



Reservations and Rooms Management System for
Hotels, Resorts, and Conference Centers

by

Mr. Chaiwat Kanchanarat

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

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science
in Computer Information Systems
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Project Title Reservations and Rooms Management System for Hotels,
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The Graduate School of Assumption University has approved this final report of the three-credit course, CS 6998 System Development Project, submitted in partial fulfillment of the requirements for the degree of Master of Science in Computer Information Systems.


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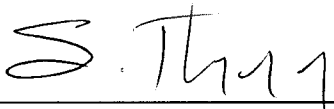
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ABSTRACT

Royal Chamber Hotel was found in the year 2000 in the peaceful beach of Hua-Hin, Thailand. It is one those high-class hotels in Hua-Hin that always offers the best to customers. It has customers that come from many countries in all seasons.

The number of guests is growing each year because of not only the beauty of the beach but also, its high quality services and special promotions offered all the time in a year.

It employs thousands of employees and performs hundreds of operations each period of days.

This system development project was developed to improve the existing manual reservation system of Royal Chamber Hotel. The work presented in this system including data flow diagrams, entity relationship diagram and design of interfaces and also output reports relating to the development. This project controls life cycle processes of guests from reservation to check out.

This project team first analyzed and studied to find out the problems, later the new system is designed to solve or minimize the problems and finally, testing and implementing are carried out. The current manual system will be replaced by high performance technologies and a set of new processes to make the reservation process more efficient as well as to reduce costs of those processes.

ACKNOWLEDGEMENTS

To finish this project, I have to start off by thanking Assoc. Prof. Dr. Suphamit Chittayasothorn. I started talking to him a while ago about building the system development project. After that we discussed a number of ideas to do. I couldn't have done without help to indicate the problems, the feature, the productive and system behavior. Thanks to his enthusiasm for keeping in touch, his encouragement and help to solve several problems before this project finished on time.

I also would like to thank the project Committee Members of the Graduate school of Computer Information System at Assumption University for their advice.

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I. INTRODUCTION

1.1 Background of the project

The Internet offers opportunities for hotels to expose their services to the world. Through the Web, they can reach out to more customers. At the same time customers have better ways to reach them. Nowadays, hotels digitize their services through development of various computer information systems. These systems provide benefits they never have in the old days.

Reservation process is the most critical to hotels. It is the first place where customers enter. Indeed, it is the face of the hotel. Therefore, it needs a very careful management because customers' satisfaction extremely depends on it. The hotel unavoidably needs a very good system to handle this. Most of the hotels have already done this successfully. To be competent, those who do not yet have the system must acquire it. Otherwise they may not even lose customers but also out of the competition.

1.2 Objectives of the project

In order to be competitive, the hotel needs to digitize its system. The old manual process must be gradually removed. The new system must automatically provide information when it is need and facilitates the works of staffs as well as customers in the process. The essence of building this project is to reduce to work load of receptionist at the counter by moving parts of the reservation process to the customer. The system also provides managerial information to managers to support their decision makings.

By doing this, it is expected see the followings from the system:

- Increase in the number of reservations,
- Increase in the number of reservations from new customers,
- Increase in consistency and correctness of data stored,

- Reduction of cost in the process due to better utilization of resources, and
- Increase in customer satisfaction.

1.3 Scope of the project

Using the web the hotel is able to provide a more convenient way for customers to make their reservations. Also the hotel will get an automated process which is faster, correct, and helps consistent workflow. The project will facilitate the old at-the-counter reservation, and other record keeping tasks. It also provides additional feature which covers all possible tasks customers can do starting from checking in to checking out. In summary, the new system will provide these functionalities:

- Customers can make reservations either online and face to face
- Customers can cancel reservations either online and directly
- Customers can post reviews online
- Services management
- Check in and check out
- Room and room type management
- Review managements
- The reservation process will be completely automatic
- Management reports are available on demand
- Other administrative tasks

1.4 Deliverables

- (1) Project Introduction
 - (a) Background of the project
 - (b) Objectives
 - (c) Scope

