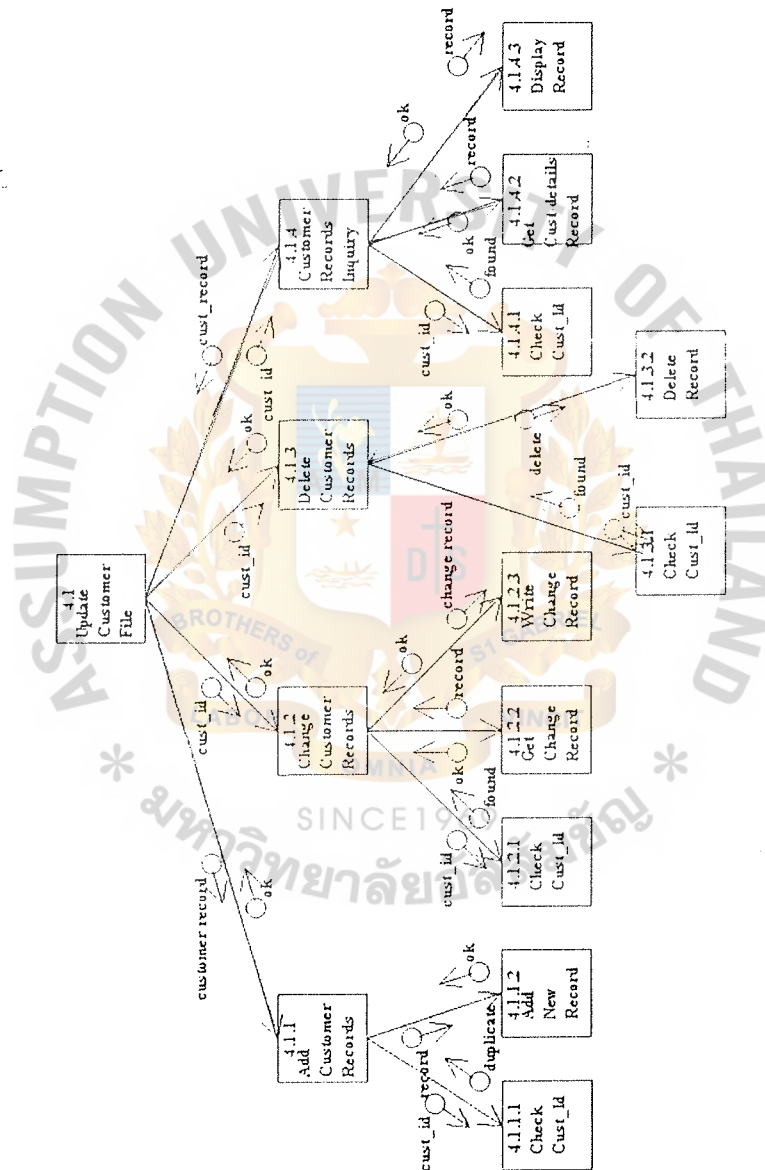


Figure A.7 Structure Chart for Process Update Customer File

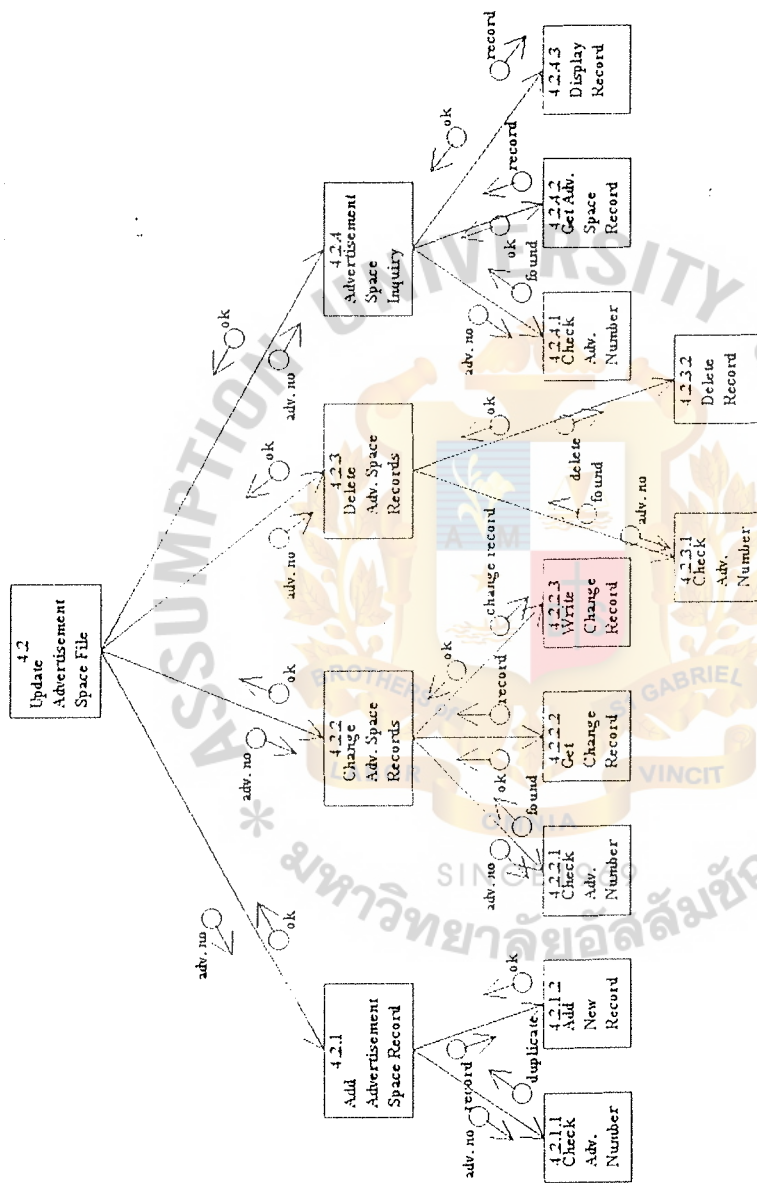


Figure A.8. Structure Chart for Process Update Advertisement Space File

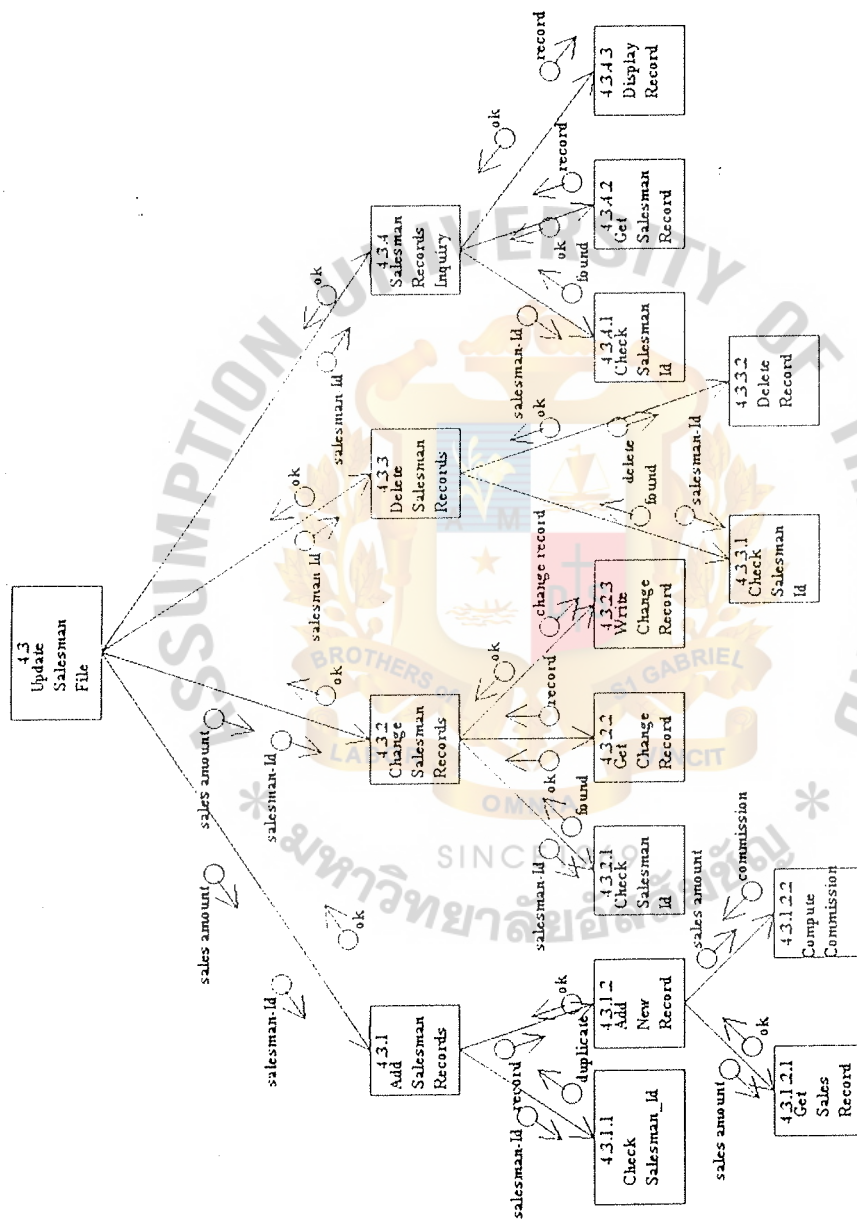


Figure A.9. Structure Chart for Process Update Salesman File

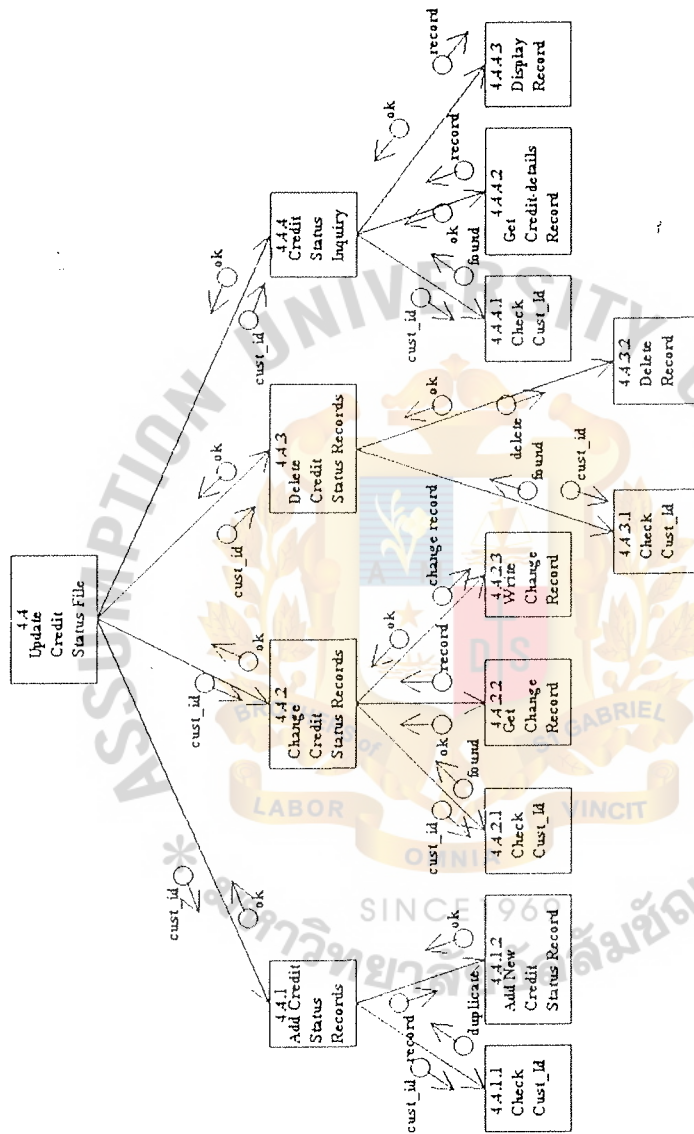


Figure A.10. Structure Chart for Process Update Credit Status File



## APPENDIX B

### Screen Design





Menu Screen Design

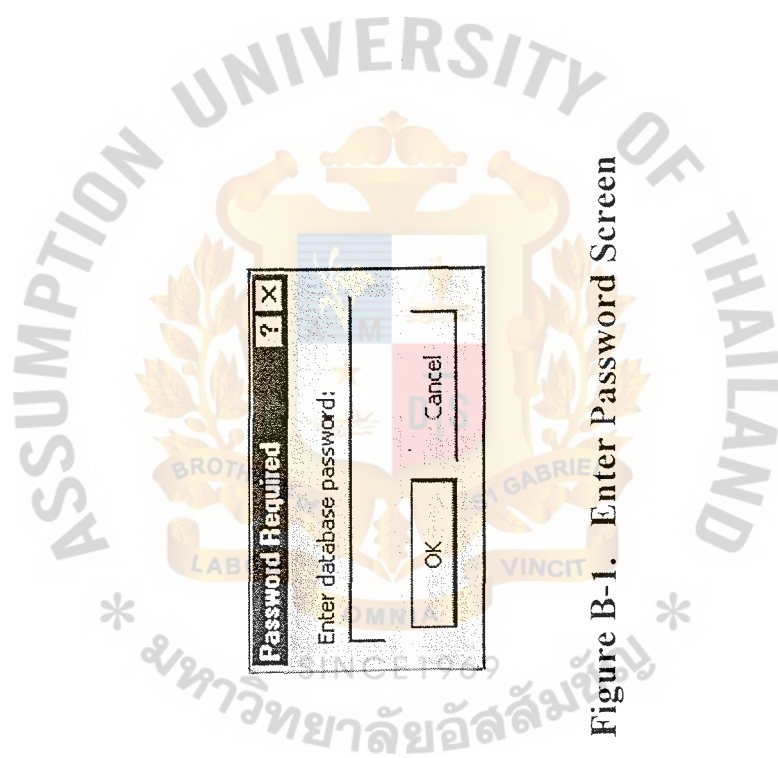


Figure B-1. Enter Password Screen

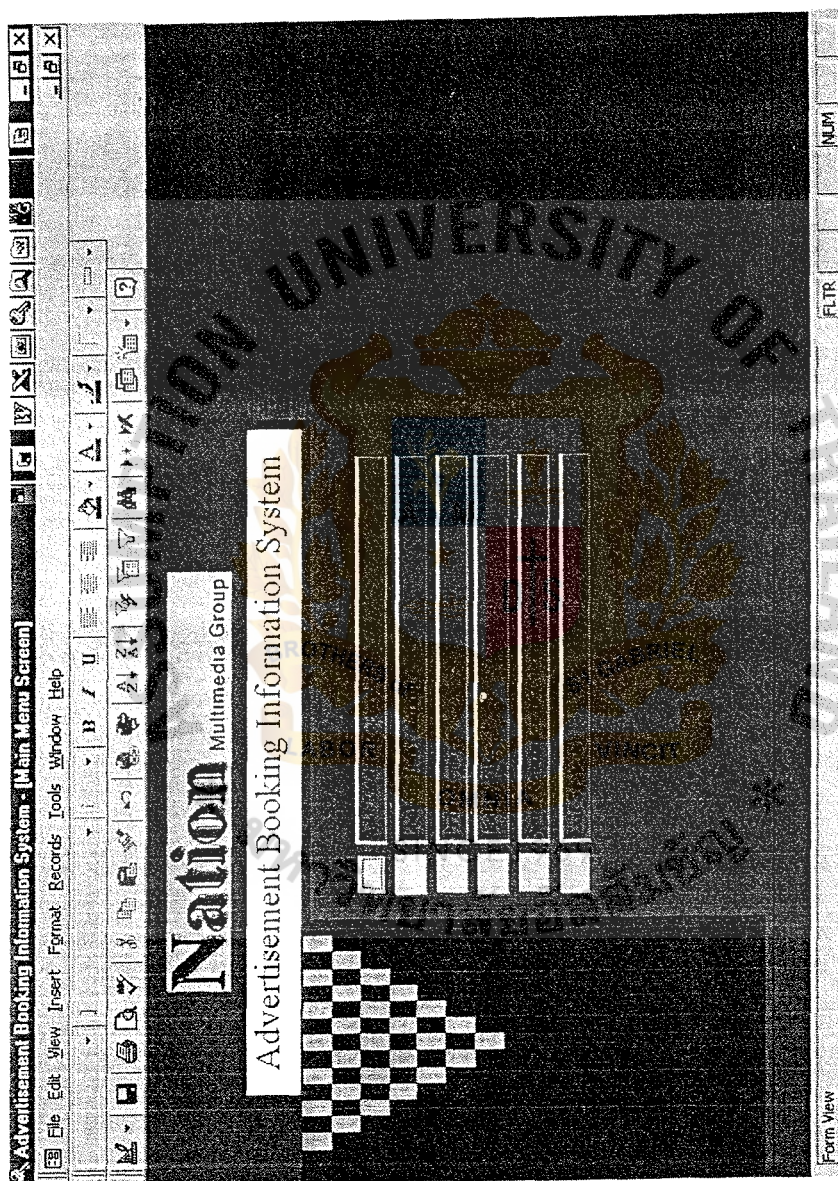


Figure B-2. Main Menu Screen



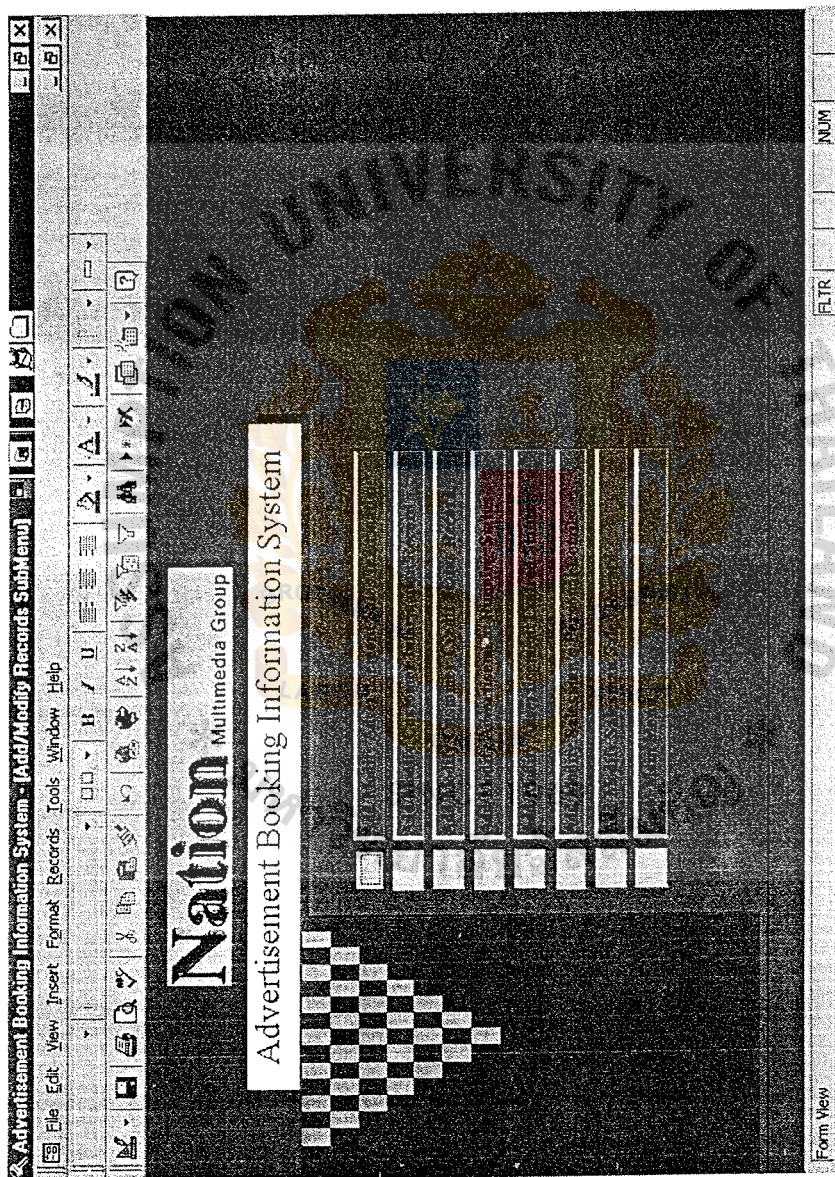


Figure B-3. Add/Modify Record SubMenu

