A RESERVATION SYSTEM FOR SUNSHINE BEACH RESORT

by

Ms. Supida Iang-Im

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

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer and Engineering Management
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Project Title	A Reservation System for Sunshine Beach Resort
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The Graduate School of Assumption University has approved this final report of the three-credit course, CE 6998 PROJECT, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer and Engineering Management.

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ABSTRACT

This project examines the development of the reservations system at the Sunshine Beach Resort, the up-grade from a manual system to a computerized system using database management benefiting the resort greatly.

The reservation system has different stages. The initial stage is the study of the existing systems current problems. The next stage is analysis and designing the system. The analysis is determined by user requirements for the computerized system. Another stage combines the context and data flow diagrams, the entity relationship diagram, the database design system, the data dictionary, the process specification, the interface designs and the output reports. The implementation (coding, testing, training and system maintenance) is also included.

In the context and data flow diagrams the system has been designed to cover such areas as guests requiring rooms until checkout and the billing process. The data flow diagrams are created for 2 levels that consist of level 0 and level 1 data flow diagrams. The level 0 consists of three processes, which are reservation room, check in room, and check out room.

The system design section includes the examination of hardware and software requirements and economic feasibility (data collected from market surveys carried out at places such as Phantip Plaza and IT malls). The cost benefit analysis will show the calculated return investment for 1.54 years.

The final stage in the conclusion and recommendations for the continual development, for example, the resort should plan ahead for on-line reservations, creating a website and providing an email address for staff to increase brand awareness.

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I. INTRODUCTION

1.1 Background of the Project

At present accommodation businesses that are growing with the traveling are resort, hotel, bungalow, or guesthouse. Each accommodation business also has the different system and investment but it is still a similar process. In the general system, the existing system is a manual operation by humans. The system is adequate only in small processes and it cannot avoid human error.

This project will point to the resort business. The resort business is a kind of business that supports the growth of travel. It will be provide services for the travelers, making comfort and relaxation to the customers to their almost satisfaction.

We know that there are strong competitive forces existing in resort business. Now a days, when we look at the impact of economic factors such as economic slowdown and the number of resorts placed on the market, it is imperative that a good reservation system be maintained to ensure the maximum capacity of room sales.

The current operating system for resort reservation is almost all manual. Such as the function of registration, reservation, creating promotion, doing accounts, keeping and recording the history and maintenance information. All processes are done in paper. Humans recorded them. These may cause confusion when the business goes large, including, the operating system by humans which still has problems that are called "Human error". Thus if we analyze and also integrate the information system into the business, which are operated by a computerized system, it will reduce some human error. We have to make sure that important information is kept correctly and also increase occupancy rate as high as possible in order to guarantee a high income.

The new system project to develop, analyze and design the flow of business. It includes determination of hardware and software requirement, security and control, implementation, including the design of the input and output screen and also the report. This system has been successfully tested and implemented on Visible Analyst. Applying the new system to the manual system, increases benefit to the business, such as improving the performance, reducing paperwork, reducing cost of long investment and handling the business process when the organization grow in the future.

1.2 Objectives of the Project

The objective of this project is to develop a computerized reservation system to cover a number of guests greatly and comfortably while the overall processes have been done manually for the resort business to improve the performance.

The objectives of the project is show as follows:

(1) To analyze the existing system, understand problems and define user's requirement.

(2) Design a computer information system for the reservation system for resort business.

(3) Improve the quality and timeliness of reservation system.

(4) Maintain history of guests.

(5) Develop the system document.

(6) Develop appropriate software.

1.3 Scope of the Project

This project focuses on the reservation system for resort management. The scope of the project is show as follows:

(1) Check the problem of existing system

(2) List all the requirements of a reservation system

(3) Analyze Feasibility

(4) Design the Context Diagram for user's requirements.

(5) Design the Data Flow Diagram for user's requirements.

(6) Design the Entity Relationship Diagram for user's requirements.

(7) Managing and keeping the resort & guest information.

(8) Develop a new database system

(9) Develop a new user interface & report

1.4 Project Deliverables

The deliverables for the reservation system of resort business are show as follows:

(1) Reservation system for resort business

(2) Project Report

II. THE EXISTING SYSTEM

2.1 Background of the Resort

Sunshine beach resort was built in the year 2000. It is situated at Hua-Hin, which is 200 kilometers or a three-hour drive south of Bangkok in Thailand. The resort consists of 2 room zones facing the sea and the garden 3 room types that are standard, superior and deluxe room. There are 20 guestrooms for each zone room. The resort is tastefully decorated and natural in place. The atmosphere is quiet coastal, warm and friendly. The resort has also prepared special facilities for the guests' enjoyment, such as a roof garden overlooking the sea and delicious seafood meals.

2.1.1 Tariff of Sunshine Beach Resort

Zone A Sea View (Room No.)	Bahts
Standard (A1-A10)	2300
Superior (A11-A15)	3500
Deluxe (A16-A20)	4900
Zone B Garden View	**Bahts**
Standard (B1-B10)	1900
Superior (B11-B15)	3000
Deluxe (B16-B20)	4500

2.1.2 Organization Hierarchy

There are six departments of Sunshine beach resort. They are shown on Figure 2.1, which consist of:

(1) Personnel Department

Personnel department is responsible for human resources of the resort management. Recruiting and developing human resources have influence

on investment such as interview, increased employee, training and orientation, which need to invest for operation.

(2) Marketing Department

Marketing department is responsible for the guests who made the reservation and convention service. Its main responsibilities are making marketing plans & promotions and providing the guests by contacting many tour agencies.

(3) Accounting Department

Accounting department controls and manages budget and accounting of the resort. It also includes providing management with timely reports of operation results.

(4) Front office Department

Front office department is responsible for reservation, check-in and checkout processing. It is an important department because it performs the lodging function of the resort. Then, this department will generate more revenue than other departments. Essential factors are quick delivery to the room, keeping food hot, good presentation and so on. In addition, reservation must be accepted, the guests must be hospitably received and assigned clean rooms, the status of availability and occupied rooms must be kept current.

(5) Food and Beverage Department

Food and beverage department is responsible to provide food and beverage to the guests both in normal service and banquet.

(6) Maintenance Department

Maintenance department of resort is responsible for maintaining property, electricity, mechanical equipment, and laundry & cleaning of the guestrooms.

The Organization Chart of Sunshine Beach Resort

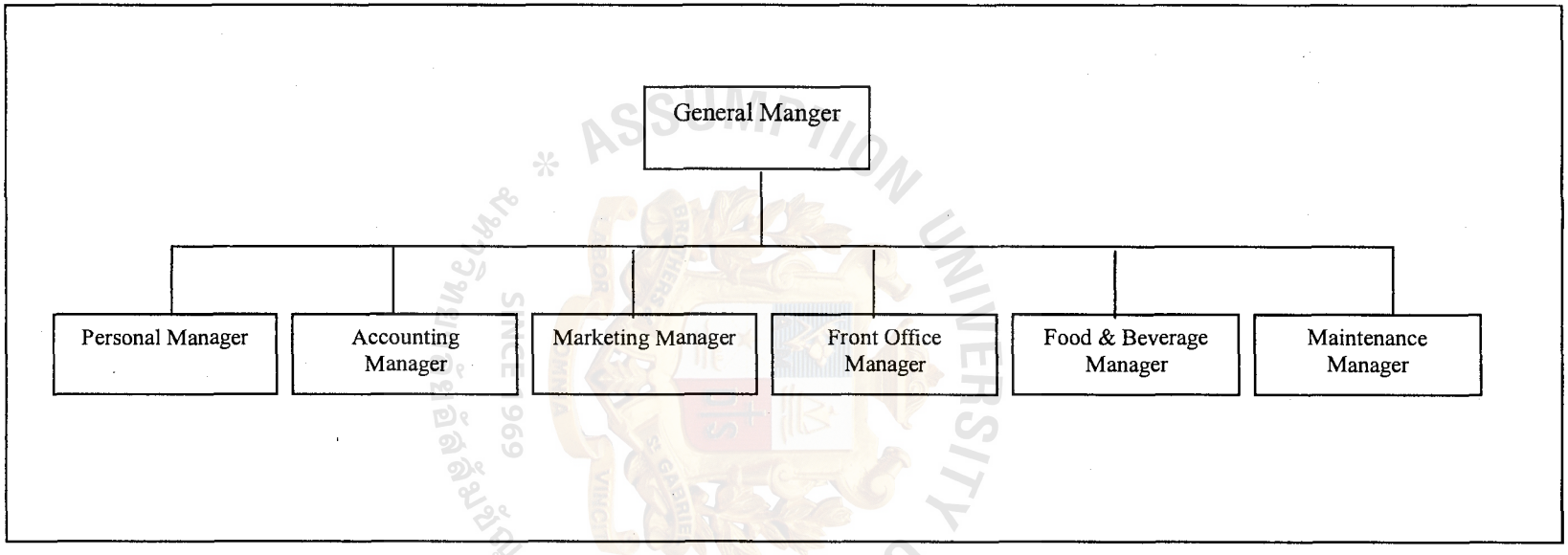

Figure 2.1. The Organization Chart of Sunshine Beach Resort.

2.2 The Existing Business Functions

The existing system is a manual operation. It means the organization is small. The current system requirement is only paper, pencil and calculator. The staff members handle reservation, guest registration, check-in procedures, checkout procedures, guest account and expenses. The main purpose of the new system is to increase occupancy rate as high as possible in order to guarantee a high income.

(1) Reservation

In the reservation system, the reservation staff handles guest communication and correspondence regarding reservation at the resort. Those contacts can be corresponded by walk in, telephone, letter and e-mail. The staff members handle registering the new guests or checking the old guests' information for resort's reservation. Sometimes, these processes take a great amount of time until staff can find available rooms and make a response to guests' requests. During these operations, the agencies or guests may cancel their reservations because of slow response or they have found available accommodation by the competitors. On the other hand, the front office will be busy with many tasks so guests have to wait for them. It may result in unsatisfied consideration of services.

The reservation management system helps not only to guarantee accommodation for guests especially in the high season, but also for the resort to be able to estimate the numbers of rooms reserved in order to forecast its income.

(2) Check-in

When the guests arrive at the resort, they need to fill in their information on the registration book that will be put in the room key box.

Then the receptionist will rewrite the guests' information in the registration book.

(3) Checkout

Checking out, guests have to confirm their departure and return the key at front office. Room key will be dropped in a box where housekeepers will take key for room cleaning.

2.3 Current Problem

(1) Time consumption

(a) The staff has to spend a lot of time to find the document.

(b) The staff may take a long time to summarize and create the reports.

(c) The transactions take a lot of time to operate the existing system so the guests have to wait for the services.

(2) Overload work

(a) The staff has to take a lot of responsibilities for doing the data that must be kept everyday.

(3) Inaccuracy

(a) It occurs in loss of data. For example, sometimes the staff forgets to rewrite the guest information in the registration book.

(4) Incapability to operate the manual work

(5) Redundant work

(6) A lot of employees

(a) It needs a lot of employees in managing the manual system.

(7) Poor management and control systems

(8) A lot of paper work

(9) Difficult to determine room availability during high season.

III. THE PROPOSED SYSTEM

3.1 System Analysis

System analysis is the part of the systems development, which determines how the current information system functions and assess what users would like to see in a new system. Then, users determine the system requirements.

User Requirement

During information gathering and analyzing the existing system, the user requirements are considered as follows:

(1) The new system can quickly determine room availability.

(2) Individual or group booking is automatically linked to guests history record.

(3) The new system should provide up to date and precise information.

(4) Information could be shared among several users at the same time.

(5) Operating and retrieving needed information should be easy and not time consuming.

(6) For efficient work, all processes of front office should be more efficient, more convenient and provide the best services for the guest.

(7) It helps in reducing costs for documentation and costs of employment.

(8) It saves time to generate and summarize reports.

(9) Backup and recovery system should be designed to protect against loss of data.

(10) Security and operation control should be included in the new system.

3.2 System Design

The proposed system is designed to operate and develop in an appropriate existing system, which will be developed for the operation. When we design the new system, it must meet or exceed user performance requirements.

(1) Network: Local Area Network (LAN) is designed to allow resource to be shared and communicated between each workstation or personal computer and the server. This LAN, which is set up in one place of the resort, links a work group of task related computers.

(2) System design: The design techniques must be designed according to the proposed system description, which is explained as follows:

Overview descriptions of the reservation system processing are 3 processes.

Process 1: Reserve Room

A Guest inquires for the room by fax, telephone or walk-in. The staff verifies the room by operating 6 processes:

(1) Check available room

(2) Confirm reservation

(3) Update Information

(4) Register guest information

(5) Update guest information

(6) Check guest discount

Description: A guest inquires for the room. Then, the staff checks available room from reservation information file. If the room is unavailable, he will inform the guest but if it is available, he will also inform the guest in order to confirm the room. Then, the guest will give the staff her information to register for checking her discount from the promotion file. This information will be recorded and also updated on the database file.

Process 2: Check-In Room

The guest comes to check-in the room. If information is valid the staff will accept the guests request and key in guest information, give the room to the guest. There are 4 process in the check-in room process:

(1) Verify reservation record

(2) Verify guest record

(3) Register check-in information

(4) Approve check-in information

Description: The guest comes to check in room. Then, the staff verifies reservation, guest information record and inform invalid or valid information. It is registered, approved and updated check-in information into data store.

Process 3: Check-Out Room

Guest would like to check out the room, the staff would calculate and give the bill to the guest who also will receive the slip back.

There are 5 process in the checking out room process:

(1) Check the check-in date

(2) Calculate payment

(3) Read guest information

(4) Generate payment

(5) Generate Report

Description: The guest would like to check out the room. The staff checks in date and calculates payment price in order to inform guest total by bill. Then, the total price will generate payment and update into the database guest information file. The guest also will receive the slip.

On the days the report is closed, check out information generated report and sent the summary report to the manager.

When we design the new system, it must meet or exceed user requirement so the detail of the system is designed and represented by the context diagram, the data flow diagrams, the entity relationship diagrams, the database design system and also the interface input and output screen, and the report. Some definitions are explained in the data dictionary and the process specification.

3.2.1 The Context Diagram

The context diagram is used to focus on the data flowing in and out of the system and the processing of the data. It will overview an organizational system that shows the system bound arise, external entities that interact with the system, and the major information flows between the entities and the system.

The context diagram of the proposed system is shown in Appendix A.

3.2.2 Data Flow Diagrams

The data flow diagram (DFD) is used to present the proposed system step by step. It represents a system's major processes, data flows, and data store at a high level of detail.The data flow diagram is a modeling tool that allows the user to picture the proposed system in order to present the proposed system concept to the user and the management, the system must be converted into a concrete format, which is understandable.

The data flow diagram (DFD) for the system used by Sunshine Beach Resort consists of two level diagrams and they are shown in Appendix B.

Level-0: There are three processes as follows:

(1) Process 1: Reserve room

(2) Process 2: Check-In room

(3) Process 3: Check-Out room

Level-1: There are fifteen processes as following:

(1) Process1.1: Check Available room

(2) Process 1.2: Confirm reservation

(3) Process 1.3: Update information

(4) Process 1.4: Register guest information

(5) Process 1.5: Update guest information

(6) Process 1.6: Check guest discount

(7) Process 2.1: Verify reservation record

(8) Process 2.2: Verify guest record

(9) Process 2.3: Register check-in information

(10) Process 2.4: Approve check-in information

(11) Process 3.1: Check the check-in date

(12) Process 3.2: Calculate payment

(13) Process 3.3: Read guest information

(14) Process 3.4: Generate payment

(15) Process 3.5: Generate Report

3.2.3 The Entity Relationship Diagram

An entity relationship diagram (ERD) is an entity relationship data model that creates a graphical representation of the entities, associations, and data elements for an organization or business area.

The purpose of entity relationship diagram for the system used by Sunshine Beach Resort consists of eight entities. They are shown as below:

(1) Guest

(2) Reservation

(3) Room

(4) Bill

(5) Employee

The entity relationship diagram is shown in Appendix C.

3.2.4 The Database System

Database management system (DBMS) can also be conveniently thought of as consisting of server and a set of clients. Client and server can often run on separate machines, thus providing one simple kind of distributed processing. In general, each server can serve many clients and each client and also can behave as if it were dealing with a single server on a single machine, so it has a truly distributed database system.

The database design system of the new system is represented in Appendix D.

3.2.5 The Data Dictionary

The data dictionary is considered as one of the important stages in the structure design. It defines the documentation that supports data flow diagram, containing all terms involved and their definition for data flows. Data store related to the data flow is also defined in data dictionary with the exception of the processes that are defined separately through the use of the process description.

The data dictionary of the new system is represented in Appendix E.

3.2.6 The Process Specification

The process specification shows table process name, data in, data out, performance of each process and attachment. Elements that fall into each table can be arranged in various file organization structures, which give the number of process. The process specification is shown in Appendix F.

3.2.7 User Interface Design

The user screen interface is designed to provide the system user on the input interface to make all system users agree upon the same prototype screen control design. In the proposed system, the number of information screen has to be processed automatically by a computer. Since some of the information is very sensitive to changes, it is important that editing has been made immediately in the system, such as the number of guests in the resort. Likewise, the user interface screen also can perform the main task of reservation such as retrieving the room status and guest details, listing of check-in and check out data and room status conversion. Data are to be keyed in using keyboard. The system builder needs to ensure system users understanding and acknowledgement of the input interface screen control. There are many screen interfaces designed for reservation systems of Sunshine Beach Resort such as ;

(1) The main menu screen for selecting each operation

(2) The available room screen for checking room available

(3) The display guest Information screen

(4) The guest registration screen

(5) The reservation screen

(6) The display guest reservation screen

(7) The guest information Searching screen

(8) The check-in screen

(9) The check-out screen

(10) Bill screen

(11) The screen of searching report screen

The use screen interfaces are represented in Appendix G.

3.2.8 Output Report

The output reports are the reports that are generated by data entry displays from user screen interfaces. The output reports represented in Appendix H.

(1) The Reservation Report

(2) The Room Status Report

(3) The Check-Out Report

(4) The Check-out Report

(5) The Summary Report

3.3 Hardware and Software Requirements

For the new system is provided, with prepared hardware and software specifications to support this system that is the major concern because the cost in this part is expensive and it takes a long period of time to use. Then, we should provide them in a good way as follows:

3.3.1 Hardware Specification

(1) PC server 1 set

(a) CPU: Pentium IV processor 2.4 MHz

(b) Ram: 256 MB

(c) Hard Disk: 40 GB

(d) Floppy Disk Drive: 1.44 MB

(e) CD-ROM: 52 x speed

(f) Display: 15" Super VGA color Monitor

(g) Keyboard

(h) Mouse

(2) PC client 2 sets

(a) CPU: Pentium IV processor 2.4 MHz

(b) Ram: 256 MB

(c) Hard Disk: 40 GB

(d) Floppy Disk Drive: 1.44 MB

(e) CD-ROM: 40 x speed

(f) Display: 15" Super VGA color Monitor

(g) Keyboard

(h) Mouse

(3)Connecting Devices and others

(a) HUB: 10/100 Mbps 8 UTP Port

(b) LAN Card: 10/100 Mbps 1 UTP Port

(c) LAN Cable wire: 60 Meters

(d) UPS: 1-1.5K VA

(e) Laser Printer

(f) Dot matrix printer

3.3.2 Software Specification

(1) O/S Software: Microsoft Window NT Server Version 2002

(2) Application Software: Microsoft Office 2000 Standard User License

(3) Database Management System (DBMS): Microsoft Visual Basic Version 6.0 Professional Edition

3.4 Economic Feasibility

Economic feasibility identifies the financial benefits and costs associated with the development project, economic feasibility are often referred to as "cost-benefit analysis". (Hoffer, Feorge, and Valacich 2002)

A comparison between costs and benefits become important criteria of new system development, because they are to evaluate how much difference on cost, benefit

and the worthiness of using the new system. The comparison is made on any aspect such as one-time cost, recurring cost, and both tangible and intangible benefits.

The Cost-Benefit Analysis has collected the information by the current marketing survey such as Phanthip Plaza and IT Mall, including the information of cost operation for existing system that has been collected from Sunshine Beach Resort. In addition, the information of user training, hardware/software specification, implementation and maintenance cost has been collected by human resource and IT department of the Ek-Chai Distribution System co., Ltd. and Blue Print company.