- (d) Deliverables
- (e) Project Plan
- (2) The Existing System
 - (a) Background of the organization
 - (b) Current problems and areas for improvements
 - (c) Existing computer system
- (3) The Proposed System
 - (a) System specification
 - (1) Context diagram
 - (2) Data flow diagram
 - (3) Entity Relationship Diagram
 - (b) System design
 - (c) Hardware and software requirement
 - (d) Security and controls
 - (e) Cost/benefit analysis
- (4) Project Implementation
- (5) Conclusions and Recommendations

1.5 Project plan

The project will be divided into three phases and is shown the following figure. The phases are analysis of the existing system, design and analysis of the proposed system, and implementation of the proposed system. The first phase involves defining the objective and scope of the project, studying to understand it, identifying problems and opportunities, and initially design the proposed system. The phase is expected to finish in six weeks. The second phase involves design of the proposed system. Software and hardware are selected to implement the proposed. Interfaces and reports are

carefully design to meet the goal specified in the analysis phase. The third phase includes implementation and post implementation activities.



II. THE EXISTING SYSTEM

2.1 Background of the organization

Royal Chamber Hotel was found in the year 2000 in the peaceful beach of Hua-Hin, Thailand. It is one those high-class hotels in Hua-Hin that always offer the best to customers. The main concept of the hotel believes that guests are the most important persons and they should be treated as if they were royal family members. That is why it was named Royal Chamber. It has customers who come from many countries in all seasons. The number of guests is growing each year because of not only the beauty of beach but also, its high quality services and special promotions offered all the time in a year. It employs thousands of employees and performs hundreds of operations each period of days.

Like other organizations, divide jobs into many divisions each responsible to its specific skills. The organization chart of the hotel can be summarized as shown in figure 2.1. The CEO oversees all the processes of the hotel. She and managers beneath her lays the strategies to administrate the business. Middle managers oversee specific business aspects and report directly to the CEO. The financial manager takes care of money flow in and out the hotel. The human resource manager looks after individual workers well being, recruitment of new workers and provide training to strengthen the manpower. The marketing manager is responsible for all marketing aspects, advertisements, promotions, etc. The production manager takes care of all services given to the customers as well as supplies that the services need. The technical support manager oversees technical stuffs he supervises all technicians who support all the hotel operations. Operational managers supervise employees who work under them and oversee day-to-day operations.