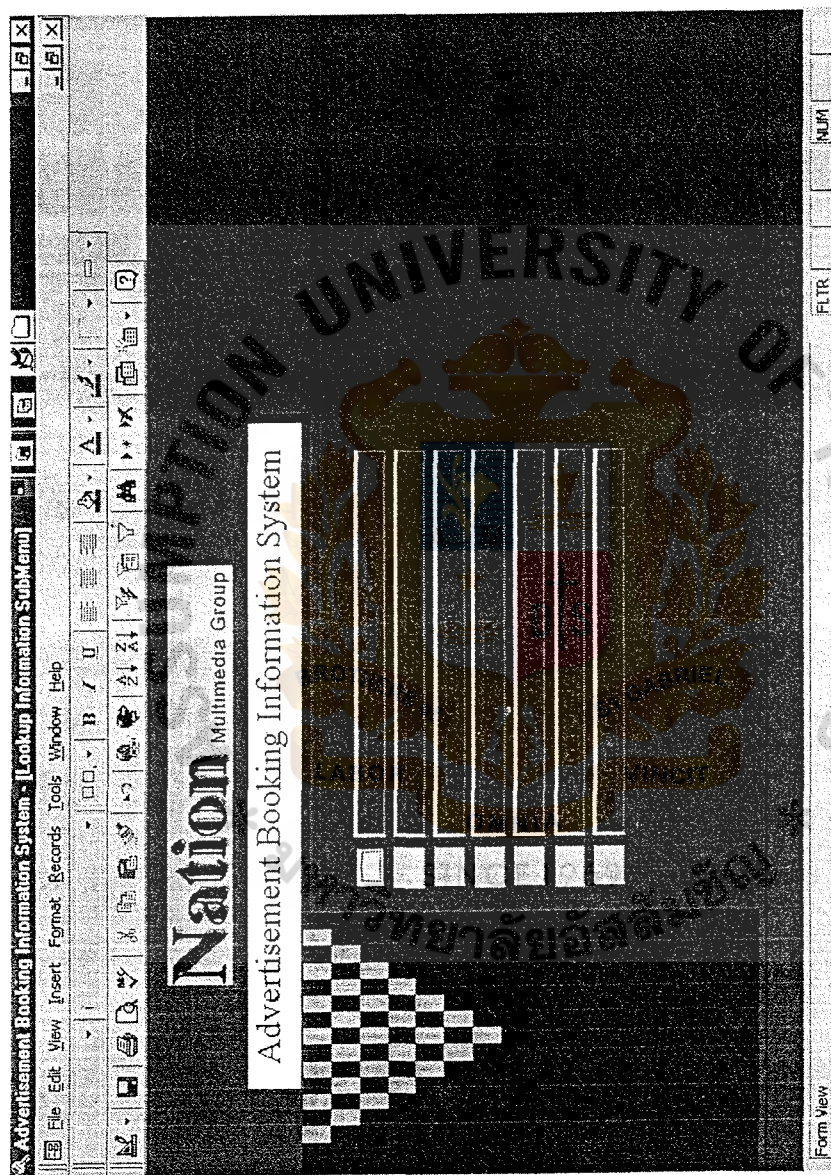


Figure B-4. Lookup Information SubMenu



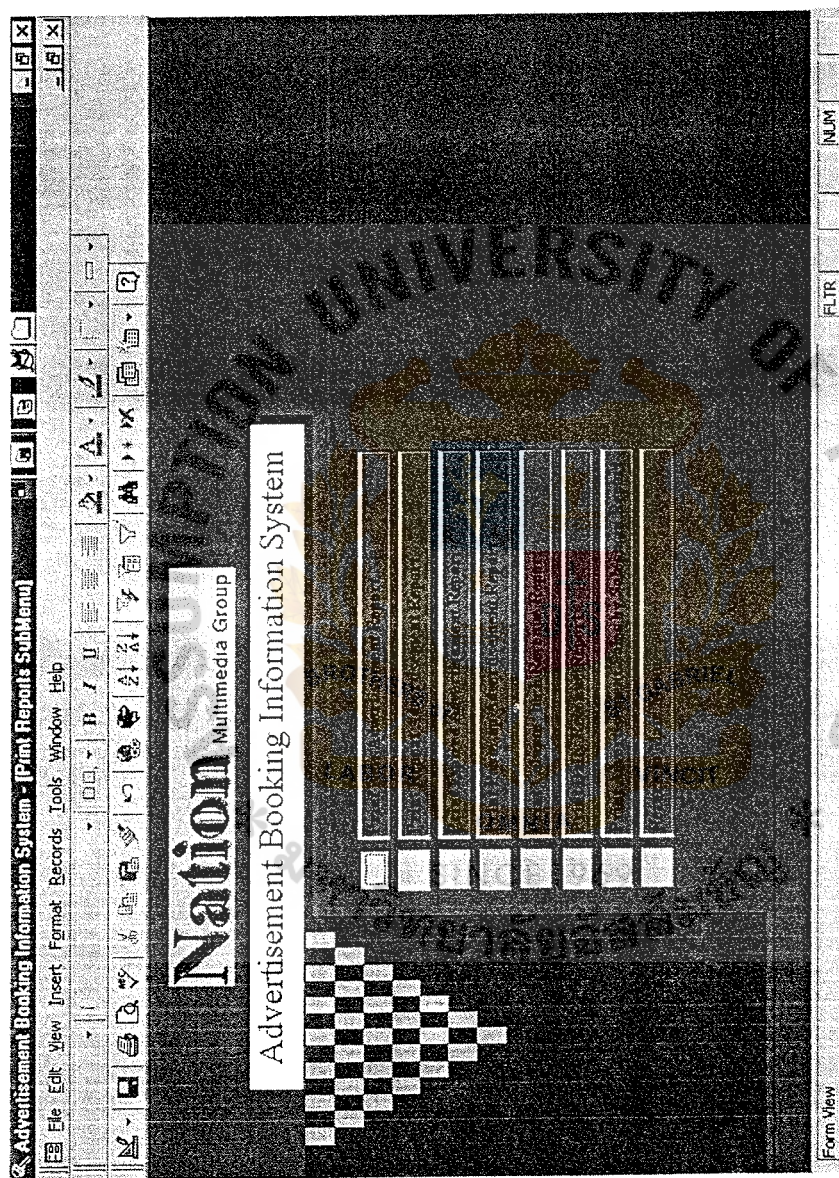


Figure B-5. Print Report SubMenu



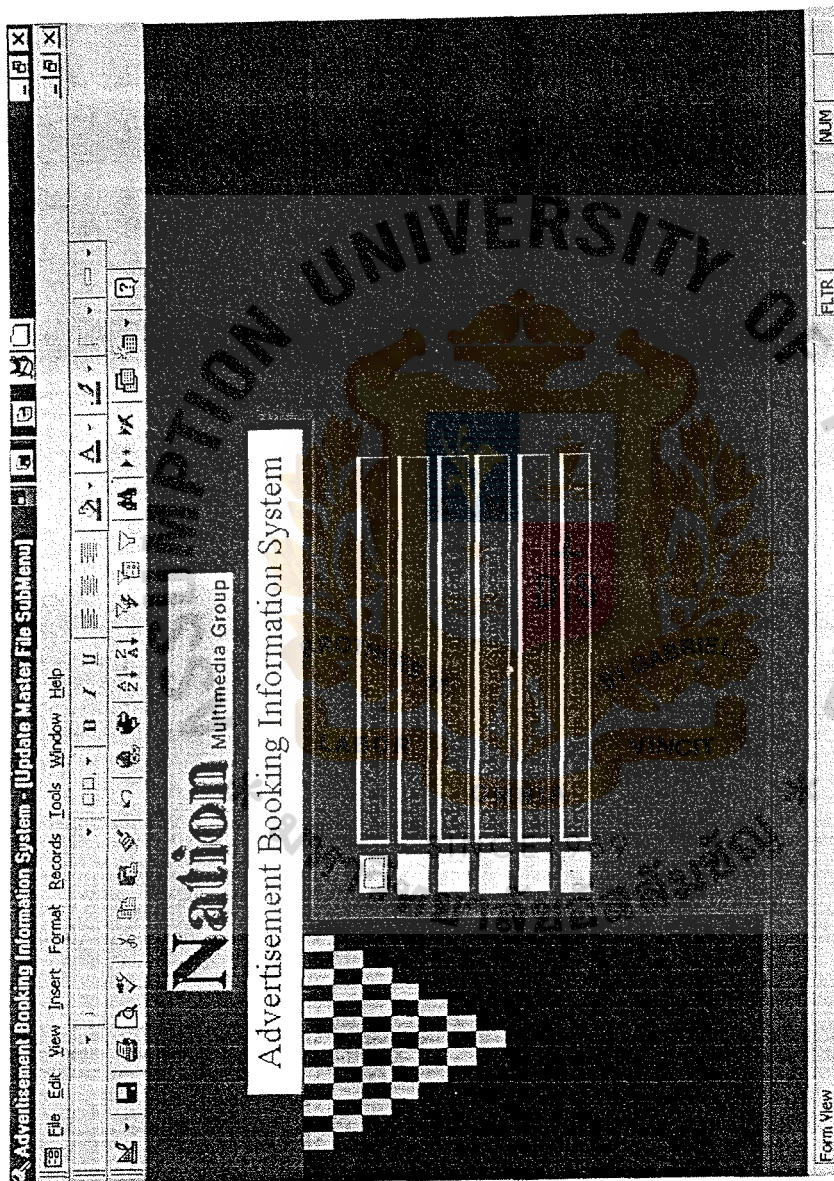


Figure B-6. Update Records SubMenu

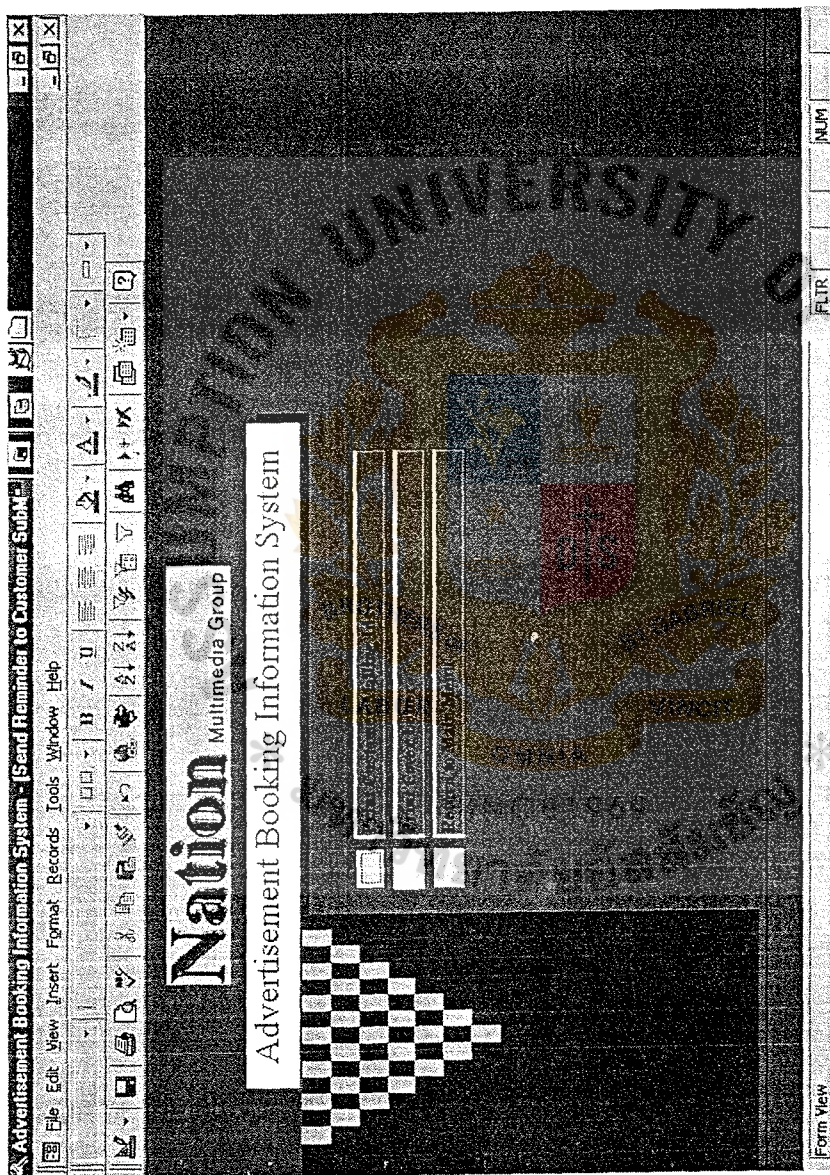
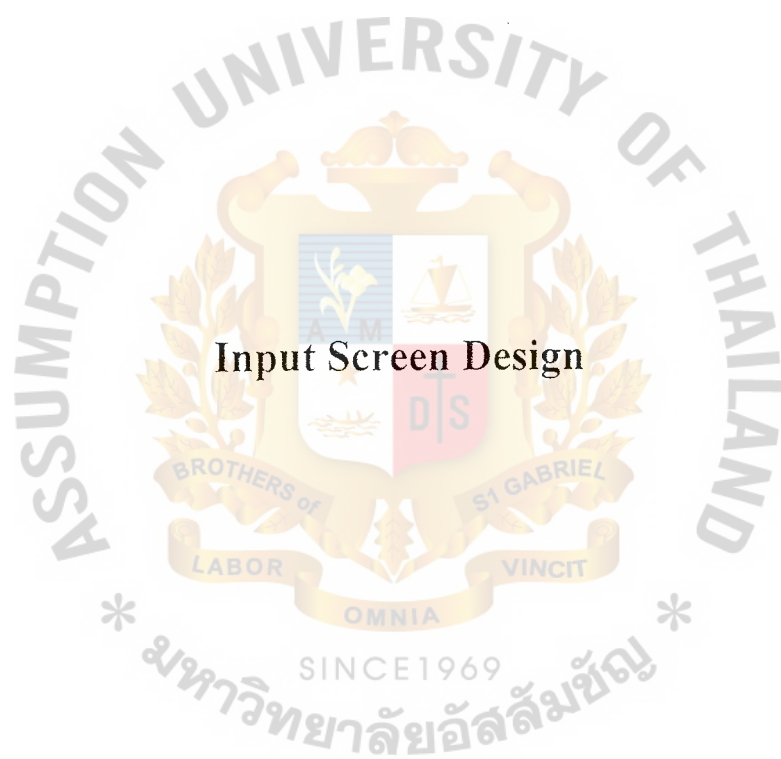


Figure B-7. Send Reminder to Customer SubMenu



## Input Screen Design



Advertisement Booking Information System - (Advertisement Application Form)

File Edit View Insert Format Records Tools Window Help

# Nation

Multimedia Group

## Advertisement Application Form

24-Jun-98

Category	Adv. Number	Customer Number	Column	Inch Required	Color	Adv. size	Ending Date	Starting Date	Credit Requirement	Customer's Signature
	ADV-00001111	CN-001111		13.00	<input checked="" type="checkbox"/>	Full Page	10/1/98	5/1/98	15000.00	
Adv. Copy	Job	Supplied	Page 1							

Record: 14 of 10  
Form View

Figure B-8. Advertisement Application Form

Advertisement Booking Information System - [Customer Information Form]

File Edit View Insert Format Records Tools Window Help

75% Close Print

# Nation

Customer Information Form

Customer No. 31-0000000000

Sakunian Id. 31-0000000000

Company Name 31-0000000000

Address 123, Bangkok

City 123

Zip code 123456789

Country Thailand

Contact Person 123456789

Telephone 123456789

Fax no. 123456789

Customer's Signature

Thank You for providing the above information  
We assure you that we will keep this information  
strictly confidential.