3.4.1 Benefit Analysis

A computerized reservation system can provide many benefits to an organization. In general, the benefits can be viewed as being both tangible and intangible. They are defined as follows:

(1) Tangible Benefits

The tangible benefits can measure a value and with certainty. After implementation of the new system in resort, we can get the following annual benefits for the proposed system:

(a) Cost reduction of human labor **240,000 Bahts**

The existing system and the proposed system have human laborannual costs as below:

<u>The existing system</u>

Manager 1 person has cost (The salary is 20,000 Bahts/person)	240,000 Bahts
Supervisor 2 persons has cost (The salary is 12,000 Bahts/person)	288,000 Bahts
Staff 4 persons has cost (The salary is 8,000 Bahts/person)	384,000 Bahts
Total cost for the existing system	912,000 Bahts

The proposed system

Manager 1 person has cost (The salary is 20,000 Bahts/person) 240,000 Bahts

Supervisor 1 person has cost (The salary is 12,000 Bahts/person) 144,000 Bahts

Staff 3 persons has cost (The salary is 8,000 Bahts/person) 288,000 Bahts

Total cost for the proposed system 672,000 Bahts

(a) Cost reduction of stationery and paper usage 32,400 Bahts

The existing system

The stationery and paper usage has cost 108,000 Bahts

The proposed system

The stationery and paper usage has cost (Discount 30%) 75,600 Bahts

(b) Cost reduction of overtime & fringe 3,000 Bahts

(The existing system has had to pay for overtime, especially on the holidays and the festival season.)

Total Tangible benefits **275,400 Bahts**

(2) Intangible Benefits

The intangible benefits cannot be easily measured in value or with certainly. They may have direct organizational benefits as follows:

(a) To improve customer service

(b) To speed up the operation

(c) High level security of data

(d) To reduce redundant process and data

(e) More data accuracy

(f) Better planning information

(g) Better managerial control of organization

3.4.2 Cost Analysis

To invest in the computerized reservation system or the proposed system, the cost of the new system can have both tangible and intangible costs. Tangible costs refer to items that we can easily measure in value and with certainty. They include the following:

(a) Hardware cost

(b) Software purchase

(c) Labor cost

(d) Operational cost such as employee training and building renovation

Alternatively, intangible costs are those items that we cannot easily measure in terms of value or with certainty. They include the following:

(a) Loss of customer good will

(b) Employee morale

Besides tangible and intangible costs, the costs can be divided into two categories, one-time cost and recurring costs. They are shown as below:

(1) One-Time Cost

One-time costs associate with project initiation, development and the start-up of the system.

(a) New hardware purchase

CPU	30,000
Memory (Ram)	7,500
Hard Disk	9,000
Monitor	15,000
CD-ROM	6,000
Floppy Disk Drive	1,500

	Mouse	900
	Key board	1,500
	HUB	2,500
	LAN Card	2,100
	LAN Cable wire	500
	UPS	13,500
	Laser Printer	30,000
	Dot matrix	30,000
	Total	**150,000**
(b)	**New software purchase**	
	O/S Software	13,500
	Application Software	30,000
	Database Management System (DBMS)	16,500
	Total	60,000
(c)	**Implementation cost**	**30,000**
(d)	**User training**	**50,000**
(c)	**Site preparation**	**30,000**
	Total of one-time costs	**320,000**

(2) Recurring Cost

Recurring costs are the costs resulting from the ongoing evolution and use of the system.

(a)	Hardware maintenance	20,000
(b)	Application software maintenance	10,000
(c)	Other expenses (Paper, forms, diskettes, etc.)	20,000
Total of recurring costs		**50,000**

Cost-Benefit Analysis

Reservation System Project

Sunshine Beach Resort

Benefits

	Tangible Benefits	**Year1 through 5 (Bahts)**
(a)	Cost reduction of human labor	240,000
(b)	Cost reduction of stationary and paper usage	32,400
(c)	Cost reduction of overtime & fringe	3,000
	Total Tangible benefits	**275,400**

Costs

	One-Time Cost	**Year 0 (Bahts)**
(a)	New hardware purchase	150,000
(b)	New software purchase	60,000
(c)	Implementation costs	30,000
(d)	User training	50,000
(e)	Site preparation	30,000
	Total One-Time Costs	**320,000**

	Recurring Costs	**Year 1 through 5 (Bahts)**
(a)	Hardware maintenance	20,000
(b)	Application software maintenance	10,000
(c)	Other expenses (Paper, forms, diskettes, etc.)	20,000
	Total Recurring Costs	**50,000**

Table 3.1. The Cost-Benefit Analysis of Reservation System for the Resort Business.

Economic Feasible Analysis

Cost-Benefit Analysis

Reservation System for the Resort business

	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Totals**
Net economic benefit	-	275,400	275,400	275,400	275,400	275,400	
Discount rate (6%)	1.0000	0.9436	0.8900	0.8396	0.7921	0.7473	
PV of all benefits	0	259,867.44	245,106	231,225.84	218,144.34	205,806.42	
NPV of all benefits	**0**	**259,867.44**	**504,973.44**	**736,199.28**	**954,343.62**	**1160,150.04**	**1160,150.04**
One-time cost	320,000						
Net recurring cost	0	50,000	50,000	50,000	50,000	50,000	50,000
Discount rate (6%)	1.0000	0.9436	0.8900	0.8396	0.7921	0.7473	
Present value of costs	0	47,180	44,500	41,980	39,605	37,365	
NPV of all costs	**320,000**	**367,180**	**411,680**	**453,660**	**493,265**	**530,630**	**530,630**
Overall NPV							629,520.04
Yearly NPV cash flow	-320,000	212,687.44	200,606	189,245.84	178,539.34	168,441.42	
Overall NPV cash flow	-320,000	-107,312 56	93,293.44	282,539.28	461,078.62	629,520.04	

Project break-even occurs between year 1 and 2

Use first year of positive cash flow to calculate break-even fraction (200,606-93,293.44)/200,606 = 0.54

Actual break-even occurred at 1.54 years.

(The value of discount rate assumed 6% from banking loan per year and number are Present Worth Factor (Find P, Given F)

3.4.3 Break-Even Analysis

The objective of the break-even analysis is to discover at what point benefits equal costs. To conduct this analysis, The NPV of the yearly cash flows are determined. The yearly cash flows are calculated by subtracting both the one-time cost and the

present values of the recurring costs from the present value of the yearly benefits. The overall NPV of the cash flow reflects the total cash flows for all preceding years.

Break-Even Ratio = (Yearly NPV Cash Flow-Overall NPV Cash Flow)/Yearly NPV Cash Flow

Break-Even Ratio = (200,606-93,293.44)/200,606 = 0.54

Therefore, project break-even occurs at approximately 1.54 years. A graphical representation of this analysis is shown in Figure 3.4.

Table 3.2. The Comparison between NPV of All Benefits and NPV of All Costs.

Year	NPV of all benefits	NPV of all Costs
0	0	320,000
1	259,867.44	367,180
2	504,973.44	411,680
3	736,199.28	453,660
4	954,343.62	493,265
5	1,160,150.04	530,630

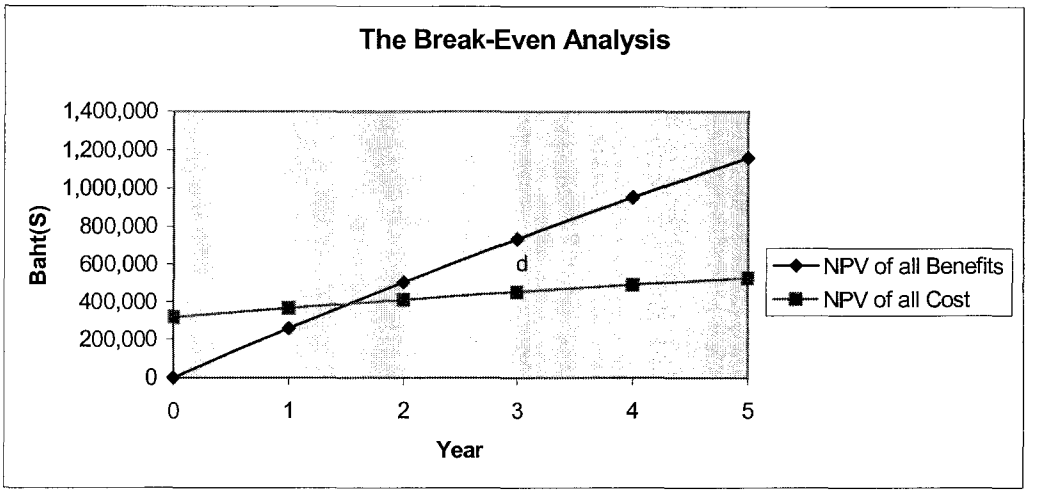

Figure 3.1. Break-Even Analysis of Sunshine Beach Resort.

The first year cost of the proposed system will be considerable because of the hardware and software implementation, user training and site preparation. After that, the cost will decrease slightly and continuously.

Many benefits occurred from reductions of human labor, stationery and paper usage, fringe benefits and overtime each year. Both calculations of costs and benefits use discount rate at 6% from banking loan per year and number are Present Worth Factor (Find P, Given F). The result, as table above shows, is the net present value of all benefits and costs. The initial year, the NPV of all costs will be higher than the NPV of all benefits but the NPV of all costs will be less than the NPV of all benefits.

3.5 Security and Control

3.5.1 Security

In security, an exposure is a form of possible loss or harm in a computing system; examples of exposures are unauthorized disclosure of data, modification of data, or denial of legitimate access to computing. Vulnerability is a weakness in the security system that might be exploited to cause loss or harm. A person who exploits

vulnerability perpetrates an attack on the system. Threats to computing systems are circumstances that have the potential to cause loss or harm; human attacks are examples of threats, as are natural disasters, inadvertent human errors, and internal hardware or software flaws. Finally, a control is a protective measure of an action, device, procedure, or technique-that reduces a vulnerability. (Pfleeger1997)

The major assets of computing systems are hardware, software, and data. There are four kinds of threats to security of a computing system.

(1) Interruption: An asset of the system is destroyed or becomes unavailable or unusable. Examples include destruction of a piece of hardware, such as a hard disk, the cutting of a communication line, or the disabling of the file management system.

(2) Interception: An unauthorized party gains access to an asset. The unauthorized party could be a person, a program, or a computer. Examples include wiretapping to capture data in a network, and the illicit copying of files or programs.

(3) Modification: An unauthorized party not only gains access to but tampers with an asset. Examples include changing values in a data file, altering a program so that it performs differently, and modifying the content of messages being transmitted in a network.

(4) Fabrication: An unauthorized party inserts counterfeit objects into the system. Examples include the insertion of spurious messages in a network or the addition of records to a file. (Stallings2000)

Consequently, during detailed design, attention must be devoted to security and controls.

Computer security consists of maintaining the following three characteristics:

(1) Secrecy: The assets of computing are accessible only by authorized parties. (Reading, Viewing, Printing)

(2) Integrity: The assets can be modified only by authorized parties. (Writing, Changing, Deleting, Creating)

(3) Availability: The assets are available to authorized parties at a time they need it. (Pfleeger1997)

Nowadays, information becomes invaluable assets, various method are created to protect from all possible harms. General controls are designed to ensure that information processing takes place in a reasonable controlled and consistent environment.

Considering the exposure that the computerizing system faces, the following security and control methods are proposed:

3.5.2 Control

(1) The Computer Access Control

(a) The username and a secret user id or password are needed to protect from unauthorized access or update of the data. They will block unauthorized entry to the system.

(b) The users should be instructed not to disclose information about the password to anybody and we need to change passwords occasionally to help keep users aware of the need for tight system security at least every month.

(2) Physical Control

(a) A back up system should be provided to ensure little or no data loss in case of hardware malfunction or during periods of maintenance or breakdown. A back up copy of the data should be made on a daily

basis, as data can be lost through electrical power surges, which can damage your computer's hard drive. It is recommended that a good UPS (Uninterrupted Power Supply) be used, that will protect the computer from such mishaps. If data should be lost for any reason, the user will be able to restore it from the back up copy.

(b) Two copies of software and data are kept in a building separate from the machine room.

(c) Do not allow eating, drinking or smoking in any room containing computer machine. Crumbs and drinks can destroy hardware and media. Ash particles in smoke are large enough to ruin disk systems by becoming trapped between read head and the medium.

(3) Input control

(a) All input information must be checked and verified by authorized staff before data entry.

(b) A system that has audit control is required. It should have the features of an audit trail, meaning there is a record of a transaction or an event so that the management can tell who performed an activity, when it occurred, and what results it produced.

(c) The signature on input documents must be checked before data entry.

(4) Output Control

(a) The changed reports should be checked against the input information to ensure the validity of the changes.

(b) The distribution of the reports should be controlled to ensure that they are sent to the correct departments.

(5) Other

(a) Database control: A database system is necessary to enforce the security restrictions such as authorized users are able to read, write, delete and modify the database, this specific range can protect from out of range access through the data from any damage to the database system.

One of the most important considerations in system development and on-going operation is the system security and control. Security and control of the data are the life of a resort. So the system should be quickly and inexpensively maintained and repaired.

IV. PROJECT IMPLEMENTATION

Implementing a new system into an organizational context is not a mechanical process. The organizational context has been shaped and reshaped by the people who work in the organization.

The primary step of the implementation is to transform the modules to be codes computer can execute. The system specifications, data dictionary, process specification, file and database, input and output designs of the proposed system, some staff of the resort can participate in system development on prior sections. The staff can further become a system specialist and could be a development team member who completes the system design, or could be the system programmer who codes the computer programs.

System implementation is made up of seven major activities:

4.1 Coding

Coding is the process whereby the physical design specifications created by the analysis team are turned into working computer code by the programming team or coding is the process of writing a set of instructions in which computer system can execute directly.

4.2 Testing

It is one of the most critical aspects of computer programming. Sample data are processed under the designed program. Then the result will be compared with the predetermined specification. Testing process is conducted to detect and correct the errors. It also tests the unification of each module in the entire system. All possible ways to get off the route, apart from the program, are designed and programs must be found and prevented from happening in the future. We have to test whether the program

is easy to use and understand if we are the users. If it was hard to follow and understand, then we have to make it simpler.

This is concerned about testing the programs as follows:

(1) Testing by Programmers

Programmers must thoroughly test a program to ensure the functions correctly before the program's actual data produces information that people will rely on. Several different types of test on an individual program are implemented.

(a) The programmer complies the program to identify syntax errors, which are language violation caused by data entry mistakes, inconsistencies in the program, and language program errors. They test and correct the programs until they obtain a clean compilation.

(b) The programmer performs desk checking, which is the process of reading the program and mentally reviewing its logic.

(c) The programmer tests an individual program. This technique is called as unit testing. The objective of unit testing is to identify and eliminate both execution errors, which are errors that cause the program to abnormally terminate, and logic errors which are errors in the accuracy and completeness of a program's processing.

(2) Testing by system analysis

The system analysis is responsible for link testing which is testing two or more programs together that depend on one another.

(3) Testing by users

The system testing is done with live data which users get involved. The amount of training a system requires thus depends on how much their

jobs will change. For the new system, users are trained to change from one way of performing a task to another such as from manual system to the computerized system as this proposed system. So they need to be trained for the proposed system, how the system affects them, how to use it, and how to interpret the results of system execution. For this proposed system, it can prepare user manual that the users can follow easily. This manual will explain the system operations in terms that users can understand. It can help educate users about the system Testing and modifications are continued until the users are satisfied with the result of the test.

Beyond testing program modules, the entire system is tested to determine that it meets the requirements established by user and that it can be used and operated to the satisfaction of both users and system operations. The developers develop the system, and users carry out testing together and finally by the users. The more closely the test can simulate a production environment (for examples: people, machine, data, input, and so forth), the more representative the test will be and the more conclusive the results will be. Each test consists of the following steps:

(a) Specify test conditions

(b) Review test conditions (such as walkthrough)

(c) Create test data.

(d) Execute data

(e) Evaluate results

Several types of tests are usually completed before a system can be implemented. From the user's point of view, the system test, the acceptance test, and the operations

test are the most important factors to determine whether the system equipment are satisfactory.

4.3 Installation

The organizational process of changing over from the current information system to a new one.

4.3.1 Hardware Setup and Installation

(1) Design where to install computer system in the resort

(2) Installation hardware part such as computer server, PCs

(3) Installation line to link this LAN network

(4) Setup hardware configuration

4.3.2 Software Installation

(1) Install operating system

(2) Setup hardware configuration

(3) Installation of new reservation system

4.4 Conversion

The existing system is a manual system, there are only a few steps for installing the system. However, this process should be planned carefully. Missing something might cost the company irrecoverable information. To make sure everything is correct, parallel conversion is the resort's choice for the conversion plan. System conversion consists of data conversion and system installation. The major objective is to install the computerized system to replace the manual system. All the data previously kept on paper is now recorded in the designed database. This process must be executed carefully since the conversion of data takes certain time to process while the existing system is running in parallel processing until the full-computerized system is ready.

4.5 Documentation

Every information systems development project is unique and will generate its own unique documentation. We can simplify the situation even more by dividing documentation into two basic types:

(1) System documentation: Detailed information about a system's design specifications, its internal workings and its functionality.

(2) User documentation: Written or other visual information about an application system, how it works, and how to use it.

4.6 Training

After the program has been tested and installed, there comes the process of training for the user to be familiar and able to use the program correctly. As we know, some user may not know how to use the computer at all. This is the process to teach the user to understand the flow of the program and probably the logic. System analysis, programmers and vendors are assigned to train the users. The methods used are demonstration of the equipment, create the training manual, give lectures about the procedure, discussion, question and answer and hands on experience with new equipment.

4.7 Support and Maintenance

After implementation of the new system, Sunshine Beach Resort still needs to support and maintain the system and still introduce the users about their work question if they have problems concerning people using the providing ongoing educational and problem-solving assistance to information system users.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The existing manual operations are inefficient and several problems are found such as staff may face duplicated tasks and may forget to keep the guest information, using large volume of paper, and incapacity simultaneously sharing along several departments that cause difficulty in good services for the guests. The major problems are time-consuming in operating and creation of some errors about the information.

Thus, in order to overcome the problem, the computerized system for the resort is developed. Computerized system is used database management, front office and create reporting for management.

The initial project is collecting the information from the Sunshine Beach Resort. This is the first step that has been done, this project received the information from interviews and some documents from the managers of the resort. They gave a lot of information such as the room and guest information, the staff information and the cost per year in the resort. Then, the project studied existing system including the current system problem that is operated by humans. After that, the developer will start the next step with analysis and designing the system. In the part of analysis, the project is determined to user requirement and also creates the plan for the proposed system. Another part of design, the project created the context diagram, the data flow diagrams (DFD), the entity relationship diagram (E-RD), the database design system, the data dictionary the process specification, including the interface designs and the output reports. Those are finding more information in chapter III in this project.

The part of implementation consisted of coding, testing, installation, conversion, documentation, training and maintenance of the system. The coding will operate by

programming team and the testing program could done by many persons such as programmers, system analysis and users. The developer thinks, it is very difficult in the coding and testing phase because they have to check the errors of program and errors of the system. For example, if the programmer writes down the program for the system and he forgot to integrate some information of guest, the problem will occur in the debug. They have to take more time to find that error and solve them. So the developer thinks this phase will use more time to work and the programmer should have more experience to write the program. In addition, the system needs to continue to keep maintaining the system. Training is also important for the proposed system instead the existing system because the existing staffs have not much knowledge about computers and the organization needs to foresee it.

Another part of hardware, software requirements and economic feasibility, the Cost-Benefit Analysis has collected the information by the current marketing survey such as Phanthip Plaza and IT Mall, including the information of cost operation for existing system that has been collected from Sunshine Beach Resort. In addition, the information of user training, hardware/software specification, implementation and maintenance cost has been collected from human resource and IT department of the Ek-Chai Distribution System co., Ltd. and Blue Print company. And in the breakeven analysis, it uses the comparison between the cost and benefit of the proposed system. They will calculate from the present year, so it uses the factor from present worth factor (Find P, Given F). The breakeven analysis of this project occurs at approximately 1.54 years, the proposed system will reach the break-even point, where revenue equals cost of building system. The first year cost of the proposed system will be considerable because of the hardware and software implementation, user training and site preparation. After that, the cost will decrease slightly and continuously. Many benefits

occurred from reductions of human labor, stationery and paper usage, fringe benefits and overtime each year.