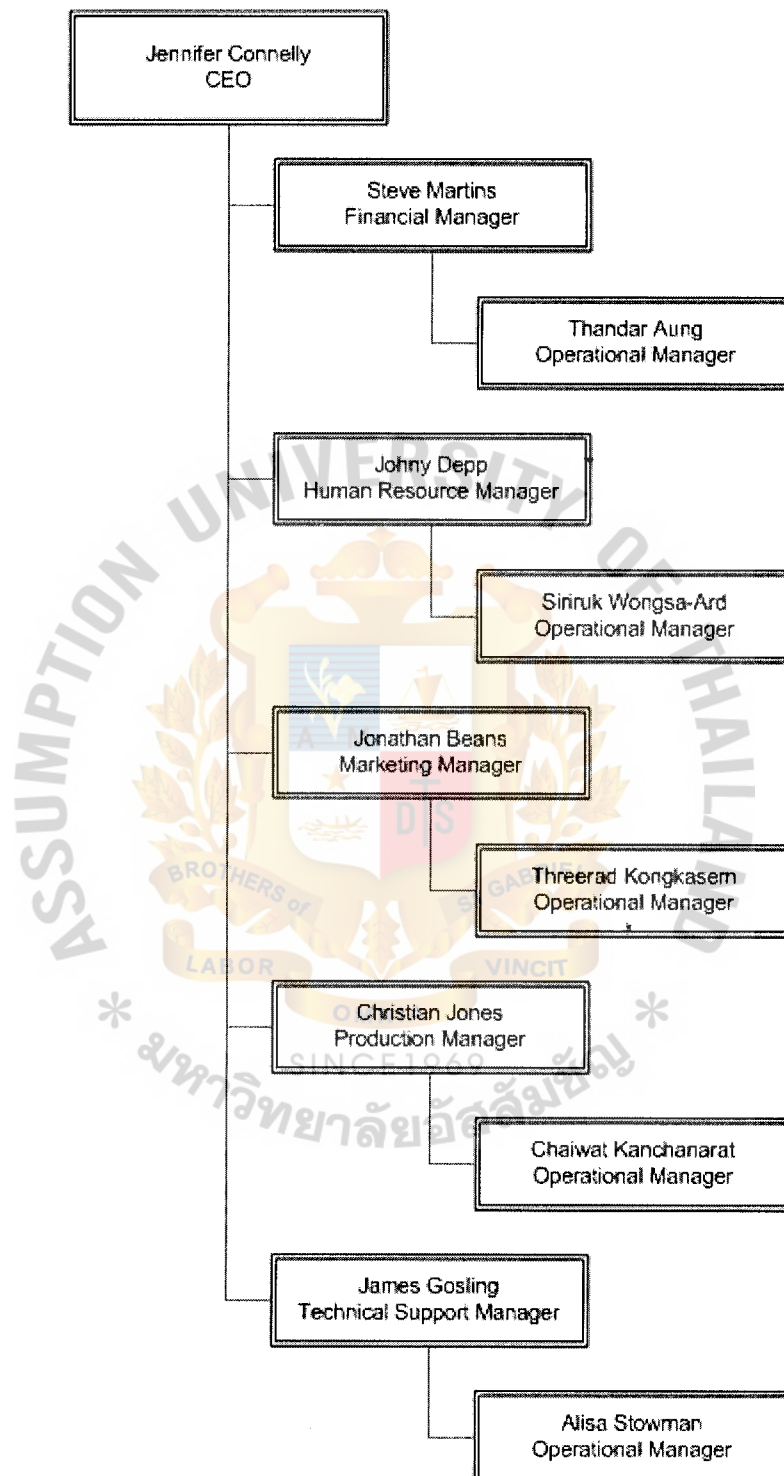


Figure 2.1 Organization Chart

2.2 Current problems and areas for improvement

To be aligned with the hotel's business strategy, its IT strategy must totally support all work flows especially ones where guests are involved. With the current manual system, guests have to take too many efforts to do things. This leads to degradation in guests' satisfaction and a great number of complaints. The current reservation system is still based on a manual system. The hotel suffers a lot of problems from it. The major ones are slow operations and inefficient use of resources. Some operations take too much time more than they should because of long and unnecessary processes. Some operations use resources improperly since workflows overlap and is poorly organized. For example, the reservation system is still take too much times, its inefficiency process also uses too much people, and customers is not convenient with the process. The major drawbacks of the current system are summarized as follows.

- Operations take too much time to complete since they are manual,
- Utilization of resources, such as manpower, is poor,
- Data collected are sometimes incorrect, incomplete, redundant, and inconsistent since they are paper-based files,
- Guests are not convenient system they have to come to the hotel or make a phone call to the hotel to book rooms.

2.3 Existing Computer System

Currently, the hotel has only a small web site showing general information of the hotel such as policies, maps, services, etc. Customers can just only view them but cannot interact with it. The sole purpose of the site is to provide information for remote customers so that it reduces the number of customer calls for that information. The hotel is now using manual paper based system using spreadsheet files in recording reservation data and other tasks.

III. THE PROPOSED SYSTEM

3.1 System specification

According to the previous chapter, Royal Chamber Hotel needs an efficient system which supports all tasks of either guests or staff starting from when guests step in until they step out. The system integrates previously separated systems together into one centralized computerized system where anybody can access data he needs. The system is expected to solve problems occurring from the existing manual system and some inefficient file based systems.

To achieve this target the proposed system will have these components:

- (1) A high performance database system will be introduced to replace the old paper based system.
- (2) A new and improved front end web site for guests to search for useful information about the hotel and also make or cancel reservation online.
- (3) Various tools for staff to manage their data and tools to facilitate their tasks.
- (4) Report generating tools for managers to get the information they need on demand.