Page 1/1

Ready

Figure B-9. Customer Information Form



Advertisement Booking Information System - [Advertisement Contract Form]

File Edit View Insert Format Records Tools Window Help

60% Close

## Nation

Nation Limited Group

### Advertisement Contract Document

24 Jan 03

Ad. Number: ADV-000111      Cont. No: CH-001111

Company Name:      Province:

Address: 133, Bangkok      City:      Country:      Zip Code: 10452-0545

City: Bangkok      Country: Thailand

The following is the detail of the advertisement:

Ad. size	Starting Date	Ending Date	Slot date	Rate	Discount	Amount
Full Page	5/1/98	10/1/98		870		25,000.00

Sales by:      Koola

Customer's Signature:     

Total: 25,000.00  
 VAT: 700.0000  
 Grand Total: 24,993.00

Page: 11/11      1/1      4/1      NUM

Ready

Figure B-10. Advertisement Contract Document



Advertisement Booking Information System - [Advertisement Running Status Record]

File Edit View Insert Format Records Tools Window Help

90% Close W Print

# Nation

Multimedia Group

Running Advertisement Status Form

Advertisement Running Status as of 24 Jun 95

Adx Number AD/0000113 Out bond Number: End date 20/09/95

Location Page 2

Advertisement Copy Available

Advertisement Status New

Remark

Page: 14/14 | 1 2 3 4 5 6 7 8 9 10 11 12 | Ready

NUM

Figure B-11. Running Advertisement Status Form

Advertisement Booking Information System - [Advertisement Expired Status Form]

File Edit View Insert Format Records Tools Window Help

115% Close

# Nation

Multimedia Group

Advertisement Expired Status as on: 24/03/08

Adv_No	Adv_Copy	Curt_No	Available	End_date	Deleted	Delets_data	Remark
ADV-0000111		ON-001111		10/10/08		5/2/08	

Page: 1/1 Ready

NUM

Figure B-12. Advertisement Expired Status Form



Advertisement Booking Information System - [Customer Credit Status Form]

File Edit View Insert Format Records Tools Window Help

90% [Close] [Print] [F2]

# Nation

Nation Multimedia Group

## Customer Credit Status Record

24-Jun-88

Cust. Credit No.	CST-00-00111	Company Name	Count
Credit No.	00-00111	Within Limit	25,000.00
		Credit Limit	5,000.00
		Credit Issued	15,000.00
		Date of Credit	
Payment		Pat. Tot	

Page: 1/1 [Back] [Forward] [Home] [End] [Print] [F2]

Ready

Figure B-13. Customer Credit Status Record

Advertisement Booking Information System - [Salesman Detail]

File Edit View Insert Format Records Tools Window Help

95% Done

**Nation** Multimedia Group

Salesman Personal Details

Salesman ID	SID001111
Salesman Name	Joooka
Title	Supervisor
Address	San Apartments
Workphone	(123) 516-5488

Page: 1/1 Ready

Figure B-14. Salesman Personal Details



**Advertisement Booking Information System - [Advertisement Sales by Salesman Record]**

File Edit View Insert Format Records Tools Window Help

74% Close

## Nation

Multimedia Group

### Advertisement Sales By Salesman Record

Salesman Id	PIC001111	Salesman Name	Kobla		
Title		Subject	World Phone		
Advertiser		Sales Amount	(120) 9165482		

Product	Company Name	Total Salesman Units	Total Sales	Commission
PIC001111	Phone	120	2000.00	6000.00

Page: 1 of 1    Ready

Figure B-15. Advertisement Sales by Salesman Record



Output Screen Design



Table B-16. Paste-up Advertisement Query

Adv. Number	Column_Inch	Starting Date	Ending Date	Skip date	Company Name	Salesman_Name
ADV-0000117	15.00	4/1/98	4/11/98	4/3/98	Royal Brunei	Duan
ADV-0000118	12.00	4/1/98	4/15/98	4/3/98	Master Toy	Taw
ADV-0000119	10.00	4/1/98	4/8/98		Nanyang Krantoo	Virat
ADV-0000120	15.00	4/1/98	4/10/98	4/3/98	Rangsit Plaza	Pavan

Table B-17. Running Advertisement Space Query

Adv_Space_No	Adv_Number	Adv_size	Column_Inch
4	ADV-0000114	Full Page	12.00
5	ADV-0000115	Full Page	10.00
8	ADV-0000116	Full Page	10.00
9	ADV-0000117	Half Page	15.00
10	ADV-0000118	Quarter Page	12.00
11	ADV-0000119	Half Page	10.00
12	ADV-0000120	Half Page	15.00

Table B-17. Running Advertisement Space Query

Location	Starting Date	Ending Date	Skip date	Current date	Cust_No
Page 1	3/25/98	3/30/98	3/28/98	26-Mar-98	CN-001114
Page 2	3/27/98	4/10/98	4/1/98	28-Mar-98	CN-001112
Page 2	4/1/98	4/10/98		01-Apr-98	CN-001112
Page 2	4/1/98	4/11/98	4/3/98	03-Apr-98	CN-001115
Page 3	4/1/98	4/15/98	4/3/98	03-Apr-98	CN-001116
Page 2	4/1/98	4/8/98		03-Apr-98	CN-001117
Page 2	4/1/98	4/10/98	4/3/98	03-Apr-98	CN-001118

Table B-18. New Advertisement Space Query

Adv_No	End_date	Advertisement Status	Advertisement Copy	Adv_Space_No
ADV-0000112	2/20/98	New	Available	2
ADV-0000116	4/10/98	New	Available	8
ADV-0000117	4/11/98	New	Available	9
ADV-0000118	4/15/98	New	Available	10
ADV-0000120	4/10/98	New	Available	12

Table B-18. New Advertisement Space Query (Contd)

Adv_size	Column_Inch	Location	Starting Date	Skip date
Half Page	2.00	Page 2	2/15/98	3/26/98
Full Page	10.00	Page 2	4/1/98	
Half Page	15.00	Page 2	4/1/98	4/3/98
Quarter Page	12.00	Page 3	4/1/98	4/3/98
Half Page	15.00	Page 2	4/1/98	4/3/98



Table B-19. Advertisement Daily Revenue Query

Adv. Number	Cust_No	Current_date	Company Name	Amount	Column_Inch
ADV-0000117	CN-001115	03-Apr-98	Royal Brunei	55,000.00	15.00
ADV-0000118	CN-001116	03-Apr-98	Master Toy	50,000.00	12.00
ADV-0000119	CN-001117	03-Apr-98	Nanyang Krantoo	80,000.00	10.00
ADV-0000120	CN-001118	03-Apr-98	Rangsit Plaza	55,000.00	15.00

Table B-20. Advertisement Sales by Salesman Query

Salesman_Id	Salesman_Name	Address	WorkPhone	Title
SID-001111	Kooka	Seri Apartments	(124) 516-5468	Supervisor
SID-001112	Duan	Bangkapi	(124) 254-4556	Sr. Salesman
SID-001113	Taw	P.O. Box, 1904	(124) 257-9868	Asst. Salesman
SID-001113	Taw	P.O. Box, 1904	(124) 257-9868	Asst. Salesman
SID-001112	Duan	Bangkapi	(124) 254-4556	Sr. Salesman
SID-001113	Taw	P.O. Box, 1904	(124) 257-9868	Asst. Salesman
SID-001114	Virat	Sukumvit	(154) 565-6565	Asst. Salesman
SID-001115	Pavan	Samsen	(154) 562-6565	Asst. Salesman

Table B-20. Advertisement Sales by Salesman Query (Contd)

Cust_No	Total_Column_Inch	Total_Sales	Commission	Company Name	Tot_Amt
CN-001111	150	2,000.00	300.00%	Loxinfo	6,000.00
CN-001111	100	300,000.00	300.00%	Loxinfo	900,000.00
CN-001113	15	25,884.00	300.00%	Jeuro Orient	77,652.00
CN-001112	10	25,487.00	300.00%	Ben Antique	76,461.00
CN-001115	15	55,000.00	300.00%	Royal Brunei	165,000.00
CN-001116	20	88,500.00	300.00%	Master Toy	265,500.00
CN-001117	15	55,800.00	300.00%	Krantoo	167,400.00
CN-001118	20	88,500.00	300.00%	Rangsit Plaza	265,500.00

Table B-21 : Customer Credit Status Query

Cust_Credit_No	Cust_No	Company Name	Credit_Status
CST-0000111	CN-001111	Loxinfo	Within Limits
CST-0000112	CN-001112	Ben Antique	Within Limits
CST-0000113	CN-001113	Jeuro Orient	Excess
CST-0000114	CN-001115	Royal Brunei	Within Limits
CST-0000115	CN-001116	Master Toy	Within Limits
CST-0000116	CN-001118	Rangsit Plaza	Excess
CST-0000117	CN-001119	Sheraton Grand	Within Limits

Table B-22. Column\_Inch Revenue Query

Adv. Number	Amount	Column_Inch	Current_date	Company Name
ADV-0000117	55,000.00	15.00	03-Apr-98	Royal Brunei
ADV-0000118	50,000.00	12.00	03-Apr-98	Master Toy
ADV-0000119	80,000.00	10.00	03-Apr-98	Nanyang Krantoo
ADV-0000120	55,000.00	15.00	03-Apr-98	Rangsit Plaza



Table B-23 : Expired Advertisement Query

Adv_No	Adv_Status	Delete_dat	Adv_Space_N	Adv_size	Column_Inch	Location
ADV-0000112	Expired	3/1/98	2	Half Page	2.00	Page 2
ADV-0000113	Expired	3/1/98	3	Quarter Page	2.00	Page 3
ADV-0000114	Expired	3/1/98	4	Full Page	12.00	Page 1

Table B-24. Advertisement Contract Details

Adv. Number	Cust_No	Rate	Amount	Discount	VAT	Adv_size	Starting Date	Ending Date	Skip date
ADV-0000111	CN-001111	870	25,000.00	300.00%	700.00%	Full Page	1/5/98	1/10/98	
ADV-0000113	CN-001113	870	15,000.00	300.00%	700.00%	Quarter Page	2/25/98	2/28/98	2/27/98
ADV-0000117	CN-001115	870	55,000.00	300.00%	700.00%	Half Page	4/1/98	4/11/98	4/3/98
ADV-0000118	CN-001116	870	50,000.00	300.00%	700.00%	Quarter Page	4/1/98	4/15/98	4/3/98
ADV-0000119	CN-001117	870	80,000.00	300.00%	700.00%	Half Page	4/1/98	4/8/98	
ADV-0000120	CN-001118	870	55,000.00	300.00%	700.00%	Half Page	4/1/98	4/10/98	4/3/98

Table B-24. Advertisement Contract Details (Contd)