So this project will give more advantage, if the user compared the cost investment with the benefit from reservation system. The resort will use less than 2 years to receive that return on investment. And after that time, the resort will receive only profits from the investment.

The study of system development project of reservation system reveals a need for Sunshine Beach Resort to utilize a computer system, which automates the front desk and reservation process, offers users a great deal of benefit, comparing to the manual system. A clear tangible benefit that the resort will receive from using a computer system is reducing the cost of manpower and cover numbers of guests that are great. It means the resort will be successful for increasing revenue because this business is service and guests want to get the service. When receptions do not waste time to handle operation, receptions can have more opportunity to serve other guests so the response will be reduced. The computerized system also provides a lot of intangible benefits, in terms of data accuracy, data security, efficiency and control, to the organization. Moreover tasks, which are complex and repetitive, can be eliminated.

The computerized system also will be more comfortable while the overall processes that have been done manually for the resort business to improve the performance.

With reservation resort using computerized system available to the guests, it quickly becomes apparent that some of the best services come from the staff service. Prospective and current guests at the Sunshine Beach Resort may now check resort room availability and place reservations. The confirmation numbers can be

automatically assigned and supplied in real-time and guest receive an immediate response from the system.

5.2 Recommendations

The system presented in this project has been designed for Sunshine Beach Resort, after setting the reservation system to replace manual system. The resort should be interested into solving the problem in the future. The problem includes expansion system and another problem will come from new technology. Then, some modifications may be required in order to fit with users requirement of a specific resort. Well-known and popular tools are used to develop the system. This ensures that the system tool won't be obsolescent in the near future, and can be upgraded to a newer version. The hardware suggested computers are high-end of its range. This is because the hardware technology changes very fast and the system will be able to cope with future expansion.

The recommendation to the system is to expand the reservation system. In the future, the resort plans to provide E-mail to customers in order to make reservations on-line and to add more PC (Workstation) for future services may be provided.

However, the project needed to continue with the development life cycle as the business always keeps changing and participating that users may have other requirements to help them with a better solution to compete with other company's policies.

The version of Anti Virus program because Virus programs will be created all the time. So the version of Anti Virus program currently can not be used in the future. If user have not updated Anti Virus program, that will make problems to Reservation System and other systems of computer.

The system should be always updating the information such as room and guest information because they will have the corrected information. For example when the

guest comes to inquiry room but the room price has not be updated, the screen will show the wrong information that may take time to find the correct information. The guest may not be satisfied with the resort.

This system of the project is not world wide so the organization cannot promote to other people about resort information. It should create a web site of resorts and also reservations by on-line in order to get the advantage of the business and resort marketing.

APPENDIX A

THE CONTEXT DIAGRAM

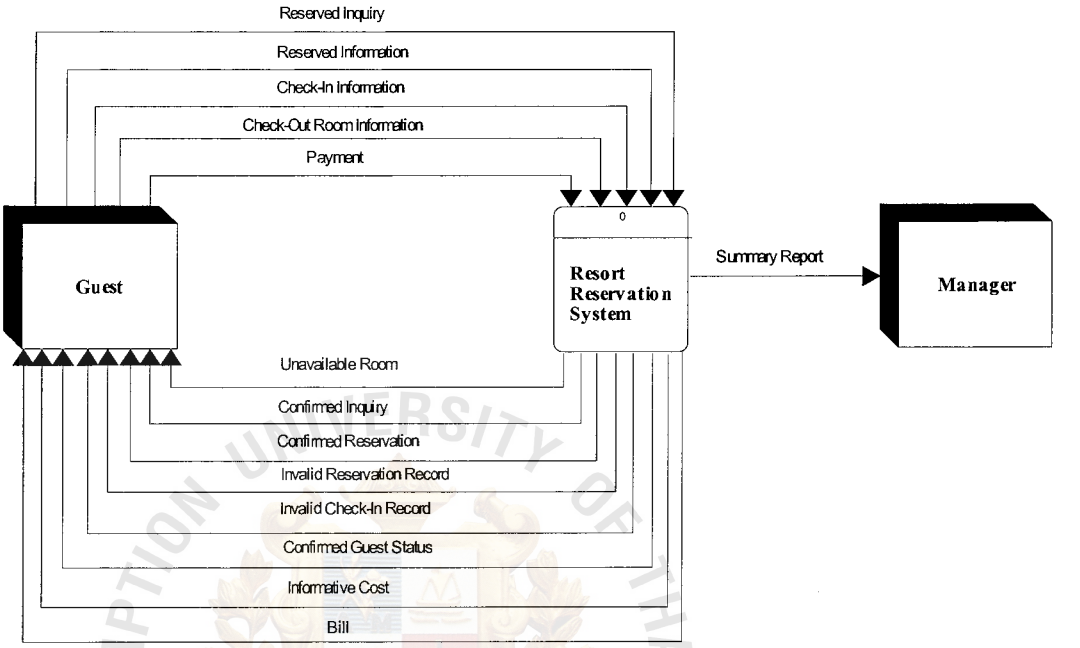

Figure A.1. The Context Diagram for the Resort Reservation System.

APPENDIX B

THE DATA FLOW DIAGRAM

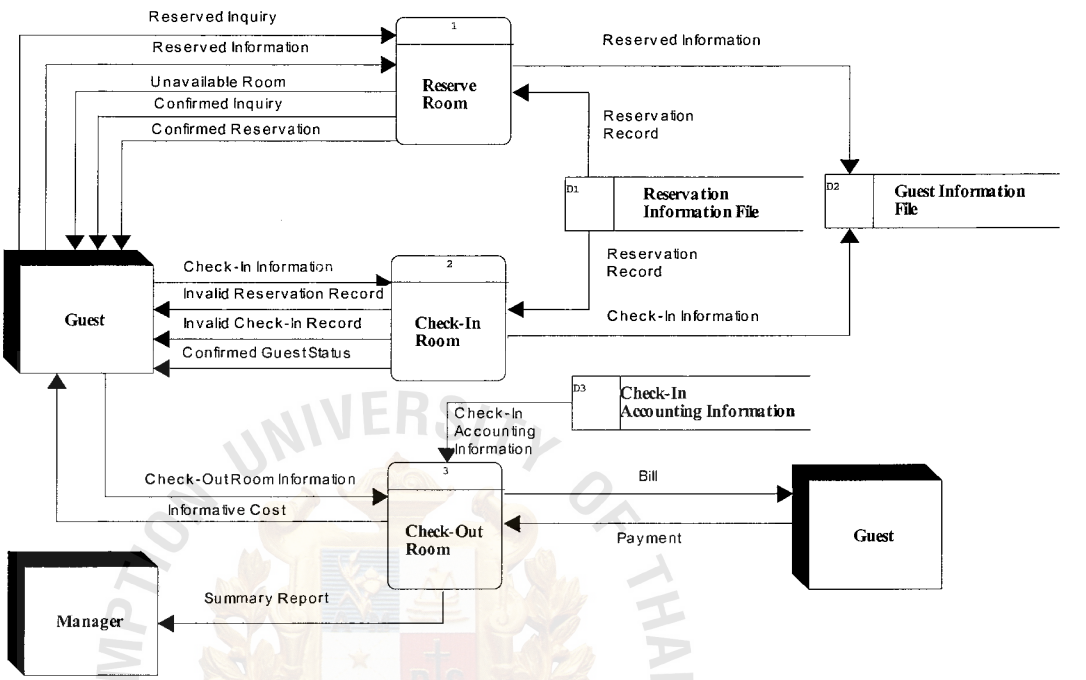

Figure B.1. The Level 0 Data Flow Diagram for the Resort Reservation System.

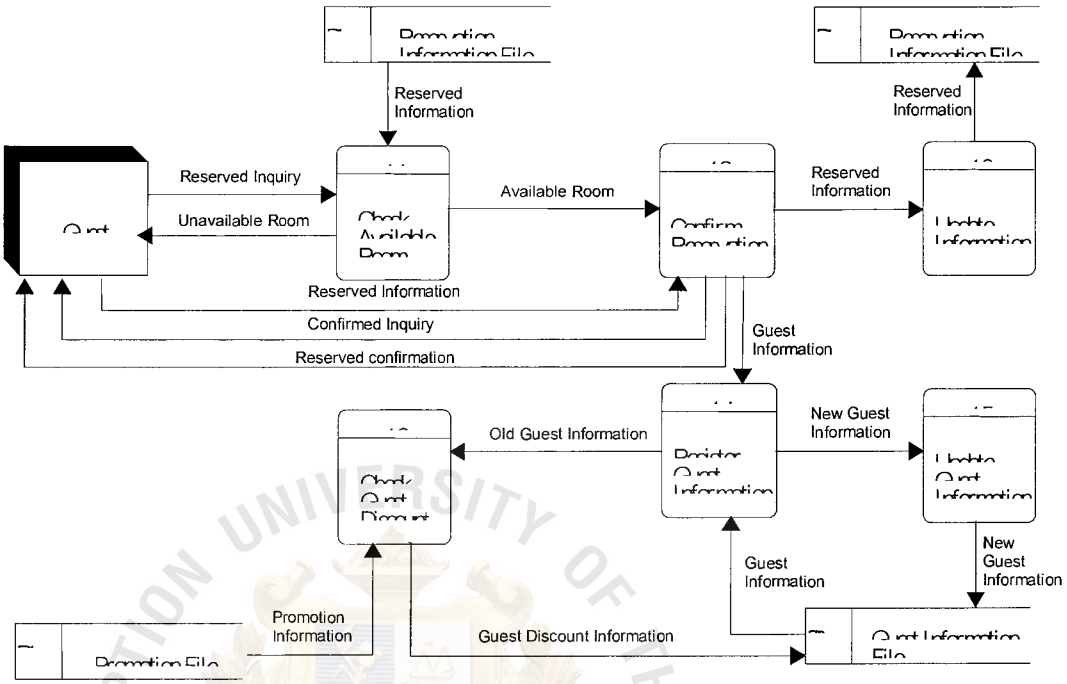

Figure B.2. The Level 1 Data Flow Diagram of Reservation Room Process for the Resort Reservation System.

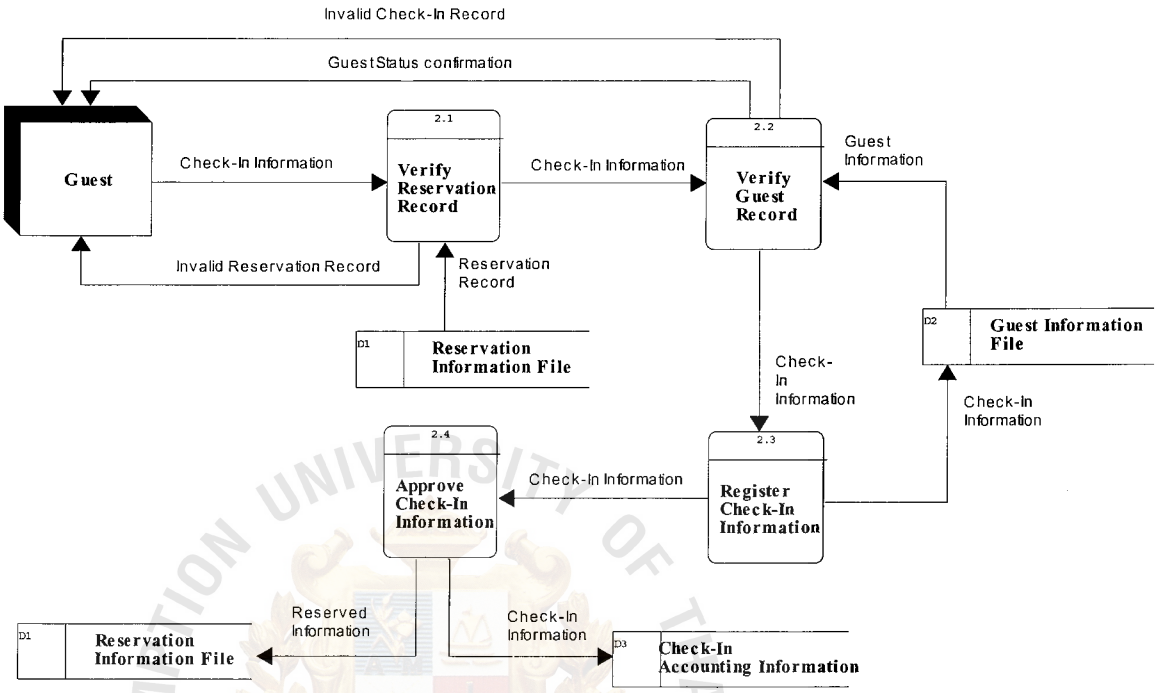

Figure B.3. The Level 1 Data Flow Diagram of Checking In Room Process for the Resort Reservation System.

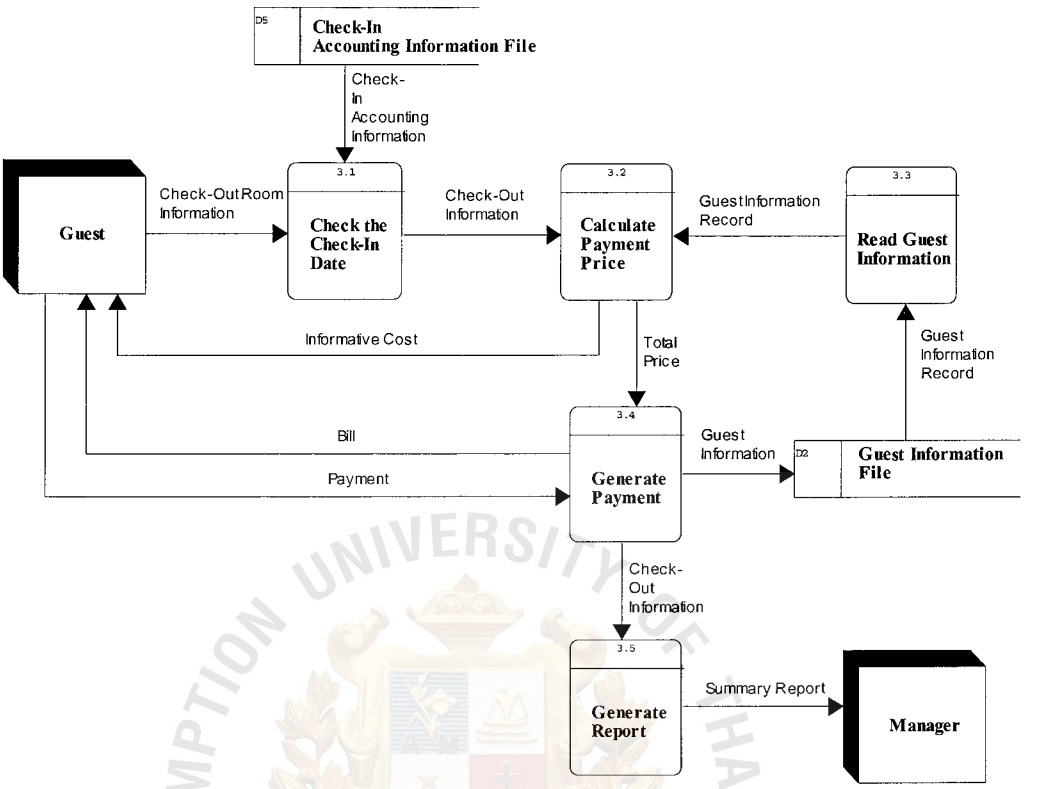

Figure B.4. The Level 1 Data Flow Diagram of Checking Out Room Process for the Resort Reservation System.

APPENDIX C

THE ENTITY RELATIONSHIP DIAGRAM

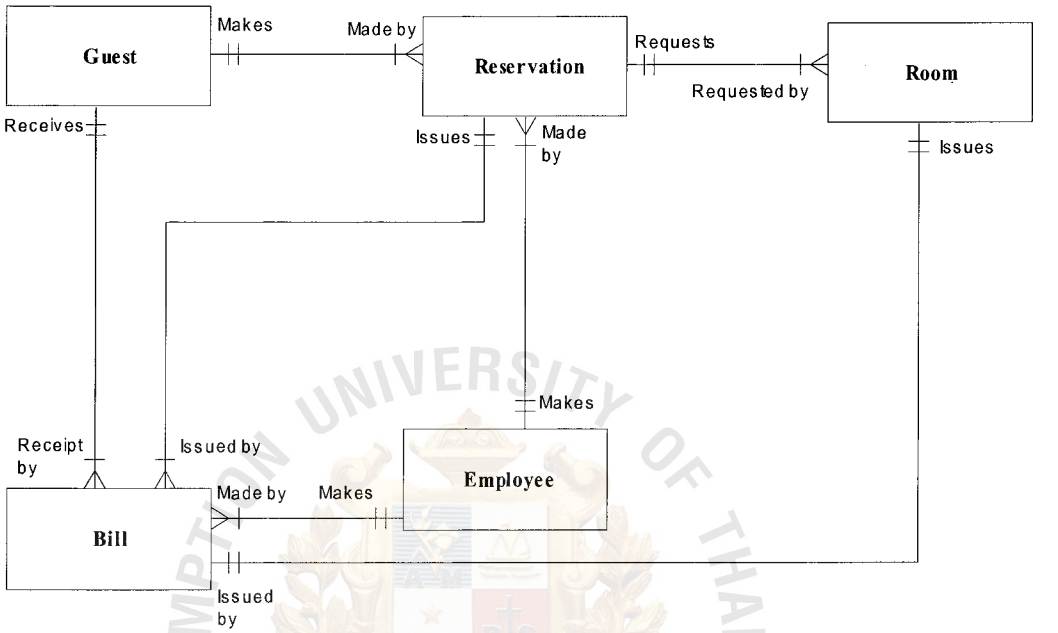

Figure C.1. The Entity Relationship Diagram for the Resort Reservation System.

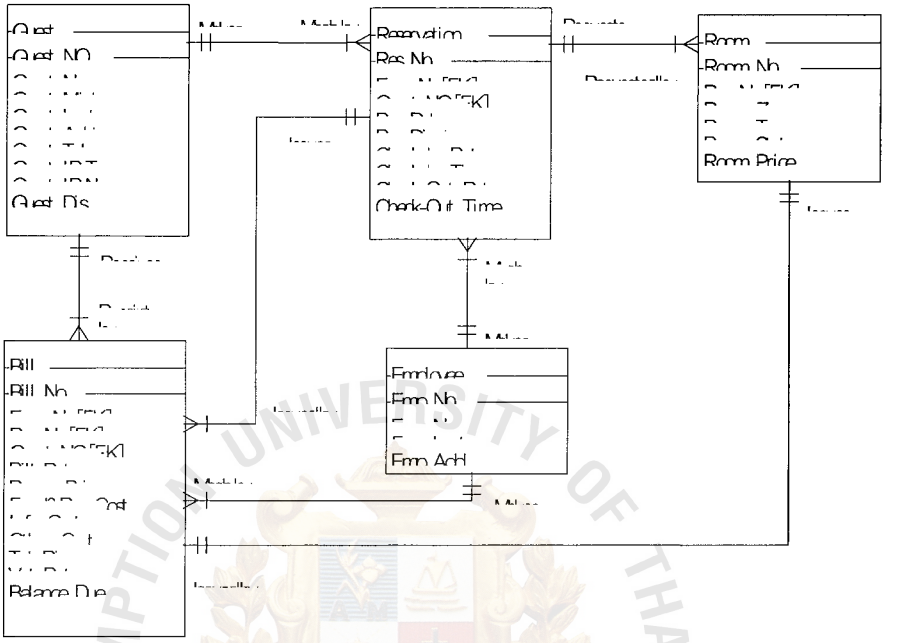

Figure C.2. The Entity Relationship Diagram Shows the Attribution for the Resort Reservation System.