3.2 System design

Sufficient information has been gathered in the analysis phase and it gives a rough picture of the new system. In the design phase, that information is used to design the new system to meet the specification. The following series of figures shows deliverables produced from the design phase starting from the context diagram up to the system diagrams. Also database schema is design to necessary data. The schema is shown in the Entity Relationship Diagram that follows.

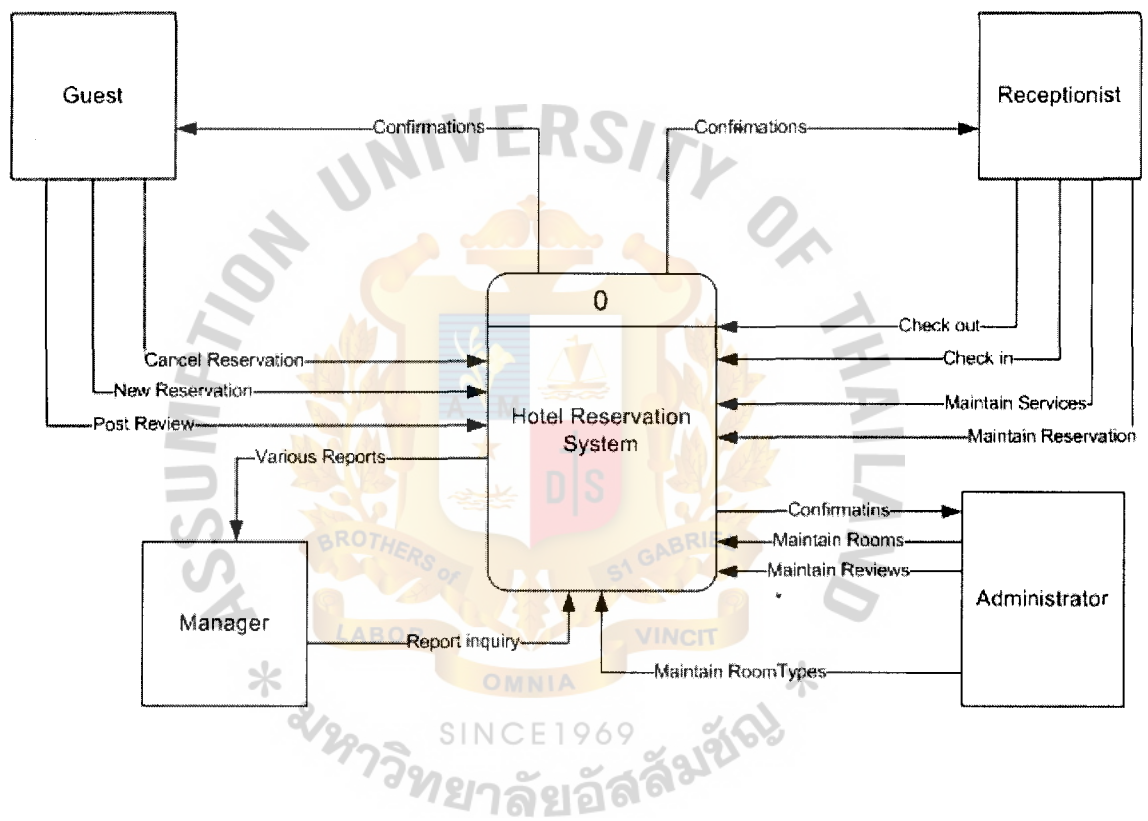


Figure 3.1 Context Diagram

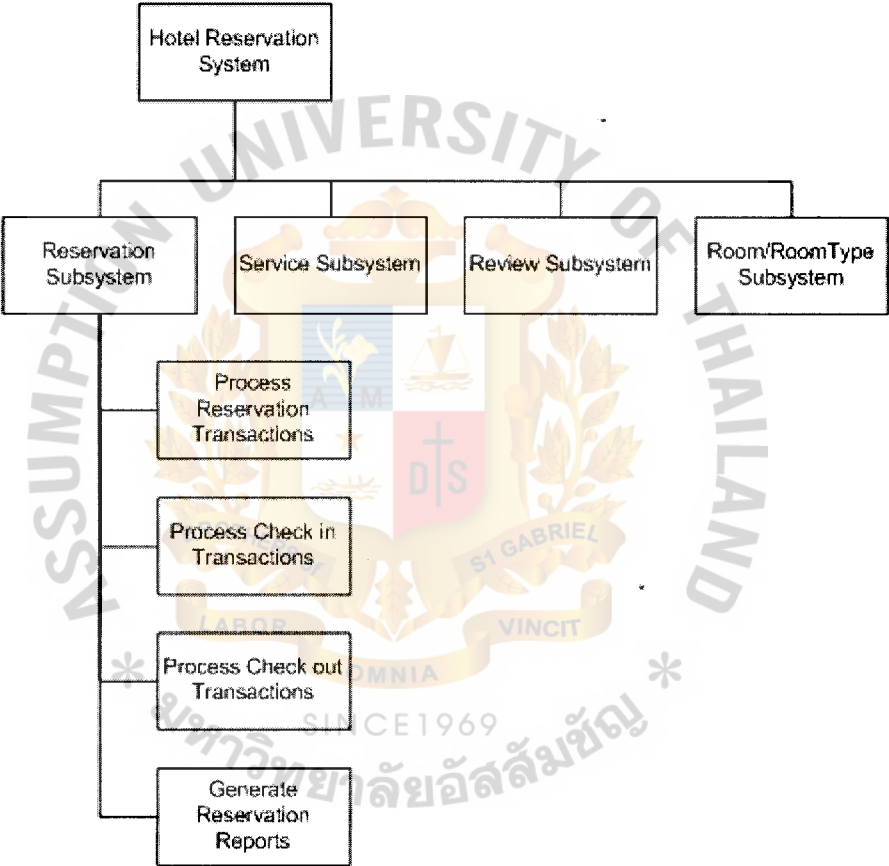


Figure 3.2 Functional Decomposition Diagram

Table 3.1 Event list

| No. | Actor | Event | Response |
|-----|---------------|----------------------------|---|
| 1 | Guest | Make reservation | Create a new reservation in the system |
| 2 | | Cancel reservation | Remove the reservation from the system |
| 3 | | Post review | Create a new review in the system |
| 4 | | Search rooms | Search and produce search results |
| 5 | Receptionist | Make reservation locally | Create a new reservation in the system |
| 6 | | Cancel reservation locally | Remove the reservation from the system |
| 7 | | Maintain Service | View, add, edit, or delete a service |
| 8 | | Check in reservation | Check in a reservation (update the state to check-in) |
| 9 | | Check out reservation | Check out a reservation (update the state to check-out) |
| 10 | Administrator | Maintain rooms | View, add, edit , or delete a room |
| 11 | | Maintain room types | View, add, edit, or delete a room type |
| 12 | | Maintain reviews | View, add, edit, or delete a review |
| 13 | Manager | Get various reports | Generate various reports |