Company Name	Address1	Address2	City	Zip_code	Country	Salesman_Name
Loxinfo	123, Bangkapi	Soi 12	Bangkok	12452-0545	Thailand	Kooka
Jeuro Orient	Post Box 1354	Bangna	Bangkok	24544-3284	Thailand	Taw
Royal Brunei	1765, Linking Road	Pratunam	Bangkok	254788	Thailand	Duan
Master Toy	Sterling Apartments,		Bangkok	2554748	Thailand	Taw
Nanyang Krantoo	New Towers, 135	Street 15	Bangkok	5656858	Thailand	Virat
Rangsit Plaza	Rangsit Road	Soi 34	Bangkok	2656568	Thailand	Pavan



## APPENDIX C

### Module Specification

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## Module Specification

---

**Process** 1.0

**Name** Receive Advertisement Order

**Description** The Advertisement Booking Information System begins with the customer inquiring about the space available in the newspaper and accordingly fills the Advertisement Application Form

**Input Data Flows** adv\_copy and  
adv\_info

**Output Data Flows** application form

---

**Process** 1.1

**Name** Get Inquiry

**Description** The customer first contacts the Classified Advertisement Staff for information on which days there is available space to put an advertisement

**Input Data Flows** adv\_date, adv\_size

**Output Data Flows** adv\_info

---

**Process** 1.2



**Name**

Check Available Space

**Description**

The Salesman will have to check the Advertisement Space File regarding the space available on a given date

**Input Data Flows**

adv\_info

**Output Data Flows**

adv\_space info

---

**Process** 1.2.1

**Name**

Get Advertisement Schedule + Size

**Description**

In this process the Salesman get the advertisement date and the size of the advertisement from the customer

**Input Data Flows**

adv\_info

**Output Data Flows**

adv\_size, adv\_date

---

**Process** 1.2.2

**Name**

Verify Advertisement Space

**Description**

In this process the Salesman verifies the space available according to the requirement of the customer

**Input Data Flows**

adv\_date, adv\_size

**Output Data Flows**

adv\_space info

---

**Process** 1.3

**Name**

Fill Application Form

**Description**

Upon getting the information regarding the space available the customer is required to fill an application form request for a space to put the advertisement

**Input Data Flows**

adv\_copy,  
adv\_info, cust\_info

**Output Data Flows**

adv\_copy,  
application form,  
cust\_info

---

**Process** 1.3.1

**Name**

Get New Advertisement Info

**Description**

If the customer is placing the advertisement for the first time the customer is required to fill all the advertisement details in the Application Form.

**Input Data Flows**

adv\_info

**Output Data Flows**

application form

---

**Process** 1.3.2

**Name**

Repeat Existing Advertisement

**Description**

If the customer has already placed an advertisement previously and wishes to repeat the advertisement, then he is required to give only a few details regarding the advertisement and a new application form will be generated automatically.

**Input Data Flows**

adv\_info, cust\_info

**Output Data Flows**

application form

---

**Process** 1.3.2.1

**Name**

Get Customer Number

**Description**

In case of repeat advertisement the Salesman has to check the database for the information of the customer and retrieve the customer number

**Input Data Flows**

cust\_info

**Output Data Flows**

cust\_id

---

**Process** 1.3.2.2

**Name**

Get Advertisement Copy

**Description**

From the customer id, the copy of the advertisement material is retrieved from the data base and if required the copy may also be modified according to the customer requirement

**Input Data Flows**

adv\_info

**Output Data Flows**

adv\_copy

---

**Process** 1.3.3

**Name**

Check for Complete Application

**Description**

The Salesman manually checks whether the application form is complete and then enter all the information in the database

**Input Data Flows**

application form

**Output Data Flows**

application form

---

**Process** 1.4

<b>Name</b>	Display Total Amount
<b>Description</b>	After the customer has returned the completed application form the Salesman computes the Total Amount to be paid by the customer for placing the Advertisement. This is calculated by deducting the discount from the Actual Amount
<b>Input Data Flows</b>	application form
<b>Output Data Flows</b>	application form. total amount
<hr/>	
<b>Process</b>	1.4.1
<b>Name</b>	Compute Amount
<b>Description</b>	The system then computes the total amount for all the advertisement made by a customer. This is calculated as follows : column_inch * rate where column_inch is the size of the advertisement and rate is the rate per inch for the advertisement.
<b>Input Data Flows</b>	application form
<b>Output Data Flows</b>	amt_due
<hr/>	
<b>Process</b>	1.4.2



<b>Name</b>	Deduct Discount
<b>Description</b>	From the total amount of each advertisement placed the appropriate discount rate is deducted and the total amount is displayed on the screen

<b>Input Data Flows</b>	amt_due
<b>Output Data Flows</b>	discount, total amount

---

**Process** 2.0

<b>Name</b>	Verify Credit
<b>Description</b>	The received customers orders are then verified to check for the credit status of the customer. If the customers credit requirement is in excess the Supervisor and Management are consulted to decide on approving the request.

<b>Input Data Flows</b>	Cust_info
<b>Output Data Flows</b>	cust_info, signed contract, new_adv

---

**Process** 2.1

**Name**

Get Customer Record

**Description**

Get the information about customer

**Input Data Flows**

cust\_info

**Output Data Flows**

cust\_info, cust\_id

**Process** 2.2

**Name**

Get Valid Customer Credit

**Description**

Check the credit limit allowed for each customer

**Input Data Flows**

cust\_id

**Output Data Flows**

credit limit, cust\_id

**Process** 2.3

**Name**

Verify Customer Credit Status

**Description**

Check the Credit Status of the customer.

**Input Data Flows**

cust\_id, credit limit

**Output Data Flows**

credit status,  
credit  
requirement,  
adv\_info

**Process** 2.3.1

**Name**

Read Credit Status File

**Description**

Credit Status File is opened to read the customer's credit status

**Input Data Flows**

cust\_id

**Output Data Flows**

credit status,  
adv\_info

---

**Process** 2.3.2

**Name**

Get Credit Requirement

**Description**

Read the credit requirement by the customer if the credit status is within limits of the customer requirements

**Input Data Flows**

adv\_info

**Output Data Flows**

credit requirement

---

**Process** 2.3.3

<b>Name</b>	Approve Credit Requirement
<b>Description</b>	This process is done when the customer's credit requirement exceeds the credit limit allowed for each customer. Then the credit requirement is sent to the management for approval
<b>Input Data Flows</b>	credit limit, adv_info
<b>Output Data Flows</b>	ok (flag)
<hr/>	
<b>Process</b>	2.4
<b>Name</b>	Print Contract
<b>Description</b>	Prints the contract of all the approved customer credit requirement
<b>Input Data Flows</b>	adv_info
<b>Output Data Flows</b>	contract documents
<hr/>	
<b>Process</b>	2.4.1
<b>Name</b>	Get Contract Record
<b>Description</b>	Read the details of the customer and the advertisement placed
<b>Input Data Flows</b>	contract no.
<b>Output Data Flows</b>	contract record
<hr/>	

**Process** 2.4.2

**Name** Format Contract

**Description** Format the document according to the information provided.

**Input Data Flows** format

**Output Data Flows** ok (flag)

**Process** 3.0

**Name** Create Advertisement Status

**Description** Each Advertisement is assigned an Advertisement Status. An Advertisement can be a running advertisement, expired advertisement or void advertisement

**Input Data Flows** new\_adv, signed contract

**Output Data Flows** cust\_record,  
adv\_info,  
adv\_status

**Process** 3.1



<b>Name</b>	Read Advertisement Sales File
<b>Description</b>	This process reads the Advertisement Sales File to get the end date of the advertisement.
<b>Input Data Flows</b>	adv_info, contract documents
<b>Output Data Flows</b>	end_date, adv_info
<hr/>	
<b>Process</b>	3.1.1
<b>Name</b>	Read end_date
<b>Description</b>	This process reads the end date of the advertisement from the advertisement sales file
<b>Input Data Flows</b>	adv_info
<b>Output Data Flows</b>	end_date
<hr/>	
<b>Process</b>	3.1.2
<b>Name</b>	Compare with current date
<b>Description</b>	This process compares the end date with the current date to assign status
<b>Input Data Flows</b>	end_date
<b>Output Data Flows</b>	current date, end_date
<hr/>	

**Process** 3.2

**Name** Check for Complete Adv. Copy

**Description** This process for any missing information required in the advertisement material

**Input Data Flows** adv\_copy

**Output Data Flows** adv\_copy

---

**Process** 3.2.1

**Name** Check Layout and Format

**Description** This process check the format and layout of the advertisement copy

**Input Data Flows** adv\_copy

**Output Data Flows** format

---

**Process** 3.3

**Name** Record Status

**Description** This process records the status to the advertisement according to its start and end date

**Input Data Flows** end\_date, adv\_info

**Output Data Flows** adv\_status

---

**Process** 3.3.1

**Name** Record Running Status

**Description** This process records a running status to all new and advertisement whose current date is between end date and start date

**Input Data Flows** end\_date, adv\_info

**Output Data Flows** running status (flag)

---

**Process** 3.3.2

**Name** Record Expired Status

**Description** This process records an expired status to all advertisement whose current date has exceeded the end-date

**Input Data Flows** end\_date, adv\_info

**Output Data Flows** adv\_status,  
adv\_info

---

**Process** 3.3.2.1

**Name** Enter in Expired File

**Description** This process records the expired status in the file

**Input Data Flows** end\_date

**Output Data Flows** expired status (flag)

---

**Process** 3.3.2.2

**Name**

Check days > 15

**Description**

This process checks if the expired status has been in file for 15 days.

**Input Data Flows**

end\_date

**Output Data Flows**

confirm(flag)

**Process** 3.3.2.3

**Name**

Delete Record

**Description**

All records which have a expired status after 15 days is deleted from file

**Input Data Flows**

adv\_info

**Output Data Flows**

delete, adv\_status

**Process** 4.0

**Name**

Update Master File

**Description**

At the end of the day all the files are updated so that up-to-date information is available as and when required