APPENDIX D

THE DATABASE DESIGN SYSTEM

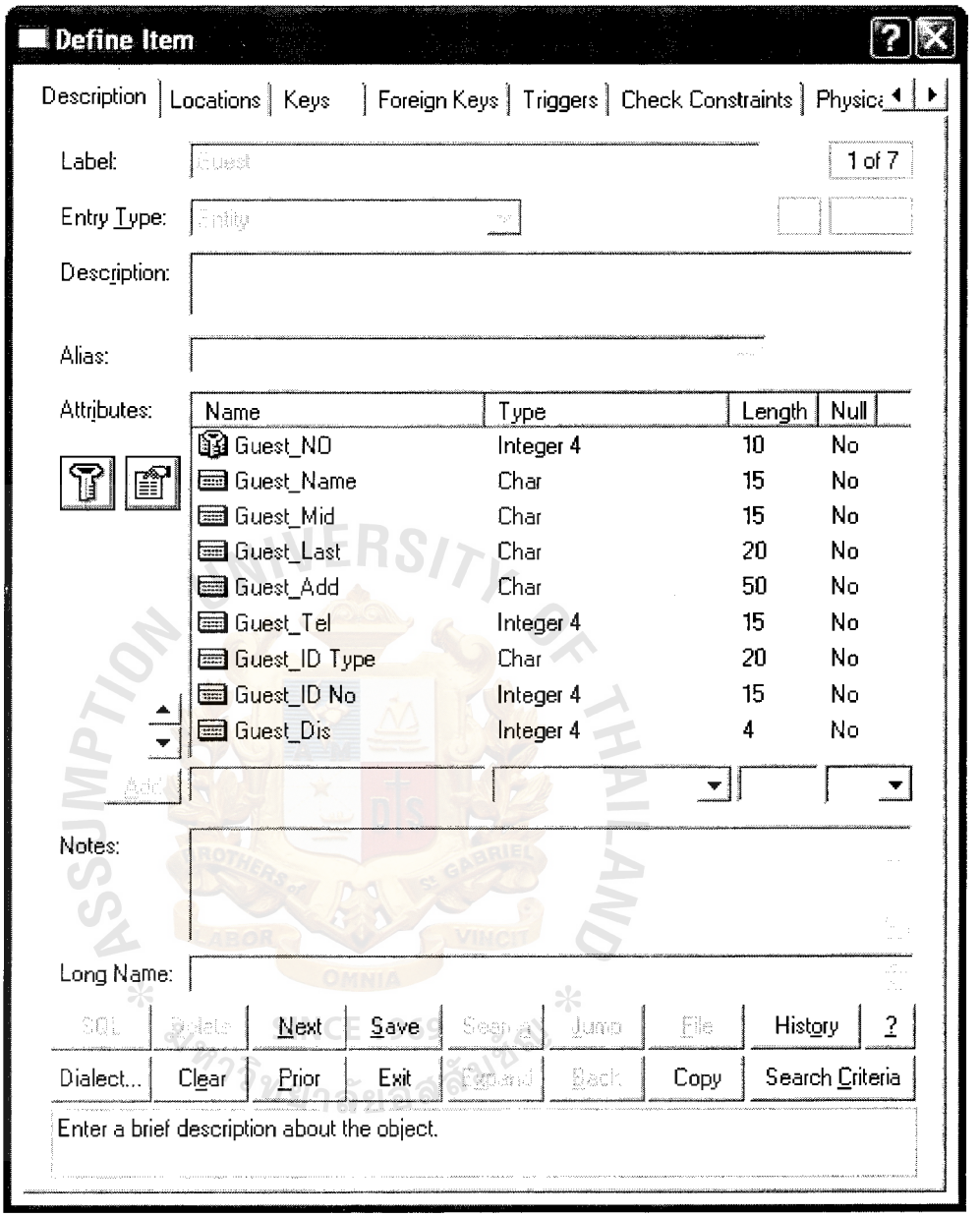

Figure D.1. The Database Design for the Resort Reservation System (Guest).

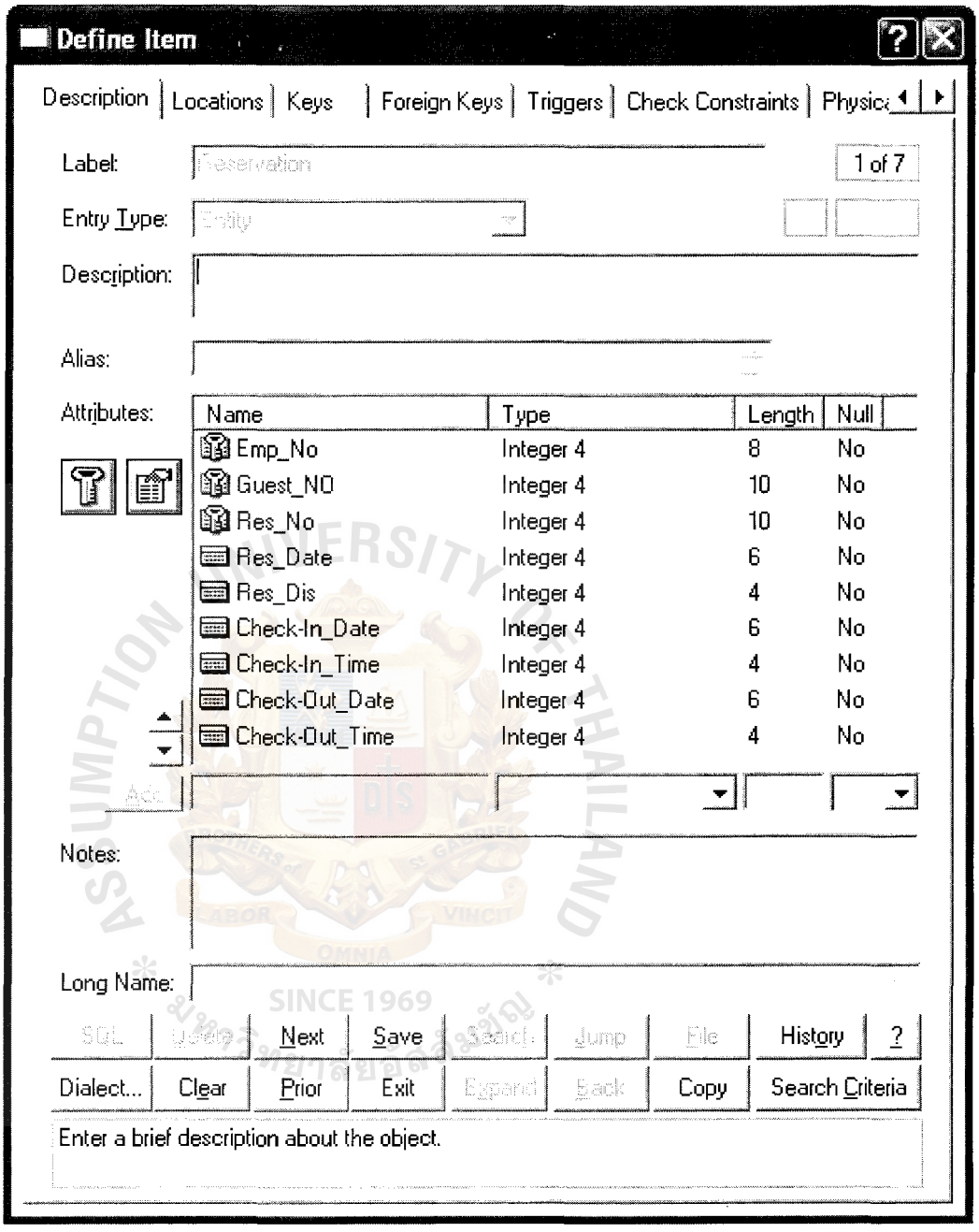

Figure D.2. The Database Design for the Resort Reservation System (Reservation).

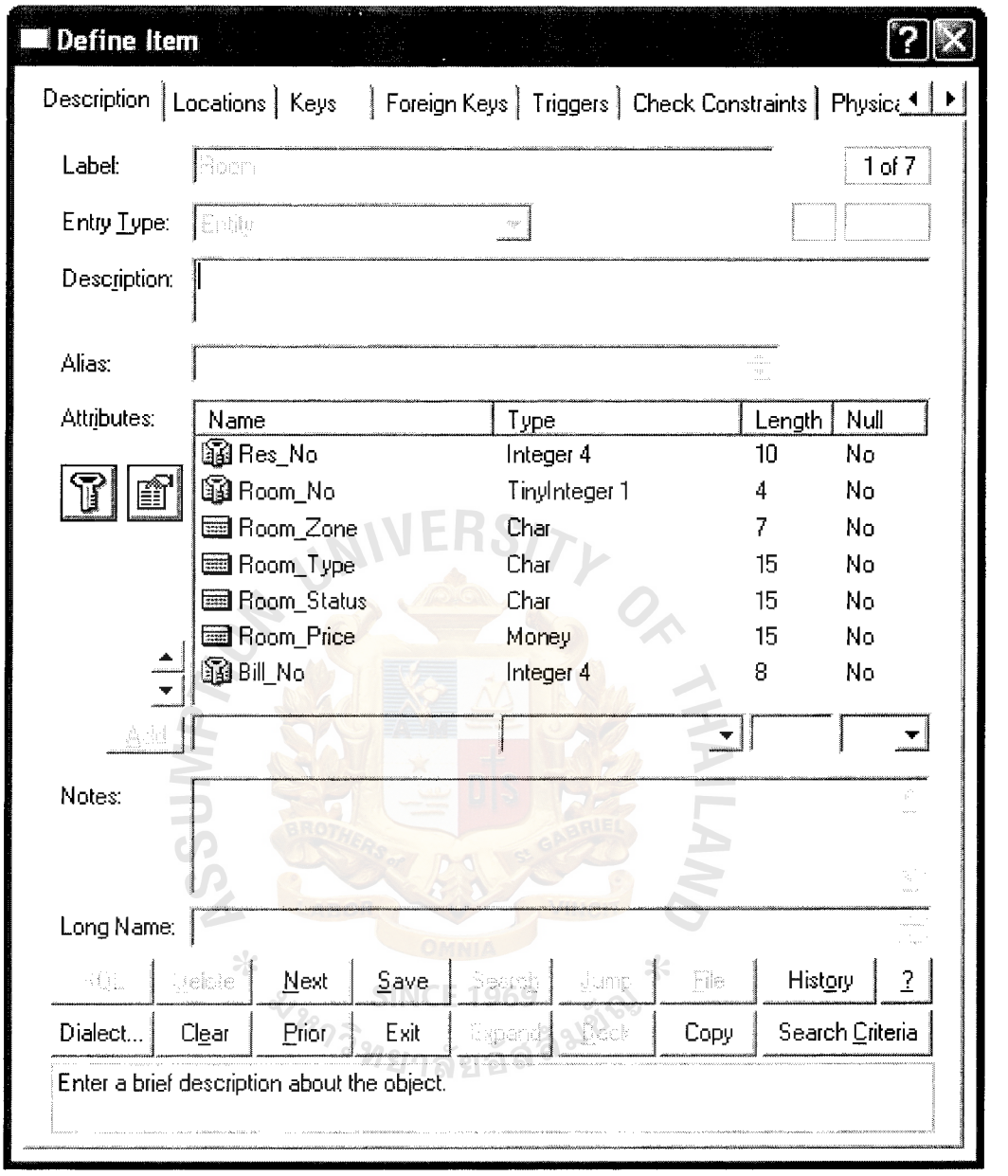

Figure D.3. The Database Design for the Resort Reservation System (Room).

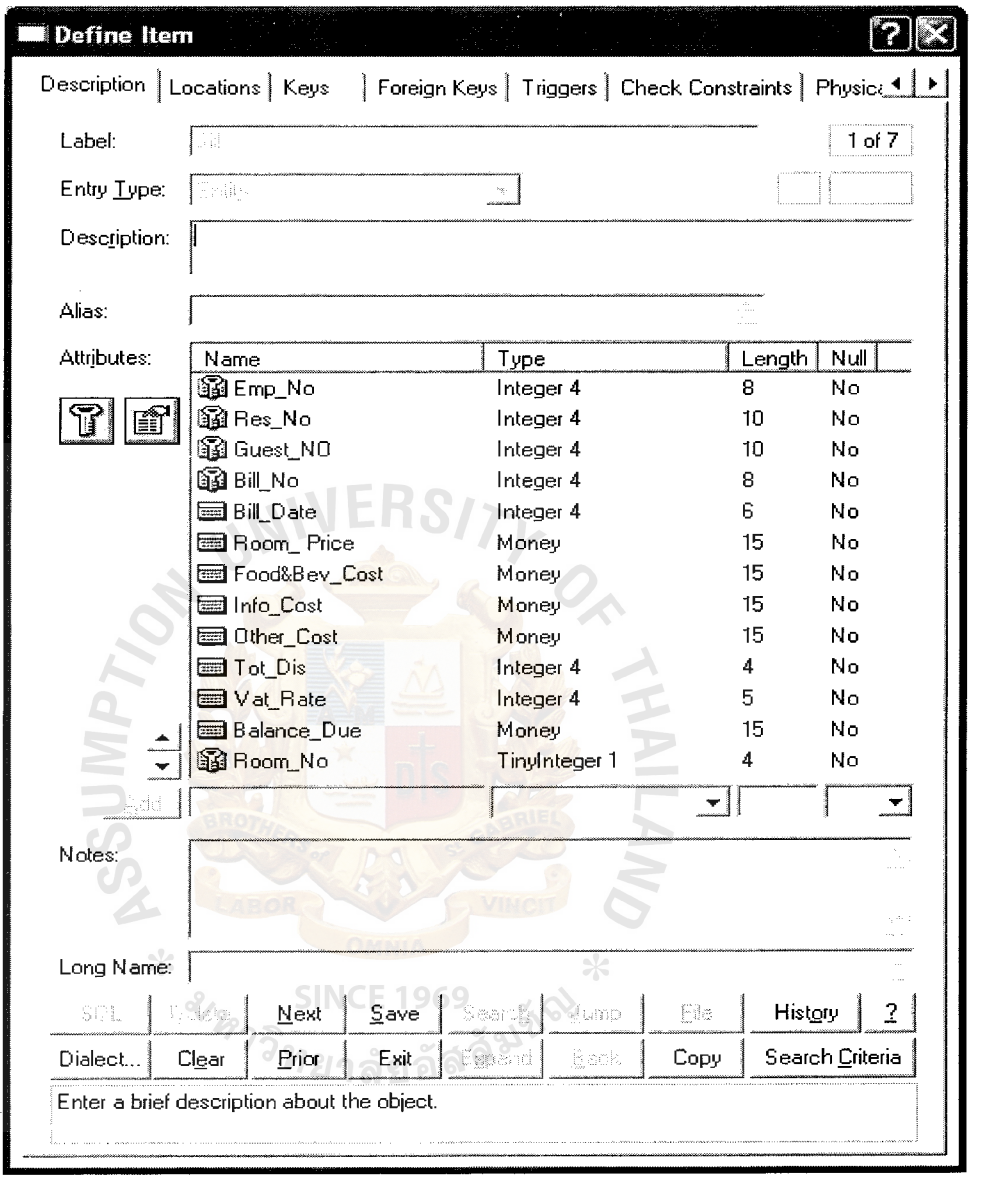

Figure D.4. The Database Design for the Resort Reservation System (Bill).

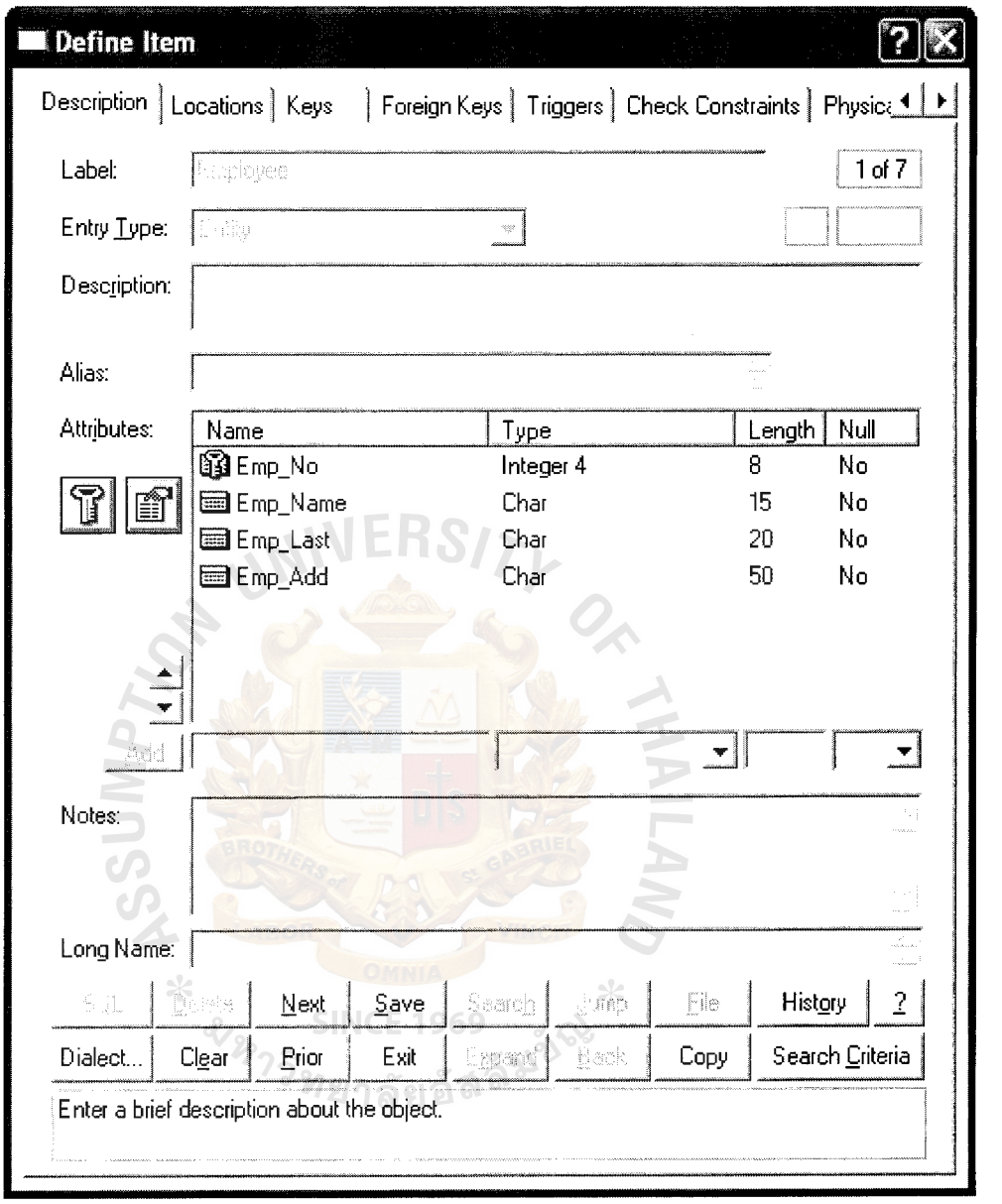

Figure D.5. The Database Design for the Resort Reservation System (Employee).

APPENDIX E

THE DATA DICTIONARY

Table E.1. The Data Dictionary of the Resort Reservation System.

Description	Stand For
Guest_No	A number to identify of a guest
Guest_Name	A guest's name
Guest_Mid	A guest's middlename
Guest_Last	A guest's lastname
Guest_Add	A guest's address
Guest_Tel	A guest's telephone number
Guest_ID Type	A guest's type of identification cards ("ID card/Passport")
Guest_ID No	A guest's identification card number
Guest_Dis	Percentage discount for a gucst
Res_No	A number to identify of a reservation
Res_Date	A date that rooms are reservation for
Res_Dis	Percentage discount for a reservation
Check-In_Date	The first date that room is checked in
Check-In_Time	Time is checked in
Check-Out_Date	The last date that room is checked out
Check-Out_Time	Time is checked out
Room_No	The number of room in the resort

Table E.1. The Data Dictionary of the Resort Reservation System. (Continued)

Description	Stand For
Room_Type	The type of room in the resort
Room_Zone	The zone of room in the resort
Room_Status	The current status of a room
Room_Price	The price of a room
Bill_No	A number of bill for payment
Bill_Date	Date of bill for payment
Food&Bev_Cost	Cost of food and beverage
Info_Cost	Cost of Information (Telephone, Fax, etc.)
Other_Cost	The other cost
Tot_Discount	The total amount of discount for a guest
Vat_Rate	Rate of the value added Tax
Balance_Due	An earnest of money before giving the total amount of money billed to guest.
Emp_No	A number to identify of an employee
Emp_Name	An employee's name
Emp_Last	An employee's lastname
Emp_Add	An employee's address

APPENDIX F

THE PROCESS SPECIFICATION

Table F.1. The Process Specification of Process 1.0.