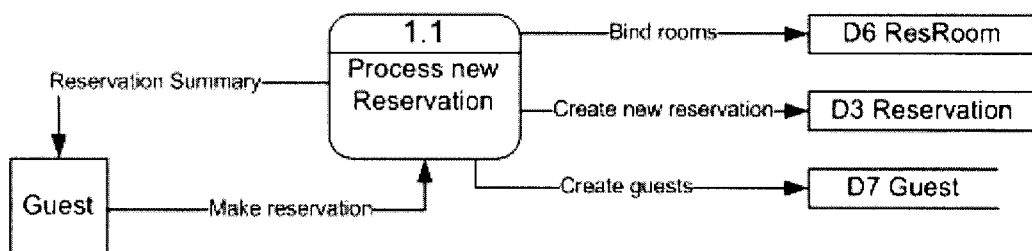


Figure 3.3 Make Reservation Online Process

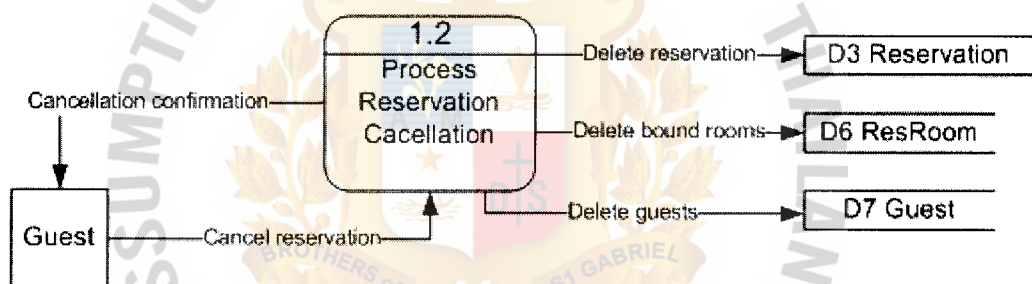


Figure 3.4 Cancel Reservation Online Process

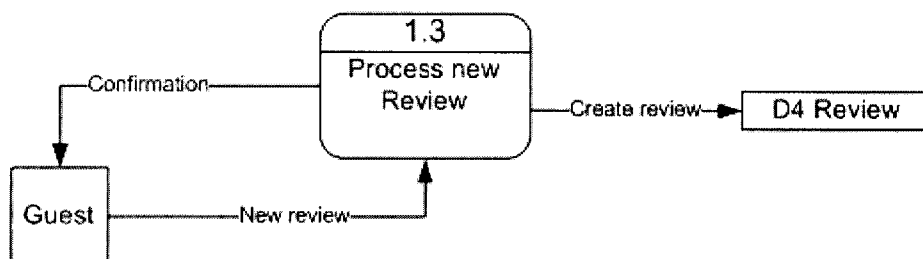


Figure 3.5 Post Review Process

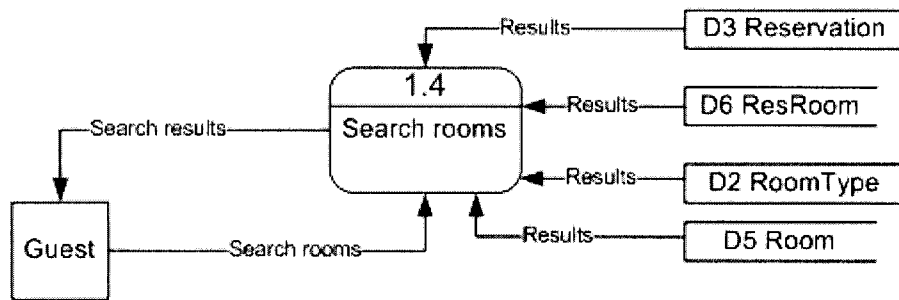


Figure 3.6 Search Rooms Process