**Input Data Flows**

adv\_info,  
cust\_record

**Output Data Flows**

updated files

**Process** 4.1

**Name** Update Customer File

**Description** This process enters/modifies customer file

**Input Data Flows** cust\_record

**Output Data Flows**

---

**Process** 4.1.1

**Name** Add Customer Records

**Description** This process add new customer records

**Input Data Flows** customer record

**Output Data Flows** ok

---

**Process** 4.1.2

**Name** Change Customer Records

**Description** This process makes changes to the customers records

**Input Data Flows** cust\_id

**Output Data Flows** ok

---



**Process** 4.1.3

**Name** Delete Customer Records

**Description** This process deletes customers records of old customers .

**Input Data Flows** cust\_id

**Output Data Flows** ok

---

**Process** 4.1.4

**Name** Customer Records Inquiry

**Description** This process helps to get any information about customers

**Input Data Flows** cust\_id

**Output Data Flows** cust\_record

---

**Process** 4.2

**Name** Update Advertisement Space File

**Description** This process enter/modifies this file

**Input Data Flows** adv\_space record

**Output Data Flows**

---

**Process** 4.2.1

**Name** Add Advertisement Space Record

**Description** This process helps to add new advertisement records

**Input Data Flows** adv\_no

**Output Data Flows** ok

---

**Process** 4.2.2

**Name** Change Adv. Space Records

**Description** This process help to modify any existing record

**Input Data Flows** adv\_no

**Output Data Flows** ok

---

**Process** 4.2.3

**Name** Delete Adv. Space Records

**Description** This process helps to delete invalid records

**Input Data Flows** adv\_no

**Output Data Flows** ok

---

**Process** 4.2.4

**Name**

Advertisement Space Inquiry

**Description**

This process help to make any inquiry about the advertisement space

**Input Data Flows**

adv\_no

**Output Data Flows**

record

---

**Process** 4.3

**Name**

Update Salesman File

**Description**

This process enter/modifies this file records

**Input Data Flows**

sales record

**Output Data Flows**

---

**Process** 4.3.1

**Name**

Add Salesman Records

**Description**

This process helps to add new information to the file

**Input Data Flows**

sales amount,  
salesman\_id

**Output Data Flows**

ok

**Process** 4.3.2

**Name** Change Salesman Records

**Description** This process helps to modify the information in the file about a salesman

**Input Data Flows** sales amount,  
salesman\_Id

**Output Data Flows** ok

---

**Process** 4.3.3

**Name** Delete Salesman Records

**Description** This process helps to delete invalid records

**Input Data Flows** salesman\_id

**Output Data Flows** ok

---

**Process** 4.3.4

**Name** Salesman Records Inquiry

**Description** This process helps to inquire the current sales made by a salesman

**Input Data Flows** salesman\_id

**Output Data Flows** records

---

**Process** 4.4

**Name** Update Credit Status File

**Description** This process edit/modifies this file records

**Input Data Flows** credit status record

**Output Data Flows**

---

**Process** 4.4.1

**Name** Add Credit Status Records

**Description** This process add new information of the credit status of a customer

**Input Data Flows** cust\_id

**Output Data Flows** ok

---

**Process** 4.4.2

**Name** Change Credit Status Record

**Description** This process modifies the credit status of a customer

**Input Data Flows** cust\_id

**Output Data Flows** ok

---



**Process** 4.4.3

**Name** Delete Credit Status Records

**Description** This proces deletes records of customers not in database

**Input Data Flows** cust\_id

**Output Data Flows** ok

---

**Process** 4.4.4

**Name** Credit Status Inquiry

**Description** This proces helps to get current credit status of customers

**Input Data Flows** cust\_id

**Output Data Flows** records

---

**Process** 4.5

**Name** Reindex Master File

**Description** This process reindexes all the Master Files

**Input Data Flows** records to index

**Output Data Flows** index records

---

Process 4.5.1

Name Get Index Record

Description This process get the index key for each file

Input Data Flows index record

Output Data Flows ok

Process 4.5.2

Name Reindex Record

Description All files are reindexed and updated

Input Data Flows ok

Output Data Flows index record

Process 5.0

Name Print Reports

Description Reports are printed from the Master File according to user requirements.

Input Data Flows updated files

Output Data Flows reports

**Process** 5.1

**Name** Prepare Customer Report

**Description** This Process reads the customer file and prepares customer report

**Input Data Flows** cust\_record

**Output Data Flows** customer report

---

**Process** 5.2

**Name** Prepare Adv. Space Info Report

**Description** This process prepares the sale made each day report

**Input Data Flows** adv\_space record,

**Output Data Flows** adv\_space info  
report

---

**Process** 5.3

**Name**

Prepare Paste-up Info Report

**Description**

This process prepare the paste-up report of all the advertisement which are to appear in the next days paper

**Input Data Flows**

adv\_status,  
adv\_space record

**Output Data Flows**

paste-up info report

---

**Process** 5.4

**Name**

Prepare Adv. Status Report

**Description**

This process prepares the status of the advertisements

**Input Data Flows**

adv\_status record

**Output Data Flows**

Adv. Status Report

---

**Process** 5.5

**Name**

Prepare Revenue Report

**Description**

This report prepares the revenue earned for each day from sales report

**Input Data Flows**

sales record

**Output Data Flows**

Revenue Report

---

**Process** 5.6

Name

Prepare Summary Report

Description

This process prepare the summary  
of the sales made

Input Data Flows

sales record,  
adv\_space record

Output Data Flows

Summary Report

---







## APPENDIX D

### Data Dictionary

# Data Dictionary

For Data Flows

Field Name	Description
adv_sales info	*details of the sales made by the salesman*
adv_space info	* details of the advertisement space created * Adv_Space_No + Adv_no + Adv_size + Column_Inch + Location + Start_date + End_date + Skip_date + Current_date
advertisement copy	*this is the advertisement material used for publishing*
advertisement end_date	* this is the ending date of an advertisement to be published *
advertisement info	*Details of the advertisement* = Adv_size + Column_Inch + Location + Start_date + End_date + Skip_date
advertisement status	[running/expired]
approved cust_adv ord	* this is the approval of the credit request made by the customer *
approved order	* the confirmation from the salesman after he has verified the credit status of the customer *
available space	*space available for place the advertisement* adv_size
Column_Inch Revenue	* This report consist of the column_Inch sold on each day *
commision	*the amount paid to the salesman for sales made*
contract document	* this consists of the details of the customer and the advertisement being placed*
credit_status	*This is the current status of credit for a customer. This can be either within limit or excess*
cust_credit info	*details of the cust_credit status of the customer *

Field Name	Description
cust_records	*details of the customer* Cust_Id + Salesman_Id + Company Name + Address1 + Address2 + City + Zip_code + Country + Telephone + Fax_no + Contact _person
customer info	Cust_id + cust_name + cust_address + phone + company_name
excess credit info	* information about the customers excess credit request *
expired advertisement s	* details of all the advertisement which have expired *
filled application form	* this is the advertisement application form which the customer is required to fill *
new advertisement	*this is details of new advertisement placed*
paste-up info	* information of the advertisement which will be printed in the next days newspaper *
recommendations	* the comments given by the management regarding the customer's credit request *
repeat adv	*these are the details of those advertisement which is being repeated *
request details	* this is the information requested from the customer for any unclear detail filled in the advertisement application form *
review	* customer records and credit status details sent to the management for review of the credit request *
running advertisement	*details of all current advertisement which are running*
Sales Summary Report	* Report sent to the Management about sales made by a salesman *
signed contract	*this is the contract signed by the customer*
updated files	* these are all the files which are updated up-to-date *

Field Name	Description
valid customer	* the validity of the customer's record in the database *
void advertisement	* the advertisement which are no longer required in the database *



## **Data Dictionary**

for transforms

Number	Transform Name	Description
P1	Receive Advertisement Orde	Get Advertisement Info and Fill Application Form
P1.1	Check Advertisement Space	Read Advertisement Sales File Output available space
P1.2	Enter Advertisement Form	Enter details of customer and advertisement in the Advertisement Application Form
P1.3	Repeat Advertisement	If old advertisement then status = "repeat"
P1.4	Check for Complete Form	If Adv_info not clear Then request additional information
P2	Verify Credit	Get Customer Records and Check Credit Status
P2.1	Verify Customer Record	Check new or old customer
P2.2	Check Credit Limit	Read Customer Credit Status File Output Credit Limit
P2.3	Approve Excess Credit Limit	If Credit Request > Credit Limit Then send Customer Records and Credit Request to Management for approval
P2.4	Prepare Contract Document	Prepare contract documents for approved credit
P3	Create Advertisement Status	Enter Advertisement Sales Record and give status to the Advertisement. If Current Date between Start Date and End Date Then Adv_Status = "Running" Else Adv_Status = "Expired"
P3.1	Check Advertisement Sched	Get End_date



Number	Transform Name	Description
P3.2	Enter Valid Running Adv.	Enter running status to the current advertisement record If new adv then adv_status = "new" If repeat adv then adv_status = "repeat"
P3.3	Record Expired Adv.	Enter Expired Adv. record If end_date < current date then adv_status = "expired" If record error then adv_status = "void"
P3.4	Purge Records	If current_date = expire_date + 15 delete record
P4	Update Master File	Enter or Modify records and re-index Master file
P4.1	Update Customer File	Enter/Modify Customer records
P4.2	Update Advertisement Space	Enter/Modify new records
P4.3	Update Salesman File	Enter/Update Salesman's record
P4.4	Update Credit Status File	Enter/Modify Customer Credit Status record
P4.5	Reindex Master File	re-index files after update
P5	Print Reports	Print Reports required for Management and Classified Advertisement Department
P5.1	Prepare Customer Reports	Read Customer File create customer contract list create contract document
P5.2	Prepare Adv. Space Info Rep	Read Advertisement Space File create adv. space info report
P5.3	Prepare Paste-up Info Report	Read Advertisement Space File and Running Status File create paste-up info report

Number	Transform Name	Description
P5.4	Prepare Adv. Status Report	Read Running Status File and Expired Status File create new adv. report create repeat adv. report expired adv. Report
P5.5	Prepare Sales Summary Rep	Read Advertisement Sales File create Sales Summary Report
P5.6	Prepare Revenue Report	Read Advertisement Sales File create Daily Revenue Report create Column_Inch Revenue Report



# Data Dictionary

For Data Store

No.	File Name	Number	Input	Output
1	Customer File	D1	cust_records	cust_records
2	Credit Status File	D2	cust_credit records	cust_credit records
3	Advertisement Sales File	D3	new advertisement records	new advertisement records
4	Advertisement Space File	D4	adv_space info	adv_space info
5	Salesman File	D5	adv_sales info	adv_sales info
6	Running Status File	D6	running advertisement status	running advertisement status
7	Expired Status File	D7	expired advertisement status	expired advertisement status



APPENDIX E  
Output Reports

## Paste-up Advertisement Information Report

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Page 1 of 1

To be printed on date : 26/6/98

Adv_No	Column_Inch	Company Name	Salesman_Name
ADV-0000113	2.00	Jeuro Orient	Taw
Total Ads:	1	Total Column Inch Used :	2





## Column\_Inch Revenue Report

Page 1 of 1

Run On 25/6/98

Adv. Number	Company Name	Column_Inch Sold	Amount
ADV-00001	Ben Antique	10.00	35,000.00
ADV-00001	Royal Brunei	15.00	55,000.00
ADV-00001	Master Toy	12.00	50,000.00
ADV-00001	Nanyang Krantoo	10.00	80,000.00
ADV-00001	Rangsit Plaza	15.00	55,000.00
Total Ads. : 5			
Total Column_Inch :		62	Total Revenue : 275,000.00

# Nation Multimedia Group

## Advertisement Sales Report by Salesman

Page 1 of 6

25-Jun-98

Salesman\_Id      SID-001111      Title      Supervisor  
Salesman\_Name      Kooka  
Address      Seri Apartments  
WorkPhone      (124) 516-5468

Cust_No	Company Name	Column_Inch Sold	Total_Sales	Commision	Amount
CN-001111	Loxinfo	150	2,000.00	300.00%	6,000.00

Total Column\_Inch Sold :      150      Total Commision Amount :      6,000.00

## Advertisement Daily Revenue Report

Page 1 of 1

Daily Revenue Report for      25-Jun-98      run on      24/6/98

Adv. Number	Cust_No	Company Name	Amount	Column_Inch
ADV-0000116	CN-001112	Ben Antique	35,000.00	10.00
ADV-0000117	CN-001115	Royal Brunei	55,000.00	15.00
ADV-0000118	CN-001116	Master Toy	50,000.00	12.00
ADV-0000119	CN-001117	Nanyang Krantoo	80,000.00	10.00
ADV-0000120	CN-001118	Rangsit Plaza	55,000.00	15.00
Total Ads.      5		Total Revenue =		275,000.00

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## New Advertisement Report

Page 1 of 2

25-Jun-98

Adv\_No ADV-0000112

Adv_Space_No	2	Starting Date	15/2/98
Advertisement Cop	Available	End_date	20/2/98
Adv_size	Half Page	Skip date	26/3/98
Column_Inch	2.00		
Location	Page 2		

25-Jun-98

Adv\_No ADV-0000116

Adv_Space_No	8	Starting Date	1/4/98
Advertisement Cop	Available	End_date	10/4/98
Adv_size	Full Page	Skip date	
Column_Inch	10.00		
Location	Page 2		

## Repeat Advertisement Report

Page 1 of 1

25-Jun-98

Adv\_No ADV-0000113

Adv\_Space\_No 3

Advertisement Copy	Available	Starting Date	25/2/98
Adv_size	Quarter Page	End_date	28/2/98
Column_Inch	2.00	Skip date	27/2/98
Location	Page 3		

25-Jun-98

Adv\_No ADV-0000115

Adv\_Space\_No 5

Advertisement Copy	Available	Starting Date	27/3/98
Adv_size	Full Page	End_date	10/4/98
Column_Inch	10.00	Skip date	1/4/98
Location	Page 2		