Item	Description
Process Name	Reserve Room
Data In	1) Reserved Inquiry 2) Reserved Information 3) Reservation Record (D1)
Data Out	1) Confirmed Inquiry 2) Unavailable Room 3) Confirmed Reservation 4) Reservation Information (D2)
Process	1) Check Available Room 2) Confirm Reservation 3) Update Information 4) Register Guest Information 5) Update Guest Information 6) Check Guest Discount
Attachment	Data store (D2)

Description: Guest inquire for the room by fax, telephone or walk-in. The staff verify the room by sixes operating processes.

(1) Check Available room

(2) Confirm Reservation

(3) Update Information

(4) Register Guest Information

(5) Update Guest Information

(6) Check Guest Discount

Table F.2. The Process Specification of Process 2.0.

Item	Description
Process Name	Check-In Room
Data In	1) Check-In Information 2) Reservation Record (D1)
Data Out	1) Invalid Reservation Record 2) Invalid Check-In Record 3) Confirmed Guest Status 4) Check-In Information (D2)
Process	1) Verify Reservation Record 2) Verify Guest Record 3) Register Check-In Information 4) Approve Check-In Information
Attachment	Data Store (D2)

Description: Guest come to check-in the room. If information validate, staff accept quest request and key in quest information, give room no. for guest. The process of check-in consists of four operating processes.

(1) Verify Reservation Record

(2) Verify Guest Record

(3) Register Check-In Information

(4) Approve Check-In Information

Table F.3. The Process Specification of Process 3.0.

Item	Description
Process Name	Check-Out Room
Data In	1) Check-Out Room Information 2) Check-In Accounting Information (D3) 3) Payment
Data Out	1) Informative Cost 2) Bill 3) Summary Report
Process	1) Check the Check-In Date 2) Calculate Payment 3) Read Guest Information 4) Generate Payment 5) Generate Report
Attachment	Almost data were exchanged with Guest, Which excepted data out 3, exchanged with Manager.

Description: Guest come to check-out the room. Then, staff will check information date from the record and calculate payment in order to inform guest that " how much he has to pay". After that the guest will get the bill form staff. All information will be recorded at guest information file and then all of them will be generate many reports and send the summary report to the manager. The process of check-out consist of five operating processes.

(1) Check the Check-In Date

(2) Calculate Payment

(3) Read Guest Information

(4) Generate Payment

(5) Generate Report

Table F.4. The Process Specification of Process 1.1.

Item	Description
Process Name	Check Available Room
Data In	1) Reserved Inquiry 2) Reserved Information (D1)
Data Out	1) Unavailable Room 2) Available Room

Table F.5. The Process Specification of Process 1.2.

Item	Description
Process Name	Confirm Reservation
Data In	1) Available Room 2) Reserved Information
Data Out	1) Confirmed Inquiry 2) Reserved Confirmation 3) Reserved Information 4) Guest Information
Attachment	-

Table F.6. The Process Specification of Process 1.3.

Item	Description
Process Name	Update Information
Data In	1) Reserved Information
Data Out	1) Reservation Information (D1)
Attachment	Data store (D1)

Table F.7. The Process Specification of Process 1.4.

Item	Description
Process Name	Register Guest Information
Data In	1) Guest Information 2) Guest Information (D2)
Data Out	1) Old Guest Information 2) New Guest Information
Attachment	-

Table F.8. The Process Specification of Process 1.5.

Item	Description
Process Name	Update Guest Information
Data In	1) New Guest Information
Data Out	1) New Guest Information (D2)
Attachment	Data Store (D2)

Table F.9. The Process Specification of Process 1.6.

Item	Description
Process Name	Check Guest Discount
Data In	1) Old Guest Information 2) Promotion Information (D4)
Data Out	1) Guest Discount Information (D2)
Attachment	Data Store (D2)

Table F.10. The Process Specification of Process 2.1.

Item	Description
Process Name	Verify Reservation Record
Data In	1) Check-In Information 2) Reservation Record (D1)
Data Out	1) Invalid Reservation Record 2) Check-In Information
Attachment	-

Table F.11. The Process Specification of Process 2.2.

Item	Description
Process Name	Verify Guest Record
Data In	1) Check-In Information 2) Guest Information (D2)
Data Out	1) Invalid Check-In Record 2) Guest Status Confirmation 3) Check-In Information
Attachment	-

Table F.12. The Process Specification of Process 2.3.

Item	Description
Process Name	Register Check-In Information
Data In	1) Check-In Information
Data Out	1) Check-In Information 2) Check-In Information (D2)
Attachment	Data Store (D2)

Table F.13. The Process Specification of Process 2.4.

Item	Description
Process Name	Approve Check-In Information
Data In	1) Check-In Information
Data Out	1) Reserved Information 2) Check-In Information (D3)
Attachment	Data Store (D3)

Table F.14. The Process Specification of Process 3.1.

Item	Description
Process Name	Check the Check-In Date
Data In	1) Check-Out Room Information 2) Check-In Accounting Information
Data Out	1) Check-Out Information
Attachment	-

Table F.15. The Process Specification of Process 3.2.

Item	Description
Process Name	Calculate Payment
Data In	1) Check-Out Information 2) Guest Information Record
Data Out	1) Informative Cost 2) Total Price
Attachment	-

Table F.16. The Process Specification of Process 3.3.

Item	Description
Process Name	Read Guest Information
Data In	1) Guest Information Record (D2)
Data Out	1) Guest Information Record
Attachment	-

Table F.17. The Process Specification of Process 3.4.

Item	Description
Process Name	Generate Payment
Data In	1) Total Price 2) Payment
Data Out	1) Bill 2) Guest Information (D2) 3) Check-Out Information
Attachment	Data Store (D2)

Table F.18. The Process Specification of Process 3.5.

Item	Description
Process Name	Generate Report
Data In	1) Check-Out Information
Data Out	1) Summary Report
Attachment	The summary report will be sent to manager.

APPENDIX G

THE USER INTERFACE DESIGN

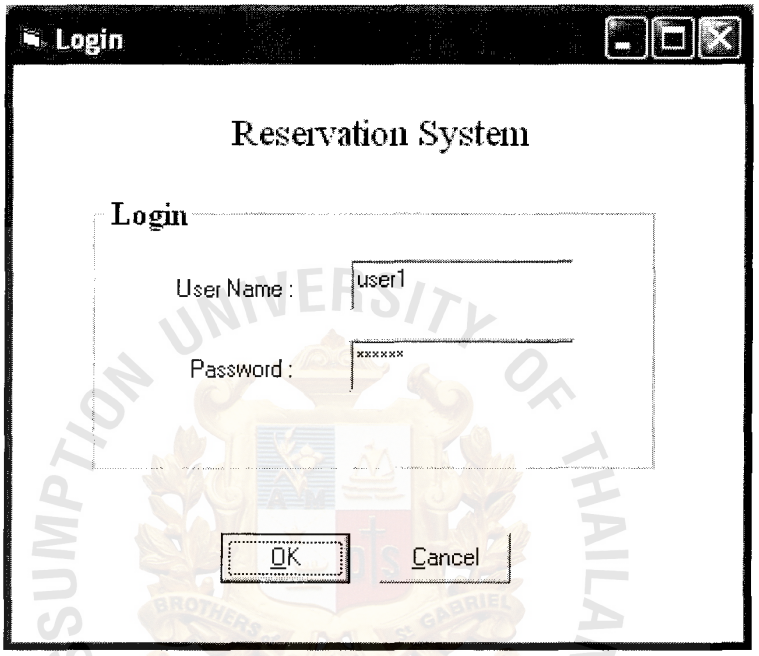

Figure G.1. The Login Screen for the Resort Reservation System.

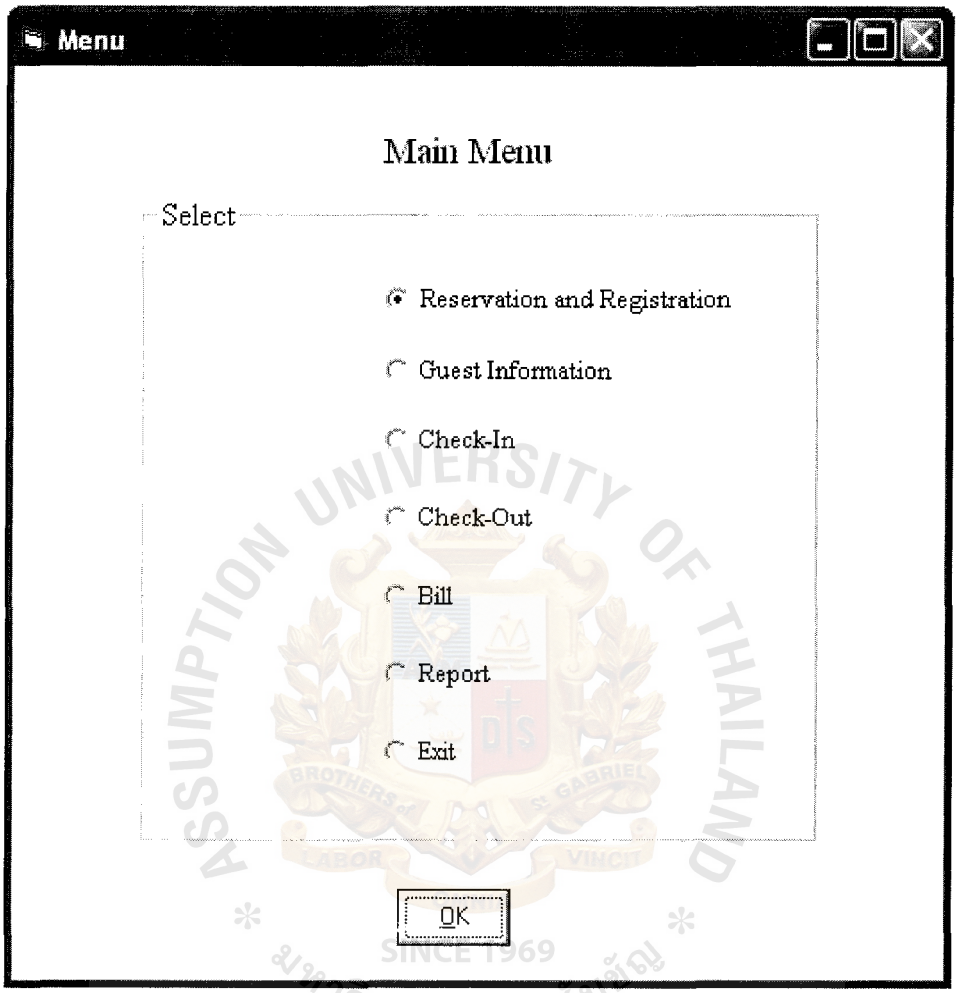

Figure G.2. The Main Menu for Selecting Reservation and Registration Screen.

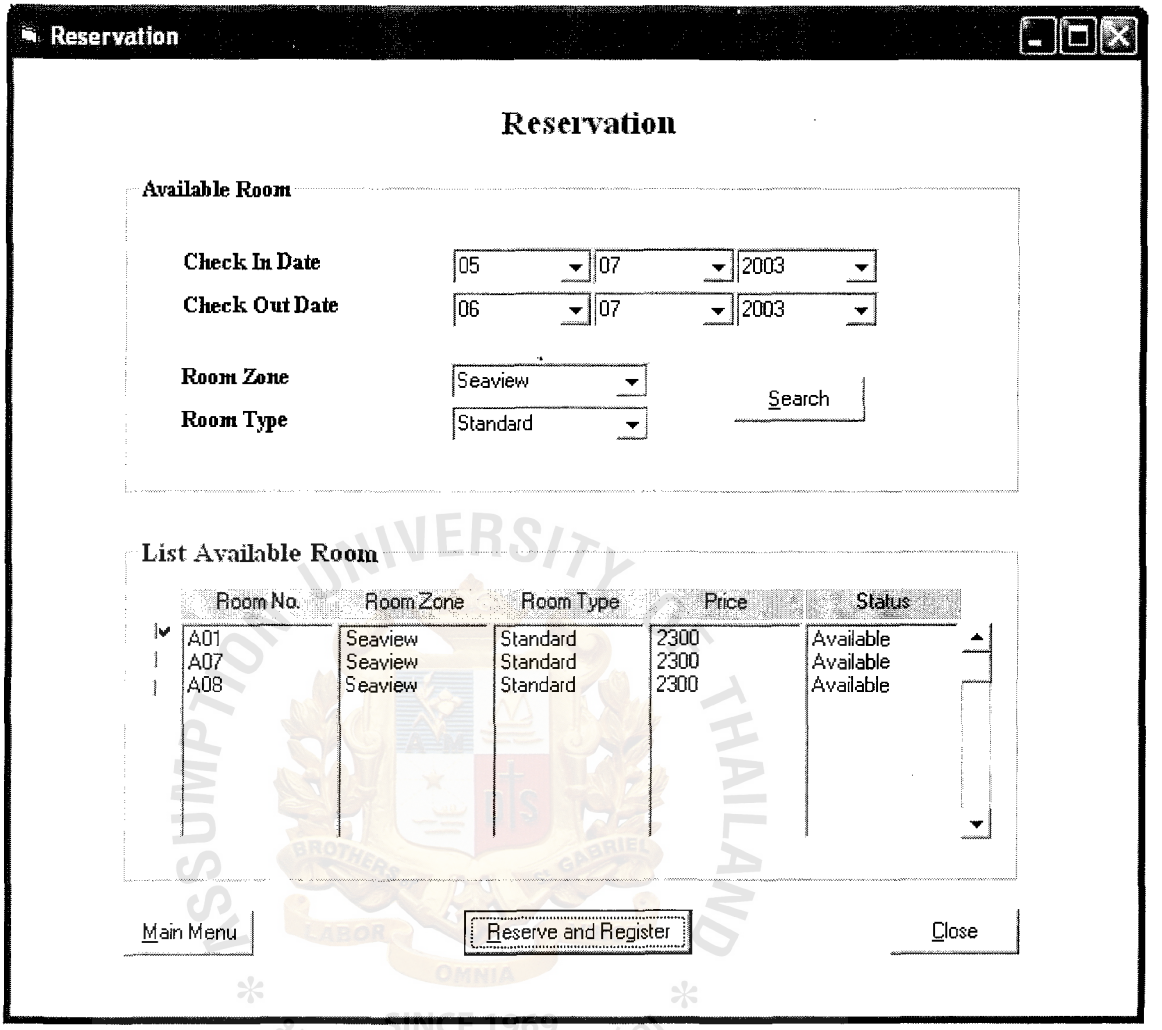

Figure G.3. Reservation and Checking Room Status Screen.

Figure G.4. The Registration Screen for a New Guest.

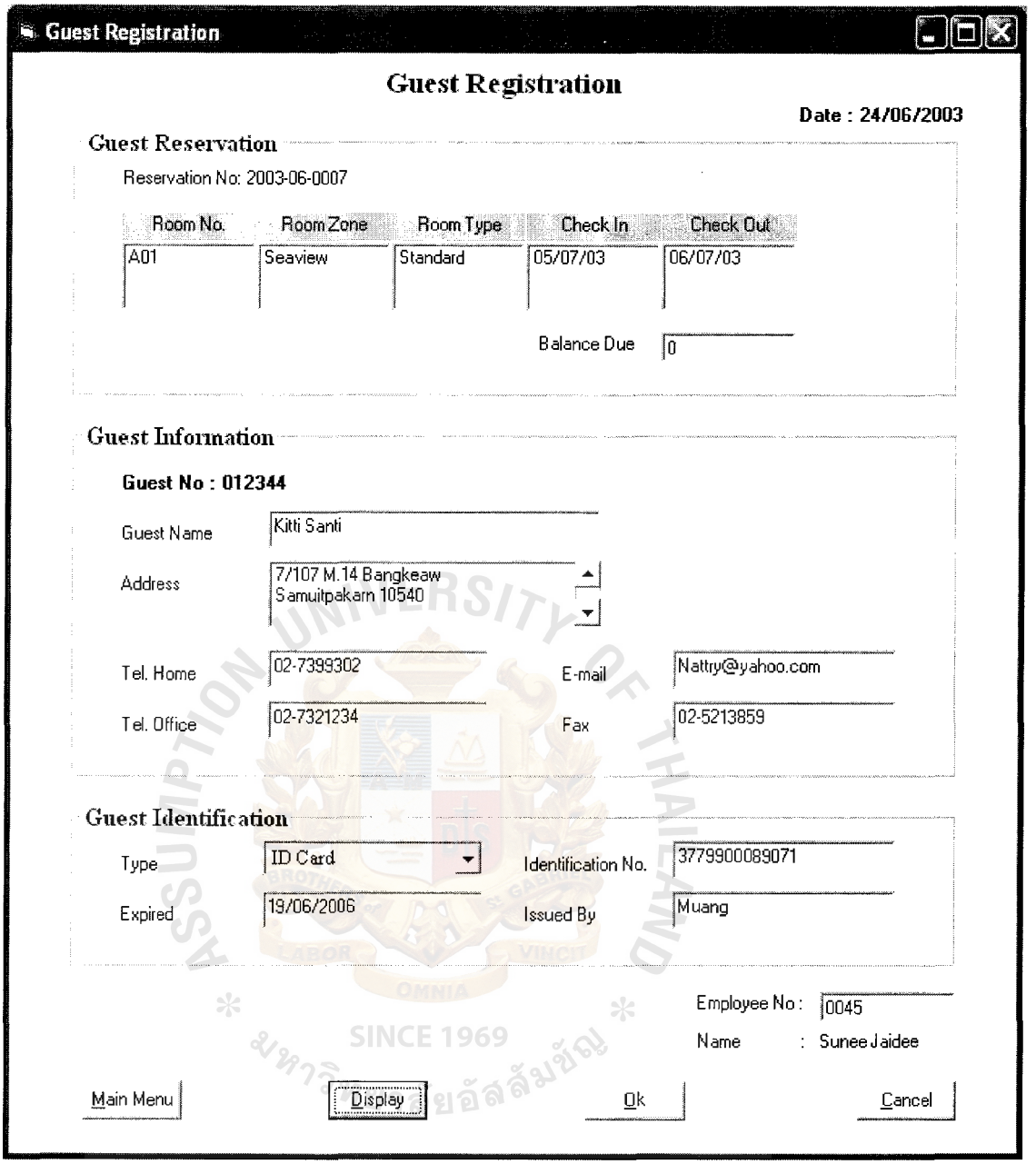

Figure G.5. The Input Guest Information Screen for Registration after Reserving the Room.

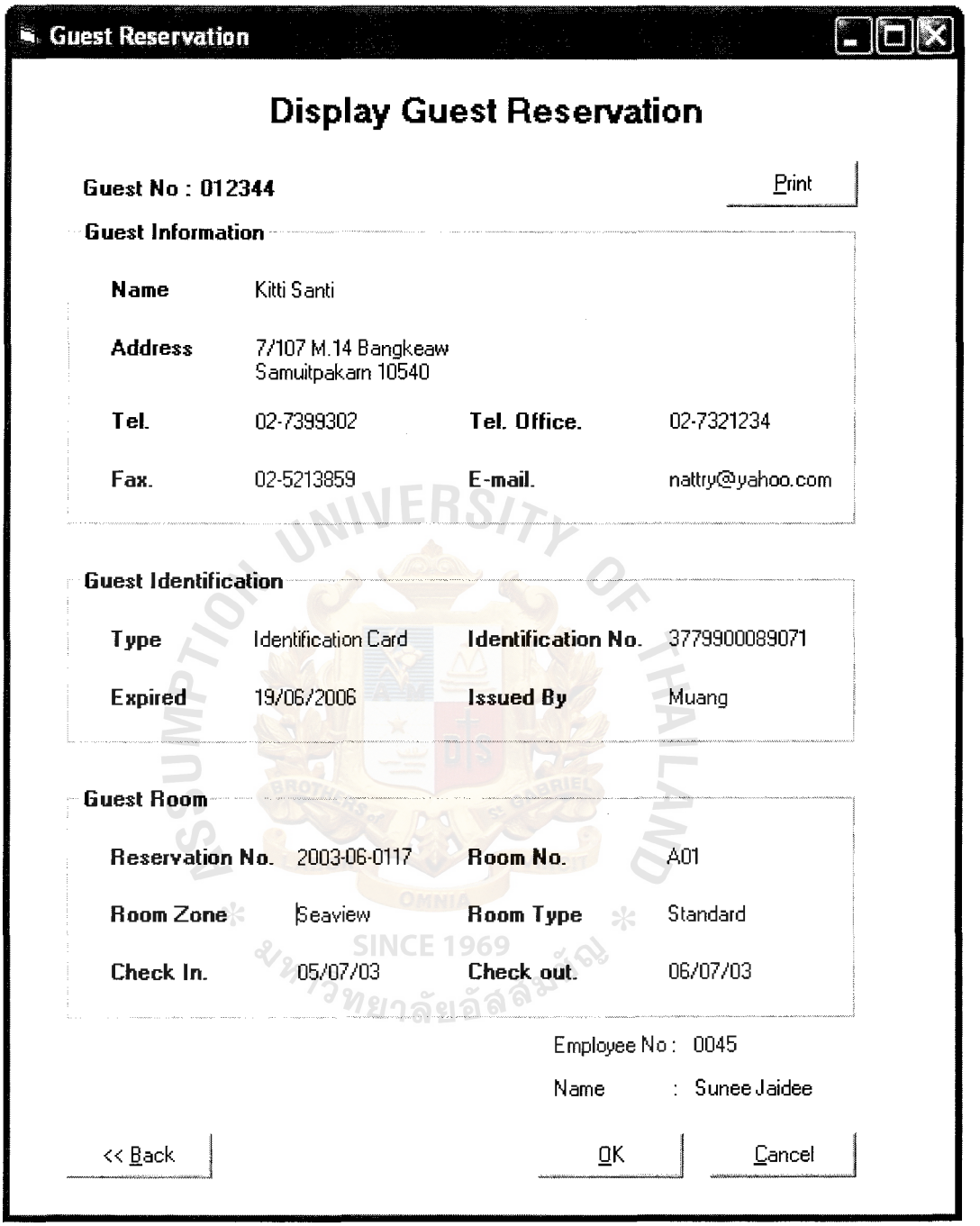

Figure G.6. The Output Guest Reservation Screen after Reserving the Room and Registration.