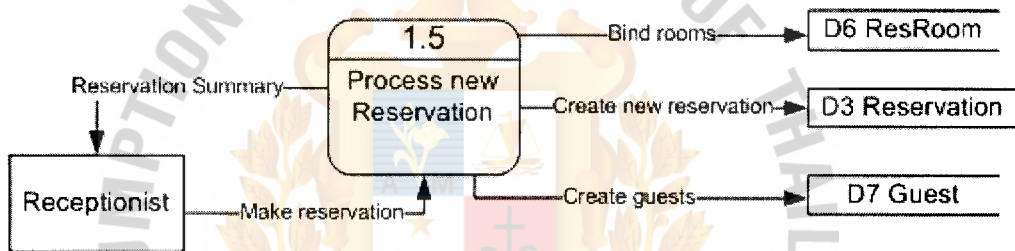


Figure 3.7 Make Reservation Locally Process

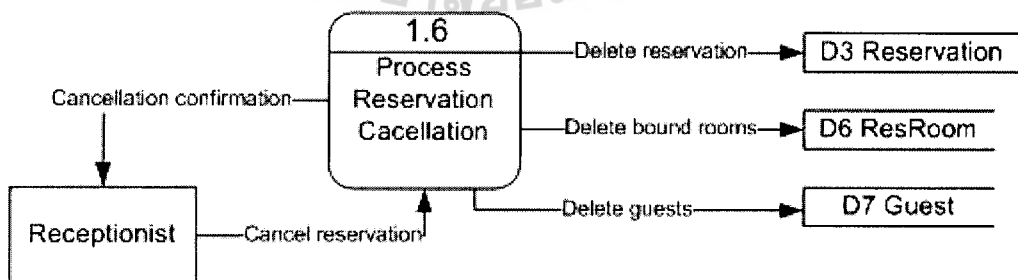


Figure 3.8 Cancel Reservation Locally Process

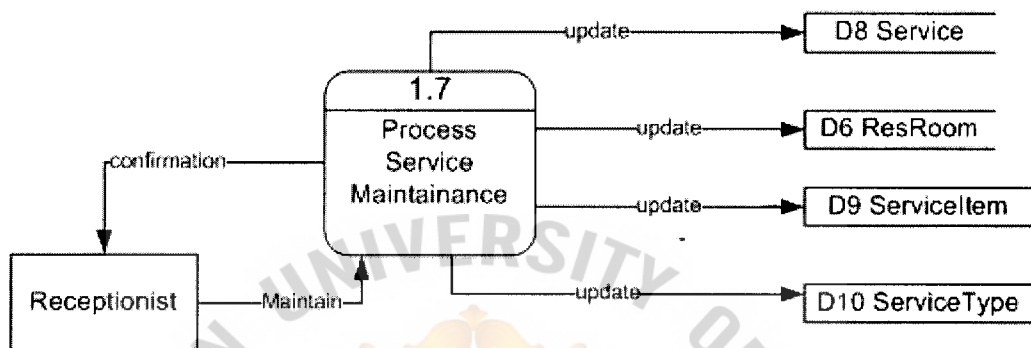


Figure 3.9 Maintain Service Process

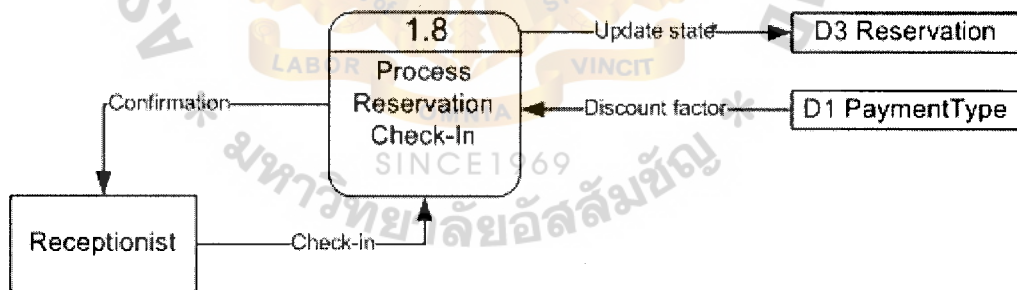


Figure 3.10 Check in Reservation Process