25-Jun-98

Adv\_No ADV-0000119

Adv\_Space\_No 11

Advertisement Copy	Available	Starting Date	1/4/98
Adv_size	Half Page	End_date	8/4/98
Column_Inch	10.00	Skip date	
Location	Page 2		



## Expired Advertisement Report

Page 1 of 1

25-Jun-98

Adv_No	Adv_Space_No	Adv_size	Column_Inch	Location	Delete_date
ADV-0000112	2	Half Page	2.00	Page 2	1/3/98
ADV-0000113	3	Quarter Pag	2.00	Page 3	1/3/98
ADV-0000114	4	Full Page	12.00	Page 1	1/3/98



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## Customer Mailing List

---

25 June 1998

Cust\_No

CN-001111

Ying

Loxinfo

123, Bangkapi

Soi 12

Bangkok

12452-0545

Thailand

Cust\_No

CN-001112

Tukta

Ben Antique

Soi 14

Sukumvit Road

Bangkok

12458-5626

Thailand

Cust\_No

CN-001113

Mary

Jeuro Orient

Post Box 1354

Bangna

Bangkok

24544-3284

Thailand



## APPENDIX F

### Conceptual Schema and Table

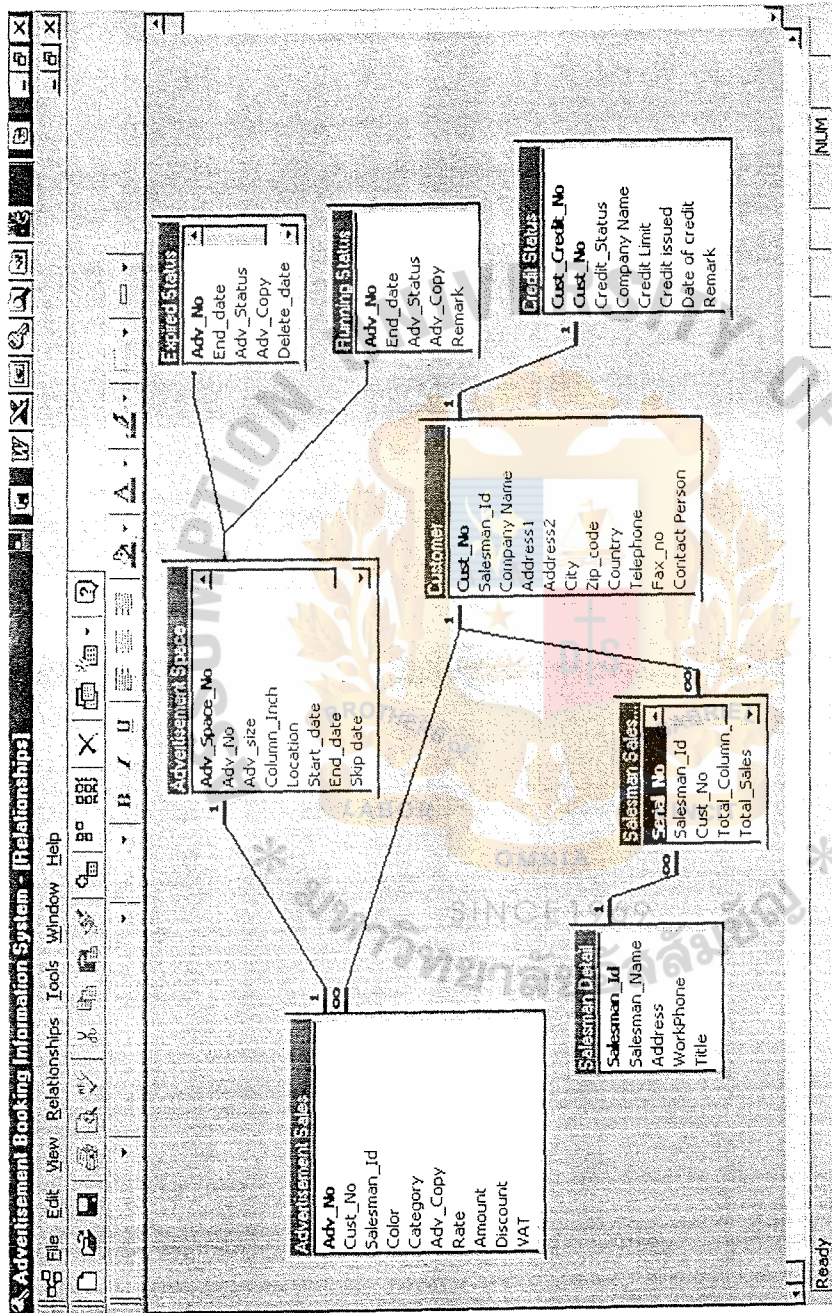


Figure F-1. Conceptual Schema and Table



## APPENDIX G

### File Layout



## Table Layout

The following is the table layout as used in the Microsoft Access 97 database for Advertisement Booking Information System.

### Table: Advertisement Sales

#### Columns

Name	Type	Size
Adv_No	Text	20
Cust_No	Text	15
Salesman_Id	Text	15
Color	Yes/No	1
Category	Text	50
Adv_Copy	Text	12
Rate	Number (Long)	4
Amount	Number (Long)	4
Discount	Number (Integer)	2
VAT	Number (Integer)	2

#### Relationships

##### Advertisement Sales and Advertisement Space

Advertisement Sales	Advertisement Space
Adv_No	Adv_No

Attributes: Unique, Enforced, Cascade Updates, Cascade Deletes  
 OrderByOn: One-To-One

##### Customer and Advertisement Sales

Customer	Advertisement Sales
Cust_No	Cust_No

Attributes: Enforced, Cascade Updates, Cascade Deletes  
 Attributes: One-To-Many

### User Permissions

admin

### Group Permissions

Admins

Users

### Table: Advertisement Space

---

#### Columns

Name	Type	Size
Adv_Space_No	Number (Long)	4
Adv_No	Text	20
Adv_size	Text	15
Column_Inch	Number (Long)	4
Location	Text	20
Start_date	Date/Time	8
End_date	Date/Time	8
Skip_date	Date/Time	8
Current_date	Date/Time	8

#### Relationships \*

##### Advertisement Sales and Advertisement Space

Advertisement Sales      Advertisement Space

1      1

Adv\_No

Adv\_No

Attributes: Unique, Enforced, Cascade Updates, Cascade Deletes  
OrderByOn: One-To-One

### Advertisement Space and Expired Status

Advertisement Space	Expired Status
Adv_No	Adv_No
Attributes:	Unique, Not Enforced
Attributes:	One-To-One

### Advertisement Space and Running Status

Advertisement Space	Running Status
Adv_No	Adv_No
Attributes:	Unique, Not Enforced
Attributes:	One-To-One

### User Permissions

admin

### Group Permissions

Admins , \* Users

### Table: Credit Status

#### Columns

Name	Type	Size
Cust_Credit_No	Text	15
Cust_No	Text	15
Credit_Status	Text	50
Company Name	Text	25
Credit Limit	Currency	8
Credit issued	Currency	8
Date of credit	Date/Time	8
Remark	Text	30

## Relationships

### Customer and Credit Status

Customer		Credit Status
	1	1
Cust_No		Cust_No

Attributes: Unique, Enforced, Cascade Updates, Cascade Deletes  
OrderByOn: One-To-One

## User Permissions

admin

## Group Permissions

Admins

Users

## Table: Customer

### Columns

Name	Type	Size
Cust_No	Text	15
Salesman_Id	Text	15
Company Name	Text	50
Address1	Text	20
Address2	Text	20
City	Text	15
Zip_code	Text	50
Country	Text	20
Telephone	Text	25
Fax_no	Text	50
Contact Person	Text	30

**Relationships**

**Customer and Advertisement Sales**

Customer		Advertisement Sales
Cust_No	1	Cust_No

Attributes: Enforced, Cascade Updates, Cascade Deletes  
Description: One-To-Many

**Customer and Credit Status**

Customer		Credit Status
Cust_No	1 1	Cust_No

Attributes: Unique, Enforced, Cascade Updates, Cascade Deletes  
Attributes: One-To-One

**Table: Customer**

**Customer and Salesman Sales Record**

Customer		Salesman Sales Record
Cust_No	1	Cust_No

Attributes: Enforced, Cascade Updates, Cascade Deletes  
Attributes: One-To-Many

**User Permissions**

admin

**Group Permissions**

Admins  
Users



## Table: Expired Status

---

### Columns

Name	Type	Size
Adv_No	Text	15
End_date	Date/Time	8
Adv_Status	Text	50
Adv_Copy	Text	50
Delete_date	Date/Time	8
Remark	Text	50

### Relationships

#### Advertisement Space and Expired Status

Advertisement Space	Expired Status
Adv_No	Adv_No
Attributes:	Unique, Not Enforced
OrderByOn:	One-To-One

### User Permissions

admin

### Group Permissions

Admins

Users

## Table: Running Status

---

### Columns

Name	Type	Size
Adv_No	Text	15
End_date	Date/Time	8
Adv_Status	Text	15

Adv_Copy	Text	50
Remark	Text	50

### Relationships

#### Advertisement Space and Running Status

##### Advertisement Space      Running Status

Adv\_No      Adv\_No

Attributes:      Unique, Not Enforced  
OrderByOn:      One-To-One

### User Permissions

admin

### Group Permissions

Admins

Users

### Table: Salesman Detail

#### Columns

Name	Type	Size
Salesman_Id	Text	15
Salesman_Name	Text	20
Address	Text	50
WorkPhone	Text	50
Title	Text	50

### Relationships

#### Salesman Detail and Salesman Sales Record

##### Salesman Detail      Salesman Sales Record

Salesman\_Id      1      Salesman\_Id

Attributes: Enforced, Cascade Updates, Cascade  
 Deletes  
 OrderByOn: One-To-Many

### User Permissions

admin

### Group Permissions

Admins  
 Users

### Table: Salesman Sales Record

#### Columns

Name	Type	Size
Serial_No	Number (Long)	4
Salesman_Id	Text	15
Cust_No	Text	15
Total_Column_Inch	Number (Long)	4
Total_Sales	Currency	8
Commision	Number (Long)	4

#### Relationships

##### Customer and Salesman Sales Record

Customer	Salesman Sales Record
Cust_No	1 Cust_No

Attributes: Enforced, Cascade Updates, Cascade  
 Deletes  
 OrderByOn: One-To-Many

Salesman Detail and Salesman Sales Record

Salesman Detail	Salesman Sales Record
Salesman_Id	1 Salesman_Id

Attributes: Enforced, Cascade Updates, Cascade Deletes  
Attributes: One-To-Many

User Permissions admin

Group Permissions Admins





## APPENDIX H

### Coding



## SQL Query Statements

The following are the SQL statements used to execute the query in the Advertisement Booking Information System database. Refer to Appendix B - Output Screen for the output of these query statements.