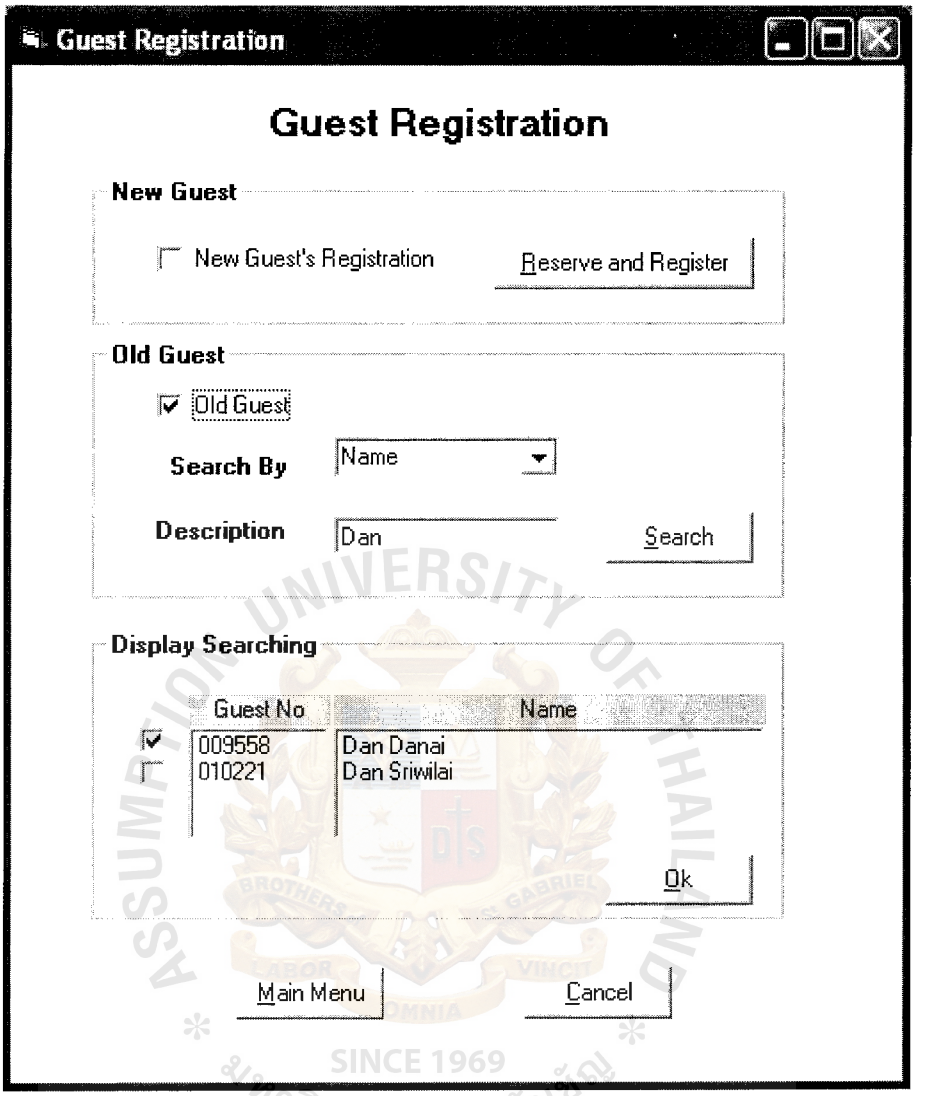

Figure G.7. The Registration Screen for the Old Guest.

Figure G.8. The Input Guest Information Screen for Registration before Reserving the Room.

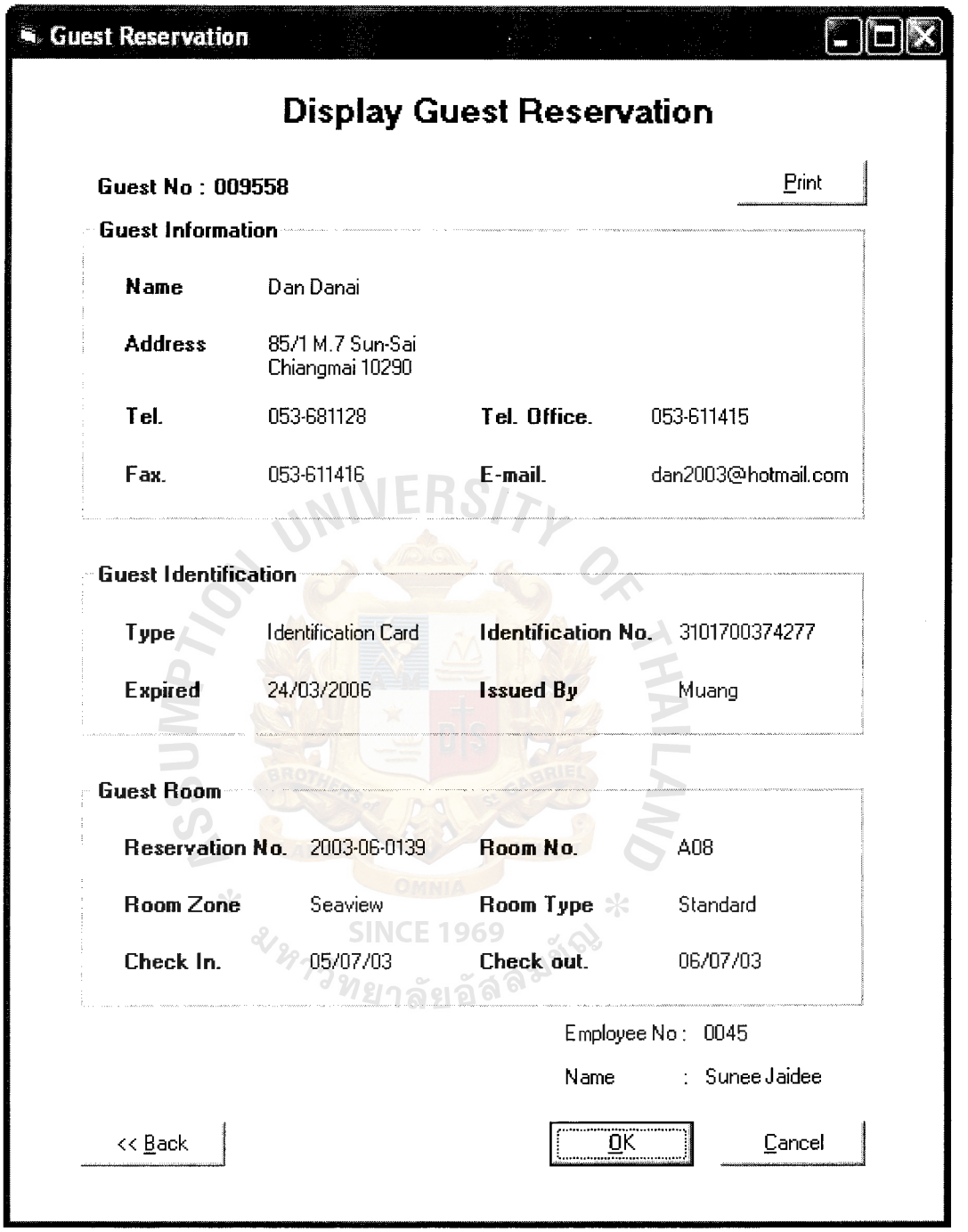

Figure G.9. The Output Guest Reservation Screen after Reserving the Room and Registration.

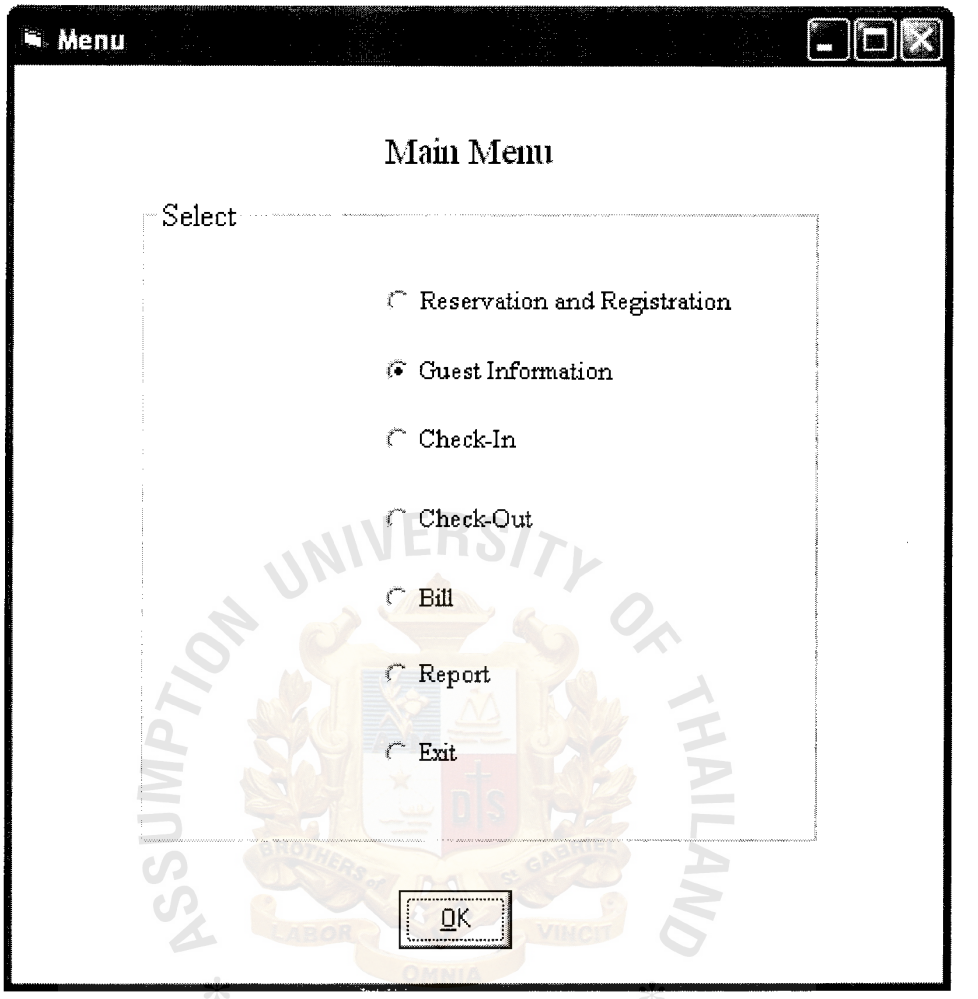

Figure G.10. The Main Menu for Selecting Guest Information Screen.

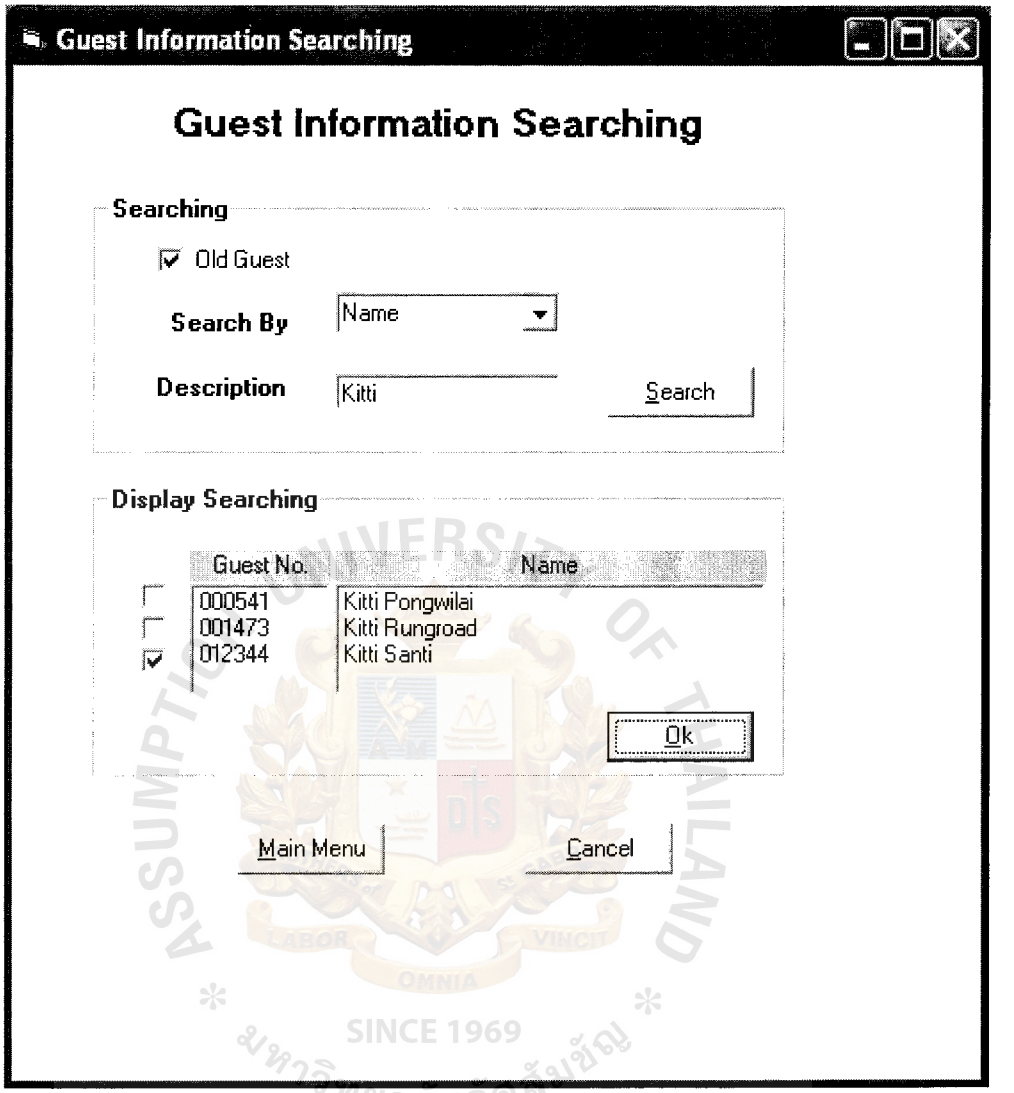

Figure G.11. The Guest Information Searching Screen for the Old Guest.

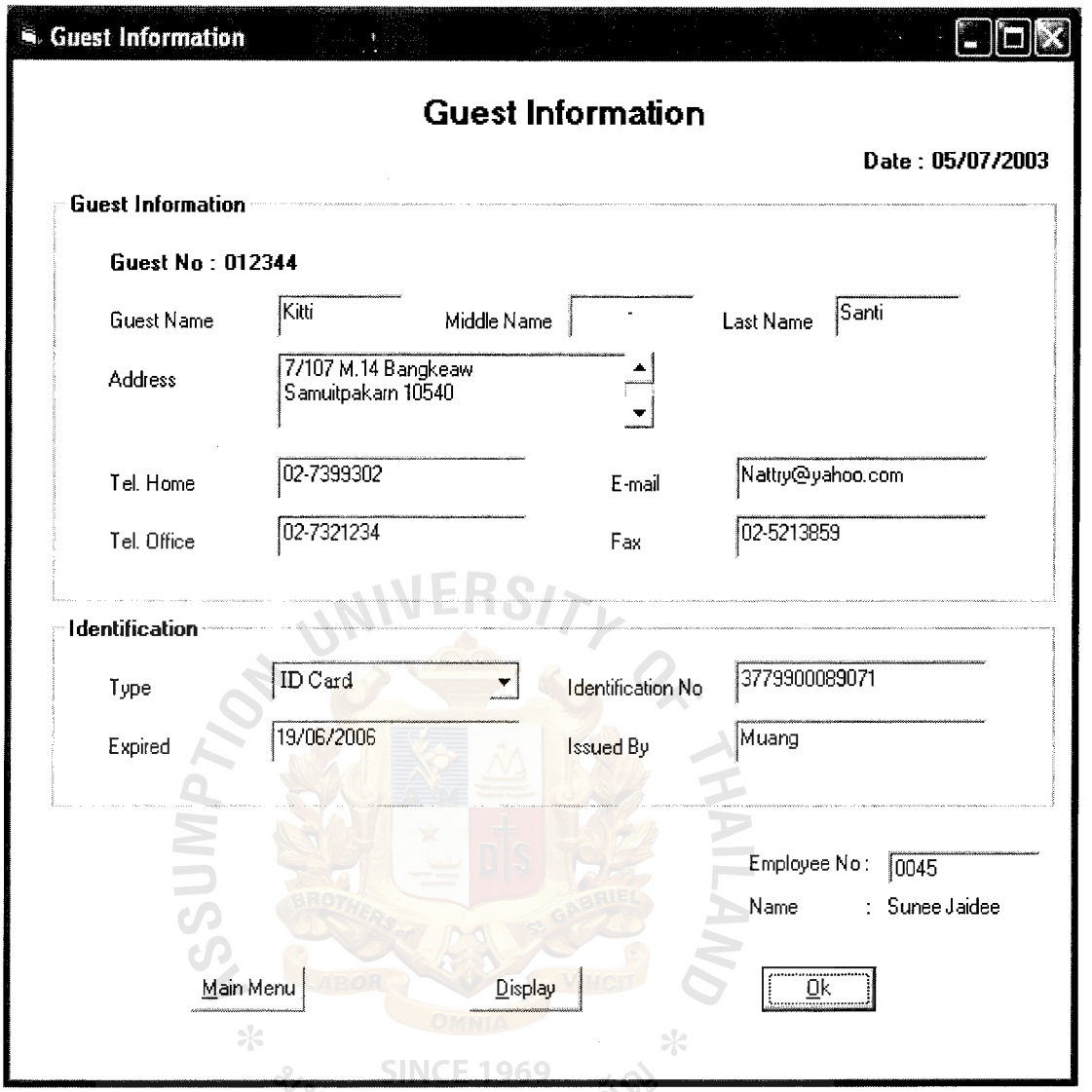

Figure G.12. The Input Guest Information Screen for Registration or Edit Guest Information.

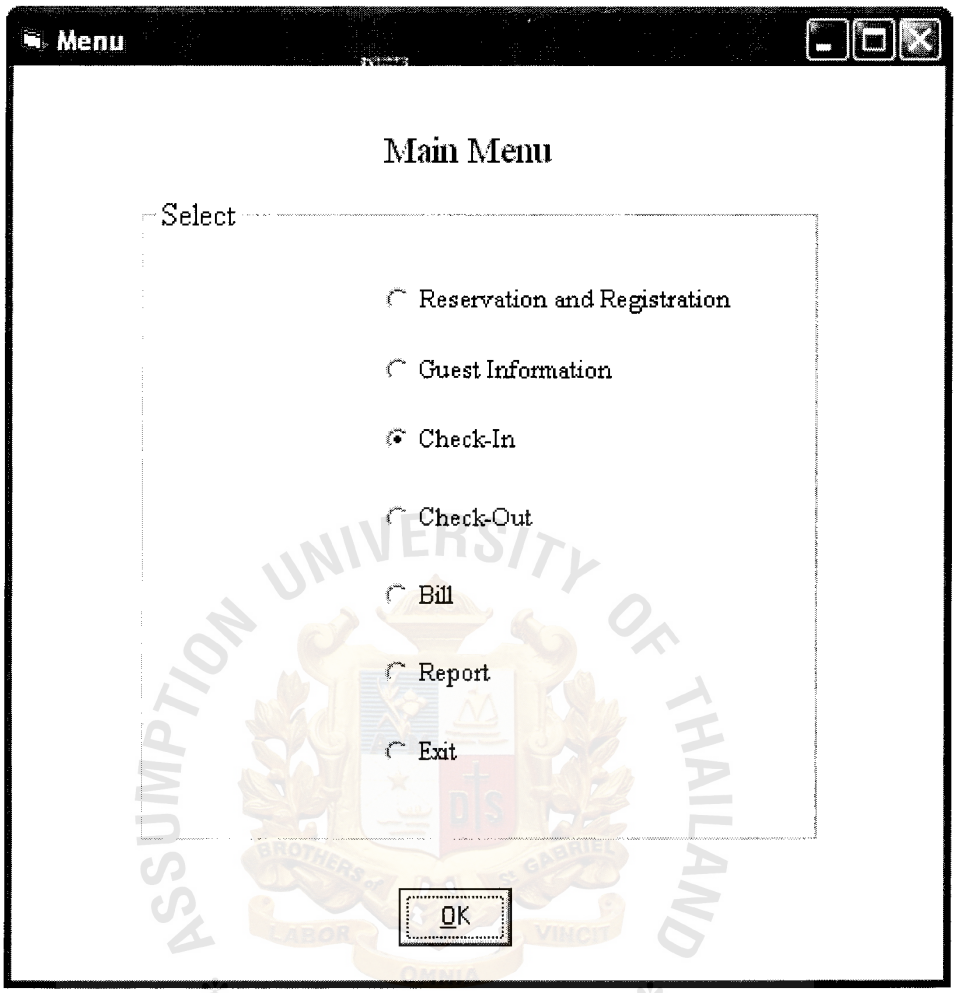

Figure G.13. The Main Menu for the Check In Screen.

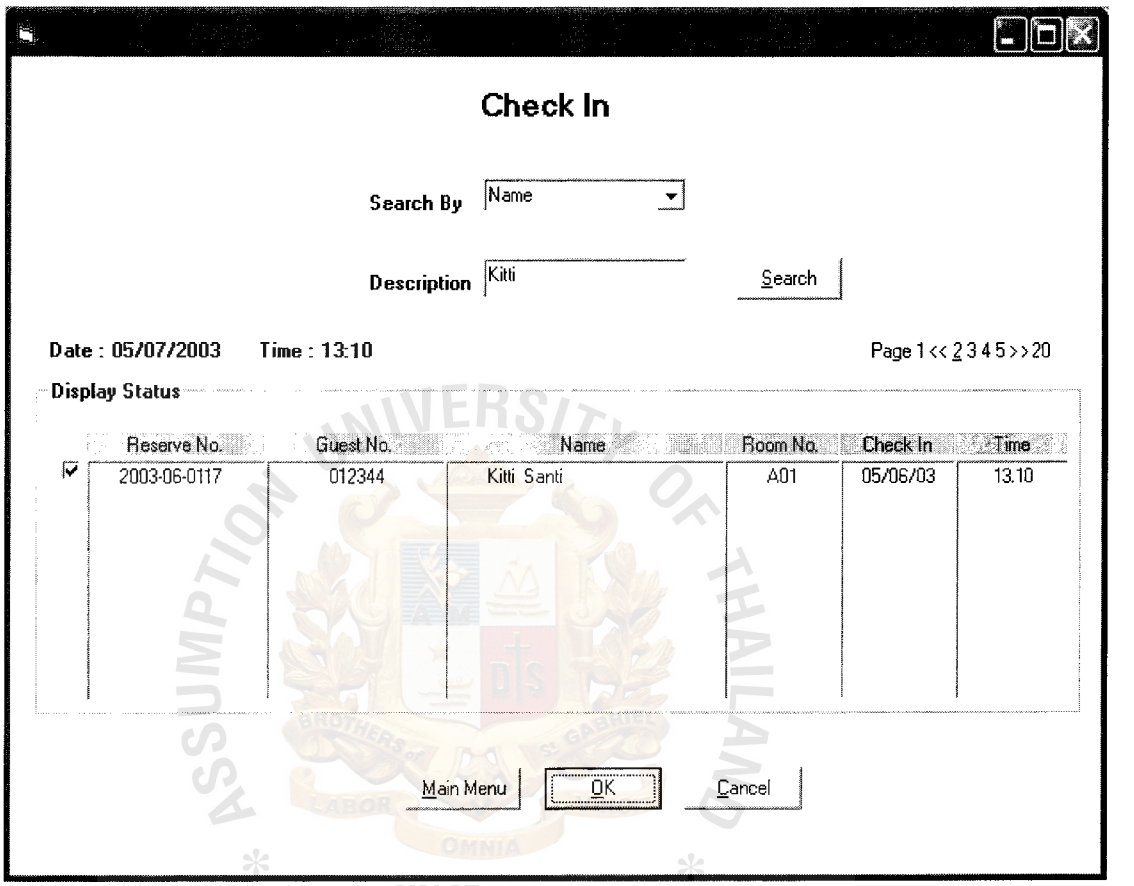

Figure G.14. The Check In Searching and Display the Status Room.

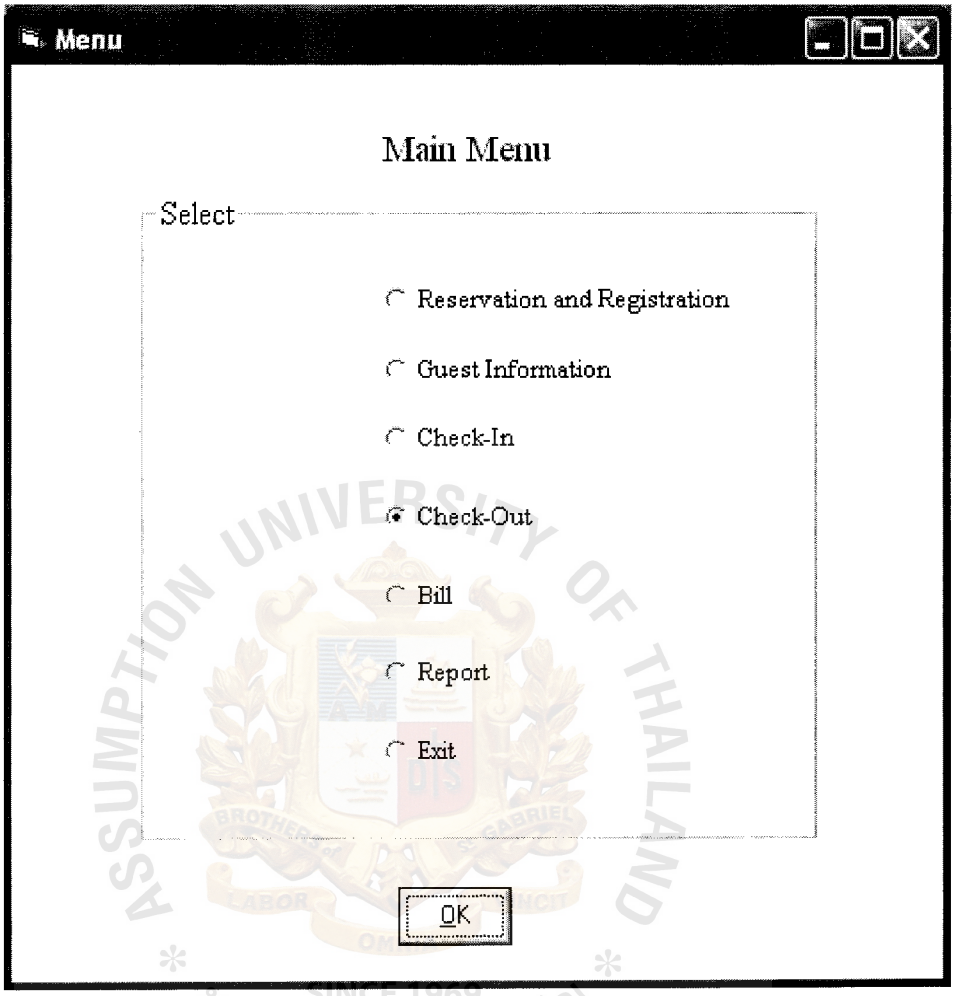

Figure G.15. The Main Menu for Selecting the Check Out Screen.

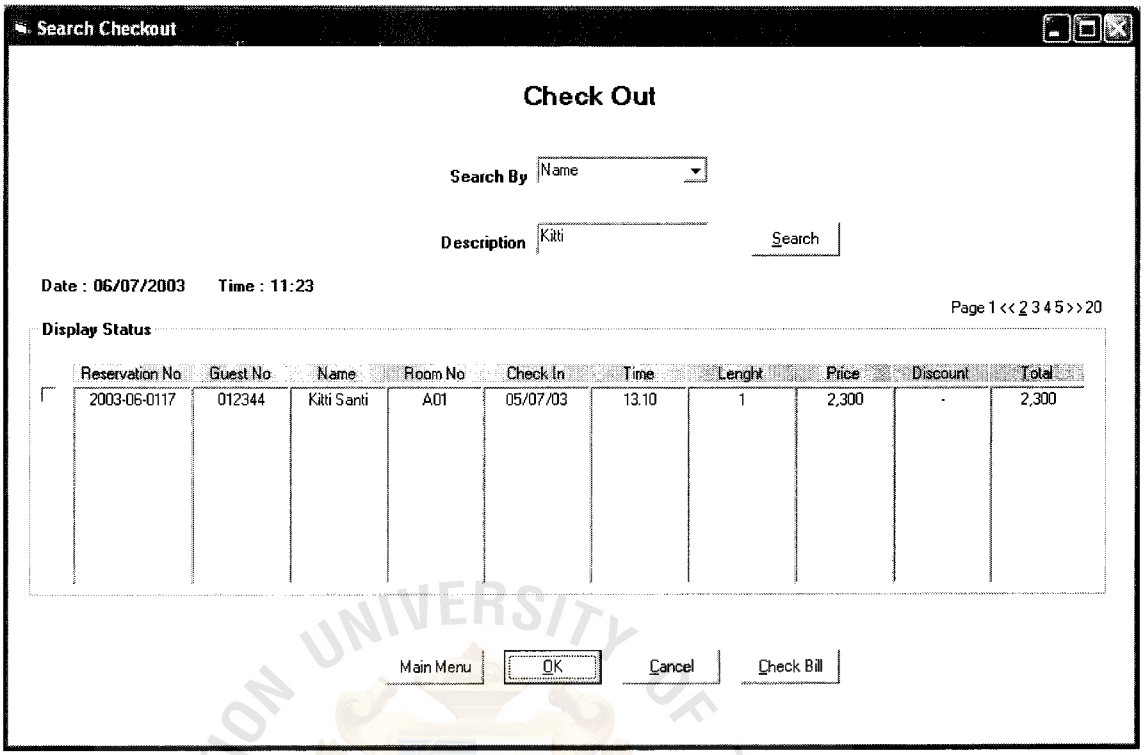

Figure G.16. The Check Out Searching and Display the Status Room.

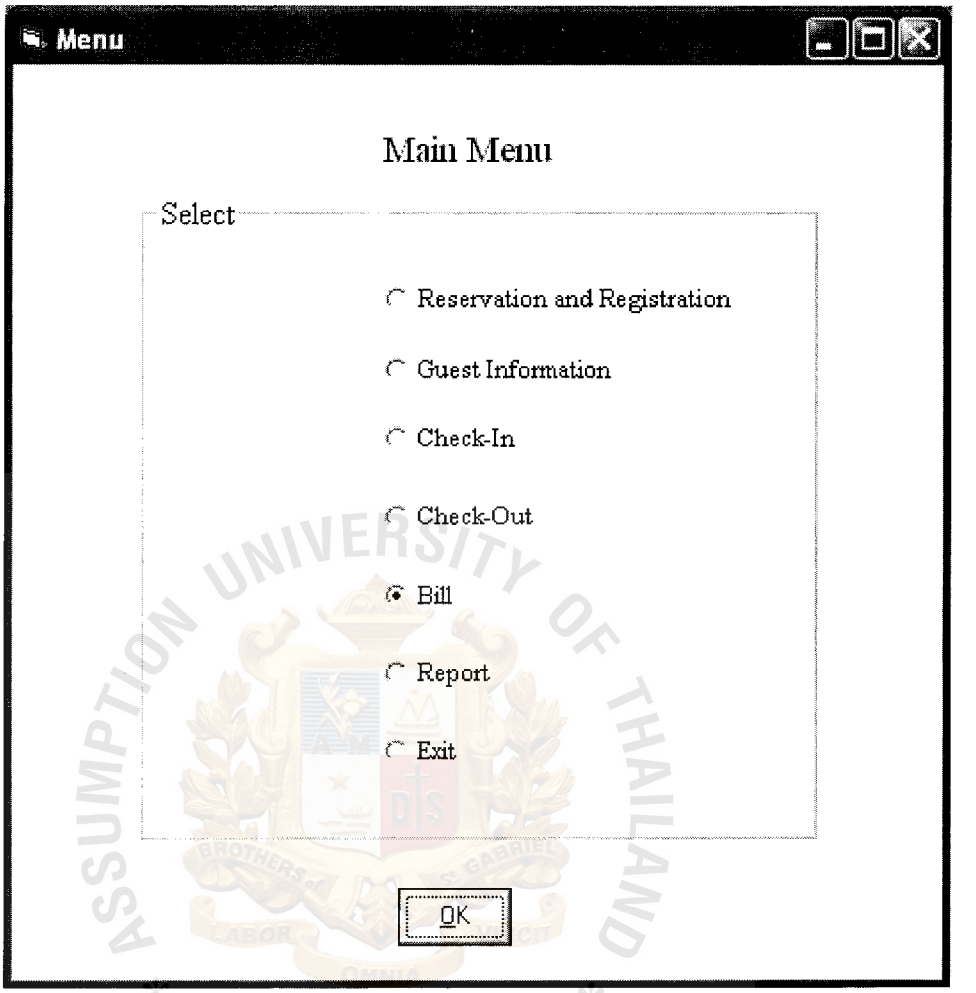

Figure G.17. The Main Menu for Selecting the Bill Screen.

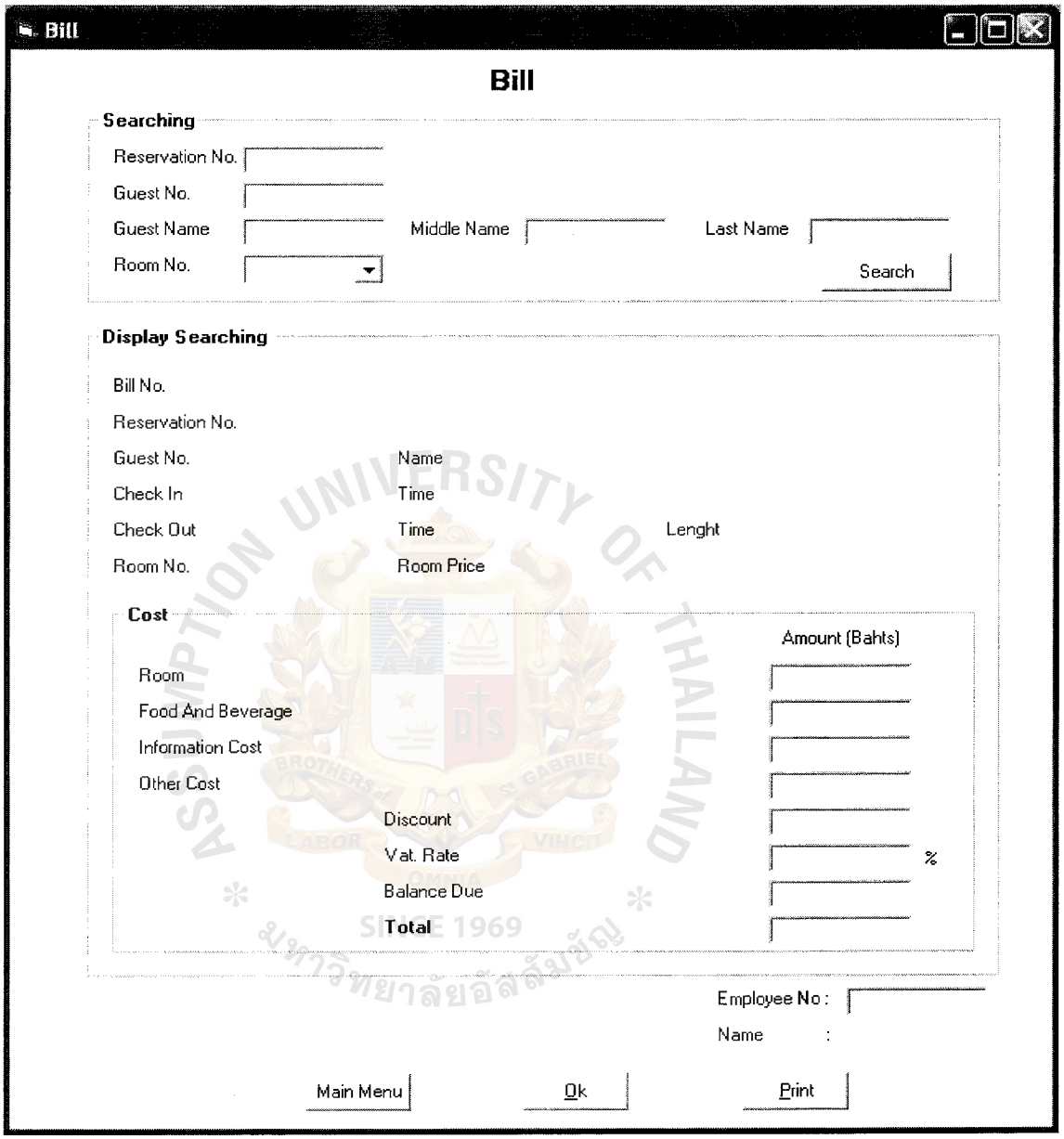

Figure G.18. The Payment Searching and Display for Bill Screen.