### Query: Advertisement Contract Details

#### SQL

```
SELECT DISTINCTROW [Advertisement Sales].Adv_No,
[Advertisement Sales].Cust_No, [Advertisement
Sales].Rate, [Advertisement Sales].Amount, [Advertisement
Sales].Discount, [Advertisement Sales].VAT,
[Advertisement Space].Adv_size, [Advertisement
Space].Start_date, [Advertisement Space].End_date,
[Advertisement Space].[Skip date], Customer.[Company Name],
Customer.Address1, Customer.Address2,
Customer.City, Customer.Zip_code, Customer.Country, [Salesman
Detail].Salesman_Name
FROM ((Customer INNER JOIN ([Advertisement Sales] INNER
JOIN [Advertisement Space] ON [Advertisement
Sales].Adv_No = [Advertisement Space].Adv_No) ON
Customer.Cust_No = [Advertisement Sales].Cust_No)
INNER JOIN [Salesman Detail] ON Customer.Salesman_Id =
[Salesman Detail].Salesman_Id) INNER JOIN
[Salesman Sales Record] ON ([Salesman Detail].Salesman_Id =
[Salesman Sales Record].Salesman_Id) AND
(Customer.Cust_No = [Salesman Sales Record].Cust_No);
```

### Query: Advertisement Daily Revenue Query

#### SQL

```
SELECT DISTINCTROW [Advertisement Sales].Adv_No,
```

```

[Advertisement Sales].Cust_No, [Advertisement
    Space].Current_date, Customer.[Company Name], [Advertisement
Sales].Amount, [Advertisement
    Space].Column_Inch
FROM Customer INNER JOIN ([Advertisement Sales] INNER
JOIN [Advertisement Space] ON [Advertisement
    Sales].Adv_No = [Advertisement Space].Adv_No) ON
Customer.Cust_No = [Advertisement Sales].Cust_No
GROUP BY [Advertisement Sales].Adv_No, [Advertisement
Sales].Cust_No, [Advertisement
    Space].Current_date, Customer.[Company Name], [Advertisement
Sales].Amount, [Advertisement
    Space].Column_Inch
HAVING (((Date())=[Current_date]))
ORDER BY [Advertisement Sales].Adv_No;

```

#### Query: Advertisement Sales by Salesman Query

##### SQL

```

SELECT DISTINCTROW [Salesman Detail].Salesman_Id,
[Salesman Detail].Salesman_Name, [Salesman
    Detail].Address, [Salesman Detail].WorkPhone, [Salesman
Detail].Title, [Salesman Sales Record].Cust_No,
    [Salesman Sales Record].Total_Column_Inch, [Salesman Sales
Record].Total_Sales, [Salesman Sales
    Record].Commision, Customer.[Company Name], ([Total_Sales]*
[Commision]) AS Tot_Amt
FROM [Salesman Detail] INNER JOIN (Customer INNER JOIN
[Salesman Sales Record] ON Customer.Cust_No =
    [Salesman Sales Record].Cust_No) ON [Salesman
Detail].Salesman_Id = [Salesman Sales
    Record].Salesman_Id;

```

### Query: Advertisement Skip Days Query

#### SQL

```
SELECT DISTINCTROW [Running Status].Adv_No, [Running
Status].End_date, [Running Status].Adv_Status,
    [Advertisement Sales].Cust_No, Customer.[Company Name],
[Advertisement Space].[Skip date]
FROM Customer INNER JOIN ([Advertisement Sales] INNER
JOIN ([Advertisement Space] INNER JOIN [Running
Status] ON [Advertisement Space].Adv_No = [Running
Status].Adv_No) ON [Advertisement Sales].Adv_No =
    [Advertisement Space].Adv_No) ON Customer.Cust_No =
[Advertisement Sales].Cust_No
WHERE ((([Adv_Status]="Skip"));
```

### Query: Column Inch Revenue Query

#### SQL

```
SELECT DISTINCTROW [Advertisement Sales].Adv_No,
[Advertisement Sales].Amount, [Advertisement
Space].Column_Inch, [Advertisement Space].Current_date,
Customer.[Company Name], Sum([Advertisement
Space].Column_Inch) AS SumOfColumn_Inch, Sum
([Advertisement Sales].Amount) AS SumOfAmount,
    Count([Advertisement Sales].Adv_No) AS CountOfAdv_No
FROM Customer INNER JOIN ([Advertisement Sales] INNER
JOIN [Advertisement Space] ON [Advertisement
Sales].Adv_No = [Advertisement Space].Adv_No) ON
Customer.Cust_No = [Advertisement Sales].Cust_No
GROUP BY [Advertisement Sales].Adv_No, [Advertisement
Sales].Amount, [Advertisement
Space].Column_Inch, [Advertisement Space].Current_date,
Customer.[Company Name]
HAVING (((Date())=[Current_date]))
ORDER BY [Advertisement Sales].Adv_No;
```

### Query: Customer Credit Status Query

#### SQL

```
SELECT [Credit Status].Cust_Credit_No, [Credit Status].Cust_No,  
[Credit Status].[Company Name], [Credit  
Status].Credit_Status  
FROM [Credit Status]  
ORDER BY [Credit Status].Cust_Credit_No, [Credit  
Status].Cust_No;
```

### Query: Expired Advertisement Space Query

#### SQL

```
SELECT DISTINCTROW [Expired Status].Adv_No, [Expired  
Status].Adv_Status, [Expired Status].Delete_date,  
[Advertisement Space].Adv_Space_No, [Advertisement  
Space].Adv_size, [Advertisement  
Space].Column_Inch, [Advertisement Space].Location  
FROM [Advertisement Space] INNER JOIN [Expired Status] ON  
[Advertisement Space].Adv_No = [Expired  
Status].Adv_No  
WHERE (([Adv_Status]="Expired"))  
ORDER BY [Expired Status].Adv_No;
```

### Query: New Advertisement Space Query

#### SQL

```
SELECT DISTINCTROW [Running Status].Adv_No, [Running  
Status].End_date, [Running Status].Adv_Status,  
[Running Status].Adv_Copy, [Advertisement
```

```

Space].Adv_Space_No, [Advertisement Space].Adv_size,
    [Advertisement Space].Column_Inch, [Advertisement
Space].Location, [Advertisement Space].Start_date,
    [Advertisement Space].[Skip date]
FROM [Advertisement Space] INNER JOIN [Running Status] ON
[Advertisement Space].Adv_No = [Running
Status].Adv_No
WHERE (([Adv_Status]="New"))
ORDER BY [Running Status].Adv_No;

```

### Query: Paste-up Advertisement Query

#### SQL

```

SELECT DISTINCTROW [Running Advertisement Space
Query].Adv_No, [Running Advertisement Space
Query].Column_Inch, [Running Advertisement Space
Query].Start_date, [Running Advertisement Space
Query].End_date, [Running Advertisement Space Query].[Skip
date], Customer.[Company Name], [Salesman
Detail].Salesman_Name, Date() AS Expr1
FROM ((Customer INNER JOIN [Salesman Detail] ON
Customer.Salesman_Id = [Salesman Detail].Salesman_Id)
INNER JOIN ([Advertisement Sales] INNER JOIN [Running
Advertisement Space Query] ON [Advertisement
Sales].Adv_No = [Running Advertisement Space Query].Adv_No)
ON Customer.Cust_No = [Advertisement
Sales].Cust_No) INNER JOIN [Salesman Sales Record] ON
([Salesman Detail].Salesman_Id = [Salesman Sales
Record].Salesman_Id) AND (Customer.Cust_No = [Salesman
Sales Record].Cust_No)
WHERE (((Date()) Between [Start_date] And [End_date]));

```



### Query: Repeat Advertisement Query

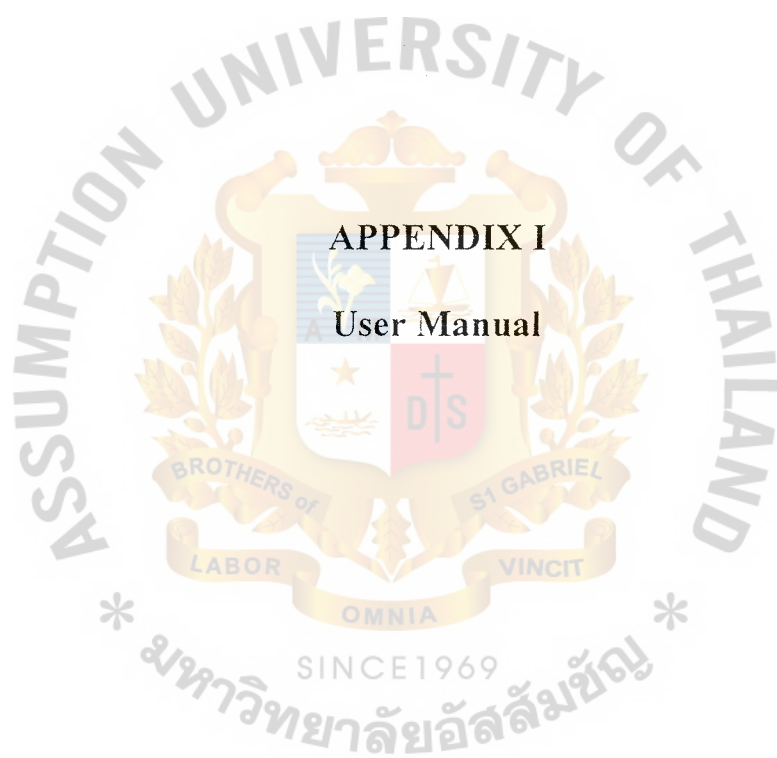
#### SQL

```
SELECT DISTINCTROW [Running Status].Adv_No, [Running
Status].End_date, [Running Status].Adv_Status,
[Running Status].Adv_Copy, [Advertisement
Space].Adv_Space_No, [Advertisement Space].Adv_size,
[Advertisement Space].Column_Inch, [Advertisement
Space].Location, [Advertisement Space].Start_date,
[Advertisement Space].[Skip date]
FROM [Advertisement Space] INNER JOIN [Running Status] ON
[Advertisement Space].Adv_No = [Running
Status].Adv_No
WHERE (([Adv_Status]="Repeat"))
ORDER BY [Running Status].Adv_No;
```

### Query: Running Advertisement Space Query

#### SQL

```
SELECT [Advertisement Space].Adv_Space_No, [Advertisement
Space].Adv_No, [Advertisement
Space].Adv_size, [Advertisement Space].Column_Inch,
[Advertisement Space].Location, [Advertisement
Space].Start_date, [Advertisement Space].End_date,
[Advertisement Space].[Skip date], [Advertisement
Space].Current_date, [Advertisement Sales].Cust_No
FROM [Advertisement Sales] INNER JOIN [Advertisement
Space] ON [Advertisement Sales].Adv_No =
[Advertisement Space].Adv_No
WHERE ((([Advertisement Space].Current_date) Between
[Start_date] And [End_date]));
```



## APPENDIX I

### User Manual

## User Manual

The following instructions are meant for the users of this system. This manual will give a basic idea on how the system works. To completely master and modify the system it is recommended that the users are given appropriate training in Microsoft Access as mentioned earlier.

### Opening the Database :

1. Choose Microsoft Access from Windows'95 or Windows NT 4.0.
2. Select the file C:\Project\Advertisement Booking System from the Open Existing Database option.
3. This will launch the Application.
4. You will be presented with a screen prompting you to enter the password as shown in Figure B1 in the Appendix. Enter "PraBis" in the box for password. Click Ok, and soon you would be presented with a Main Menu Screen as shown in Appendix B-2.
5. According to your choice you can click on any button to take you to its SubMenu. Refer to Appendix B-2 to B-7 for the SubMenu Screens.

The following are the functions which each SubMenu performs :

1. Add/Modify Records SubMenu :

This menu helps to add or change any information in any of the input forms as shown in the menu. Once addition or modification has been made to the record, click on the Close button to exit to the SubMenu. You can also Print or go to previous and next record by pressing the appropriate buttons.

2. Lookup Information :

This menu helps the user to put in a query and get the relevant information. Clicking on the Close button will exit to the SubMenu.

3. Print Reports :

This SubMenu helps to print reports as per the user requirement. First, a preview of the report is shown to the user. On clicking the Print Button, the respective report will be printed. Click on the Close Button to return to the SubMenu.

4. Update Records :

This utility helps to permanently change the data values in one or more data tables. Clicking on the appropriate record would update the file. It is recommended that this option be done at the end of each day to update all files so the all the information is up-to-date.

5. Send Reminder to Customer :

This menu gives you the option to print out Mailing Labels and attach letters to be sent to the customer reminding them to repeat their advertisement contract again.

6. Exit System :

On clicking this button will exit you out of the database.