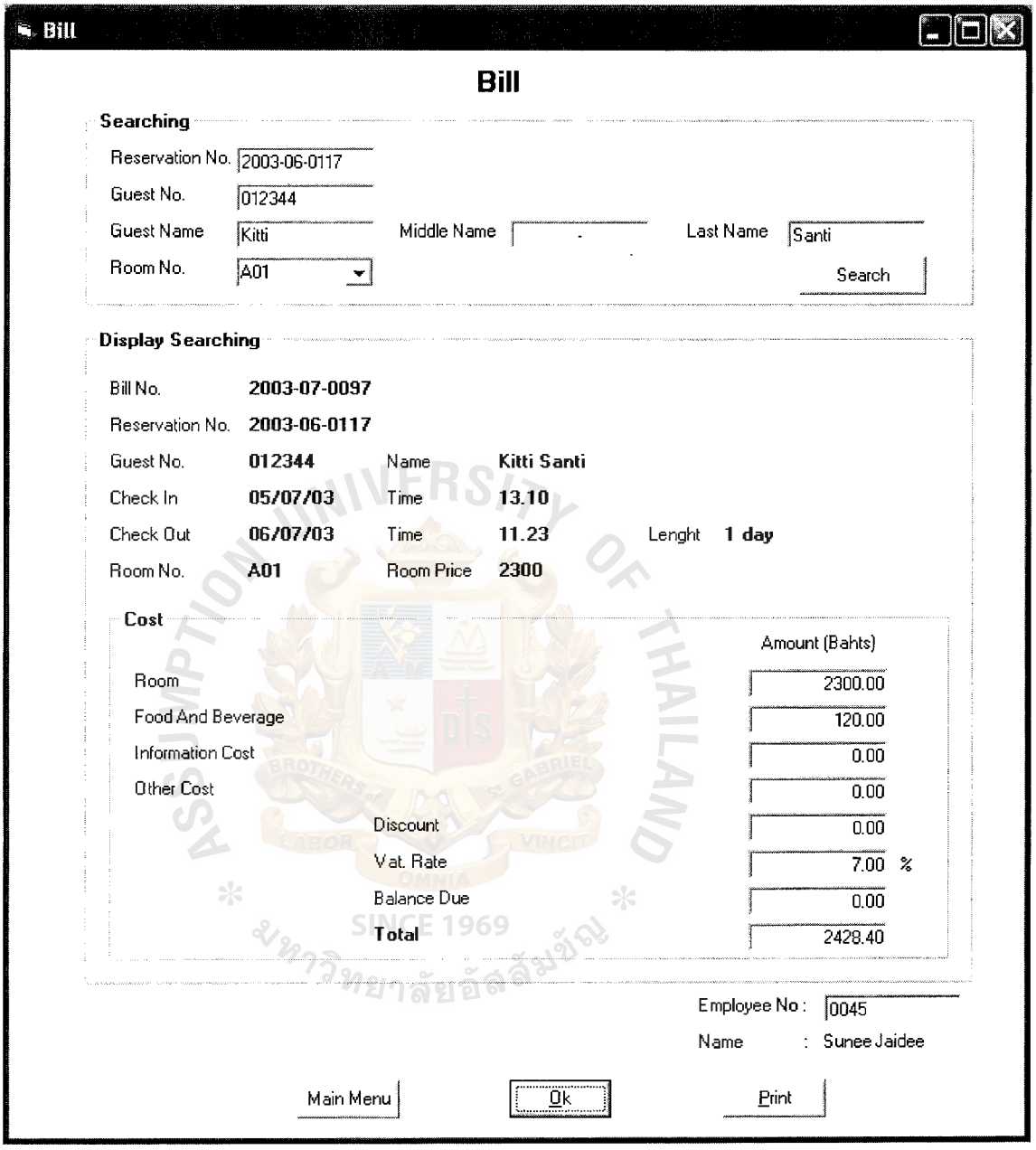

Figure G.19. The Input Searching Payment and Display for Bill Screen.

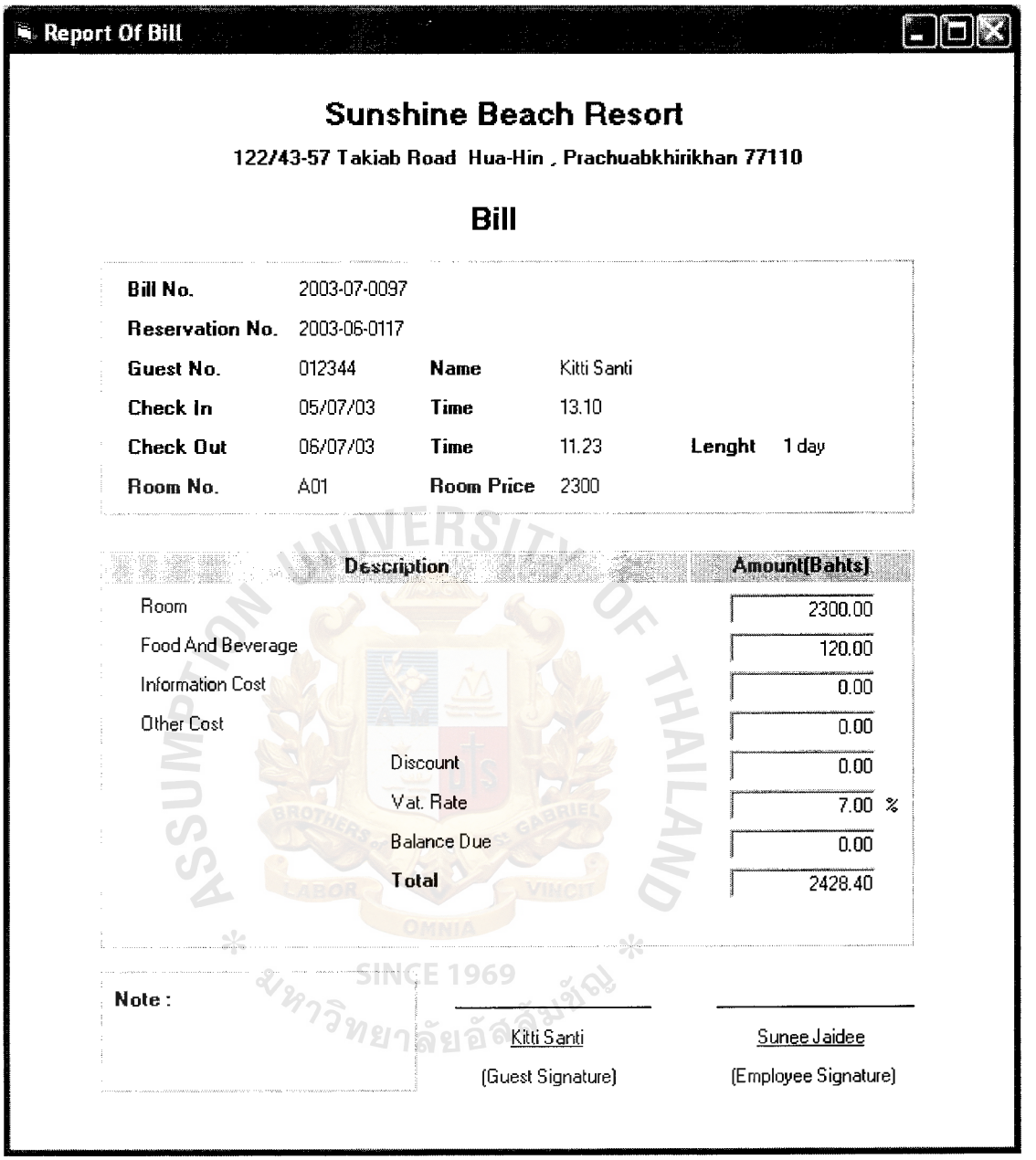

Figure G.20. The Payment Output for Bill Screen.

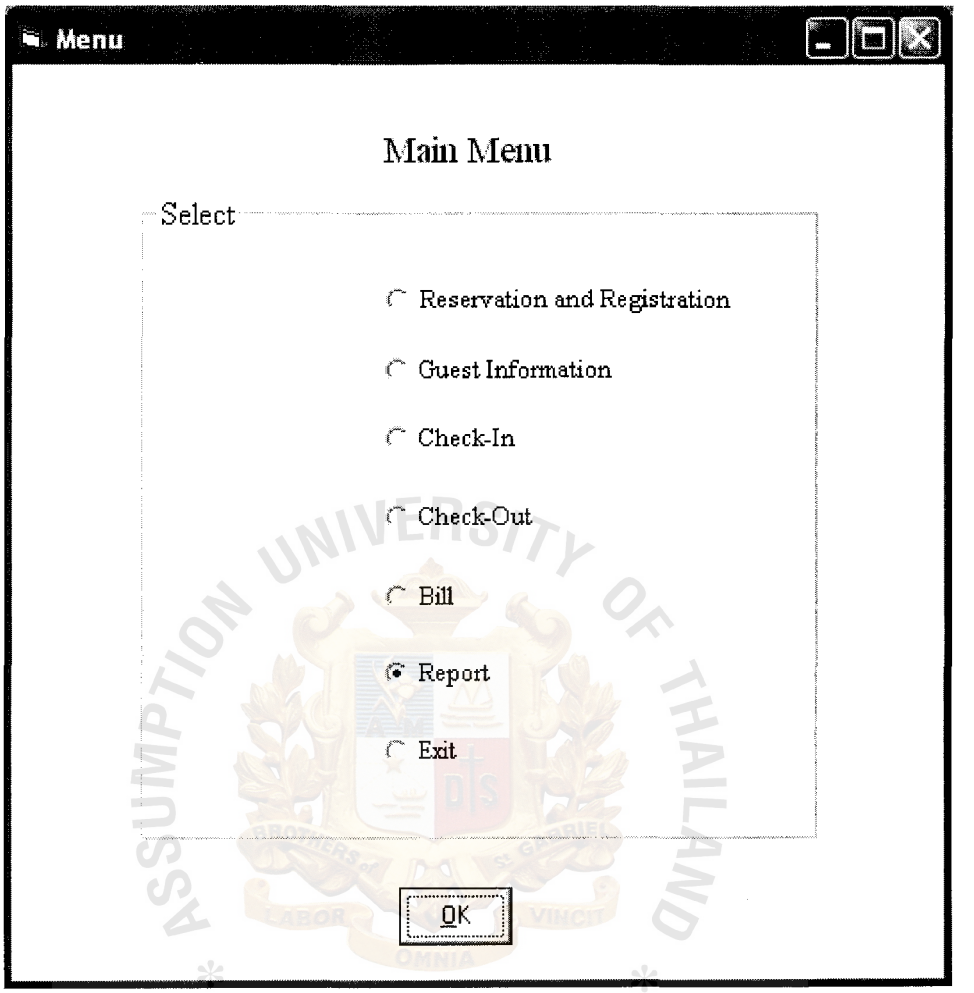

Figure G.21. The Main Menu for Selecting the Report Screen.

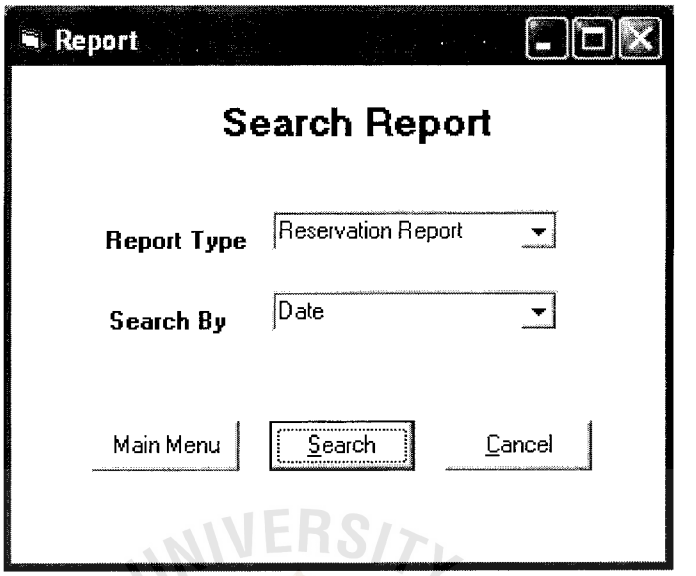

Figure G.22. The Example of the Searching Report Screen (Selecting the Reservation Report).

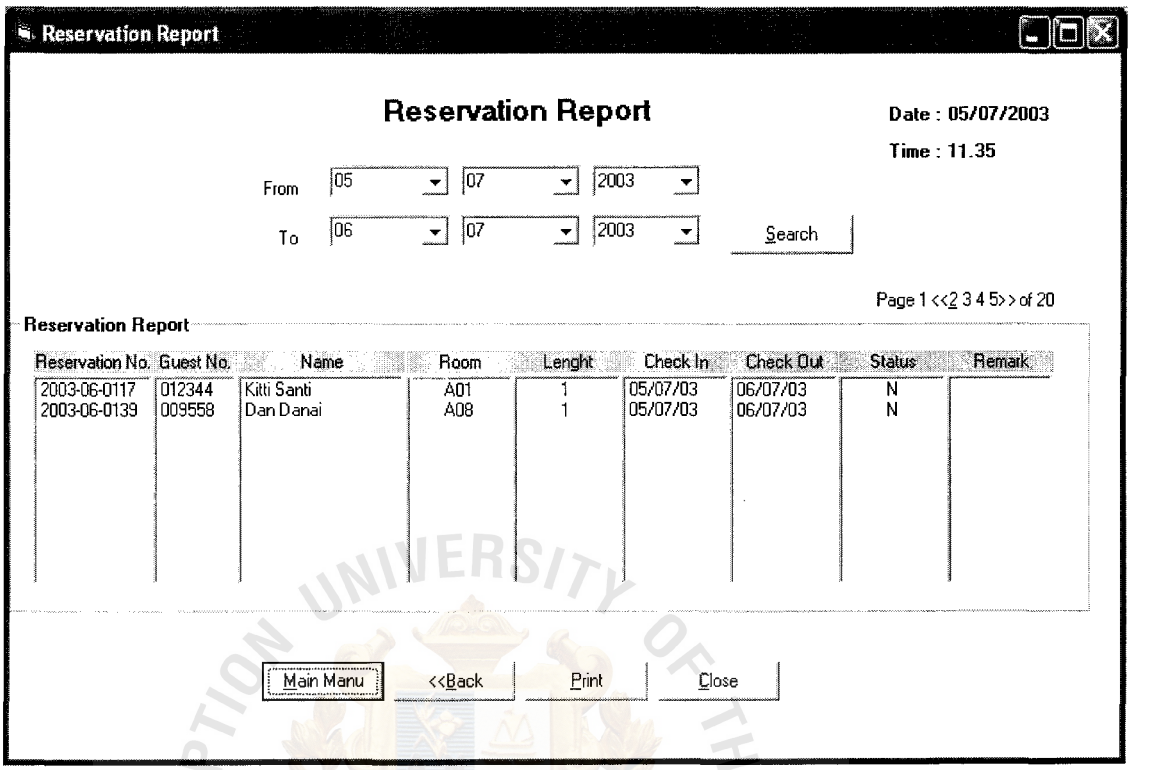

Figure G.23. The Example of the Output Report Screen (Selecting the Reservation Report).

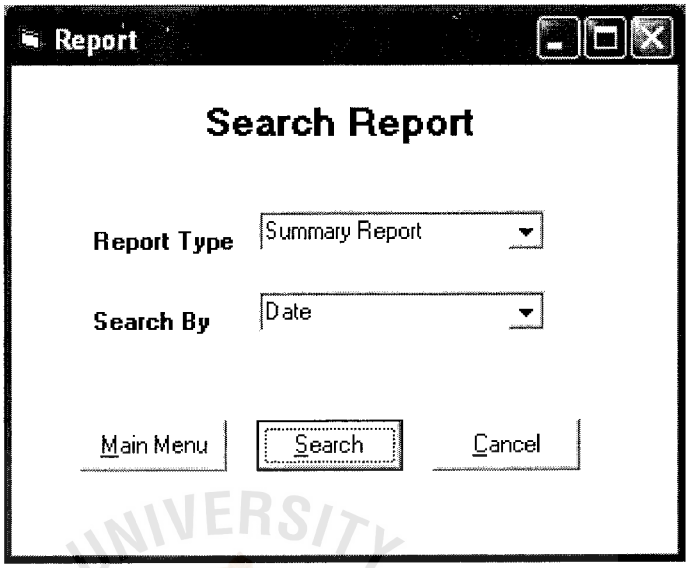

Figure G.24. The Example of the Searching Report Screen (Selecting the Summary Report).

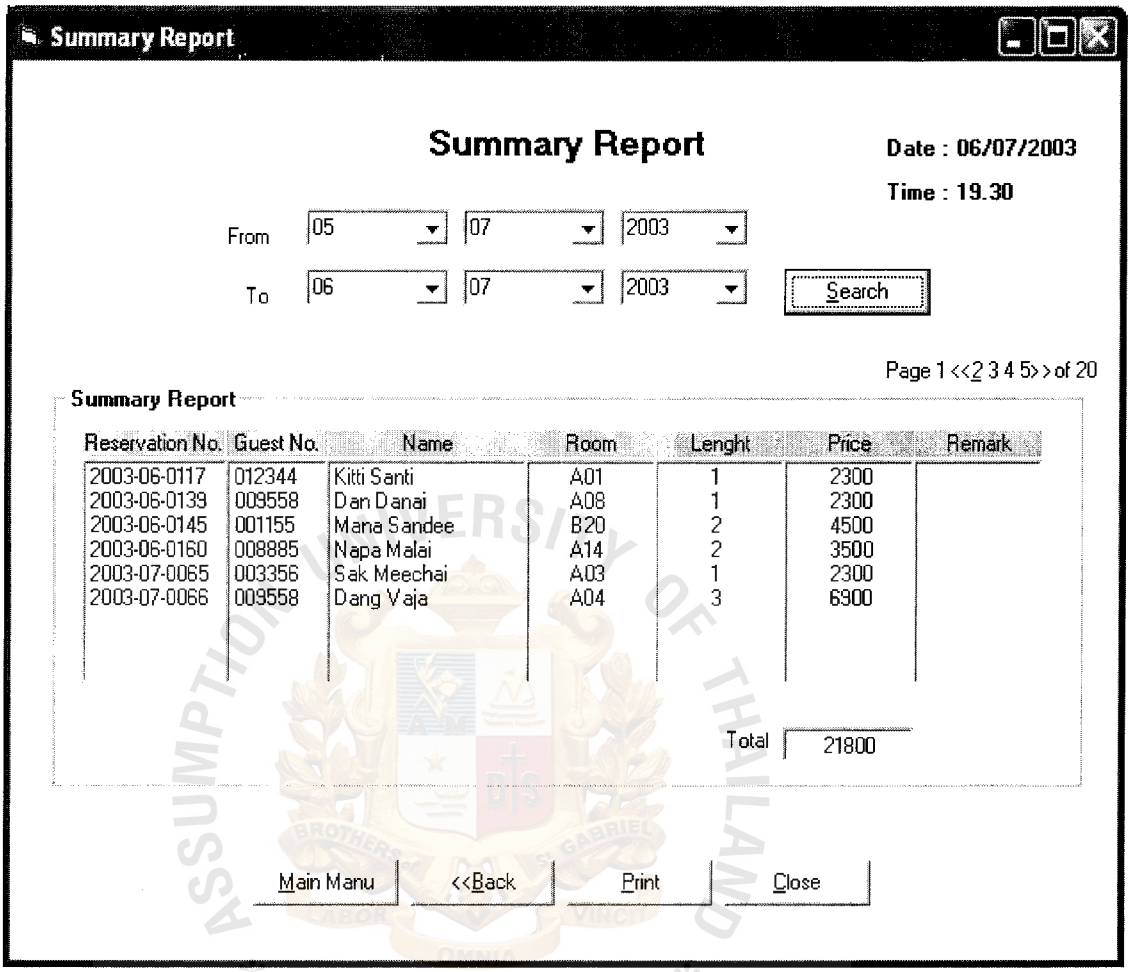

Figure G.25. The Example of the Output Report Screen (Selecting the Summary Report).

APPENDIX H

THE OUTPUT REPORT

Table H.1. The Reservation Report.

Reservation Report

Form 05/04/03 to 06/04/03 05/07/03 11:35

Reservation No.	Guest No.	Name	Room	Length	Check In	Check Out	Status	Remark
2003-06-0117	**012344**	**Kitti Santi**	**A01**	**1**	**05/07/03**	**06/07/03**	**N**	
2003-06-0139	**009558**	**Dan Danai**	**A08**	**1**	**05/07/03**	**06/07/03**	**N**	

Table H.2. The Room Status Report.

Room Status Report

Room A01 to A10 05/07/03 12.30

Room	Status	Reservation		Remark
		Check In	Check Out	
A01	OC	05/07/03	06/07/03	
A02	VC			
A03	VC			
A04	VC			
A05	OC			
A06	OC			
A07	OC			
A08	OC	05/07/03	06/07/03	
A09	OC			
A10	VC			

VC : Vacant OC : Occupied OO : Out of Order V/O : Status Unclear

Table H.3. The Check In Report.

Check In Report

Form 04/04/03 to 07/04/03 30/04/03 10:11

Guest No.	Name	Room	Date	Time	Length	Remark
005110	Ake Udom	A08	05/04/03	13:05	2	
000976	Rum Tongdee	B02	04/04/03	14:37	3	

Table H.4. The Check Out Report.

Check Out Report

Form 06/04/03 to 07/04/03 30/04/03 11:30

Guest No.	Name	Room	Date	Time	Day	Remark
005110	Ake Udom	A08	07/04/03	11:05	2	
000976	Rum Tongdee	B02	07/04/03	09:57	3	

Table H.5. The Summary Report.

Summary Report

Form 04/04/03 to 06/04/03 6/07/03 19:30

Reservation No.	Guest No.	Name	Room	Length	Price	Remark
2003-06-0117	012344	Kitti Santi	A01	1	2300	
2003-06-0139	009558	Dan Danai	A08	1	2300	
2003-06-0143	001155	Mana Sandee	B20	2	4500	
2003-06-0160	008885	Napa Malai	A14	2	3500	
2003-07-0065	003356	Sak Meechai	A03	1	2300	
2003-07-0066	009558	Dang Vaja	A04	3	6900	
					21800	

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