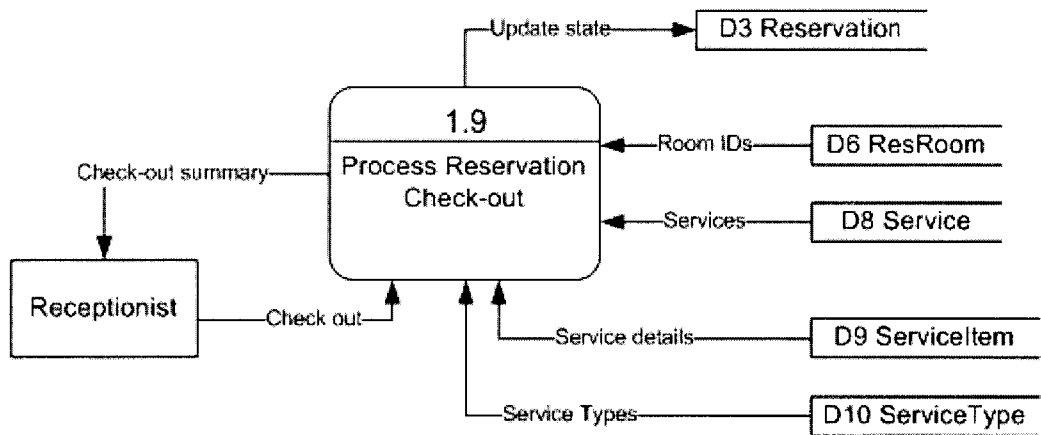


Figure 3.11 Check out Reservation Process

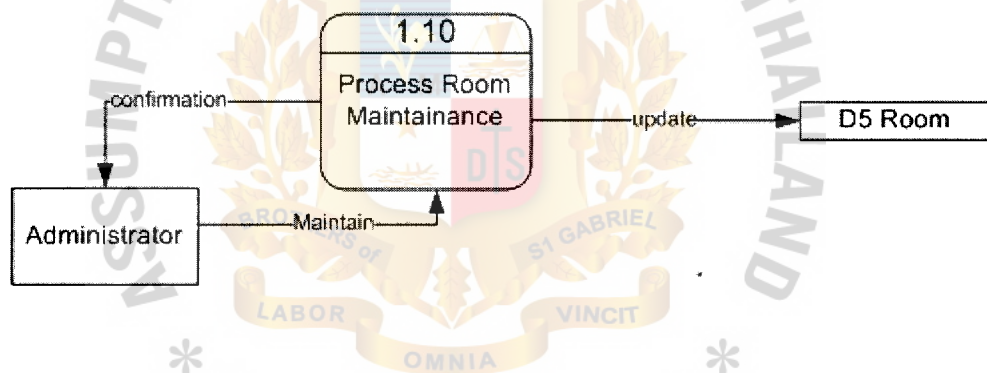


Figure 3.12 Maintain Rooms Process

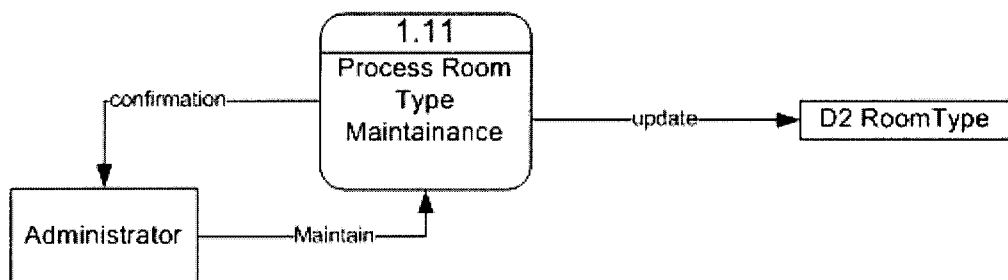


Figure 3.13 Maintain Room Types Process

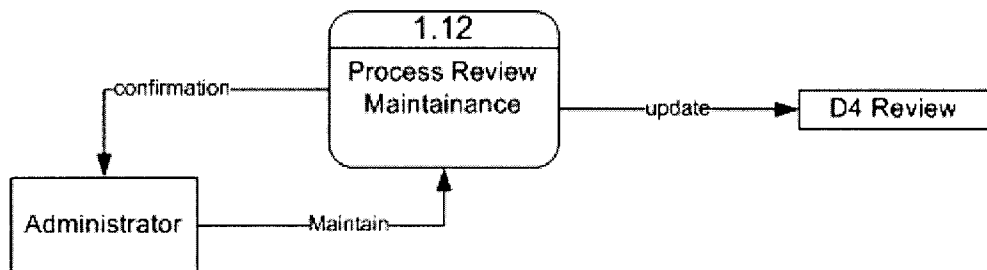


Figure 3.14 Maintain Reviews Process

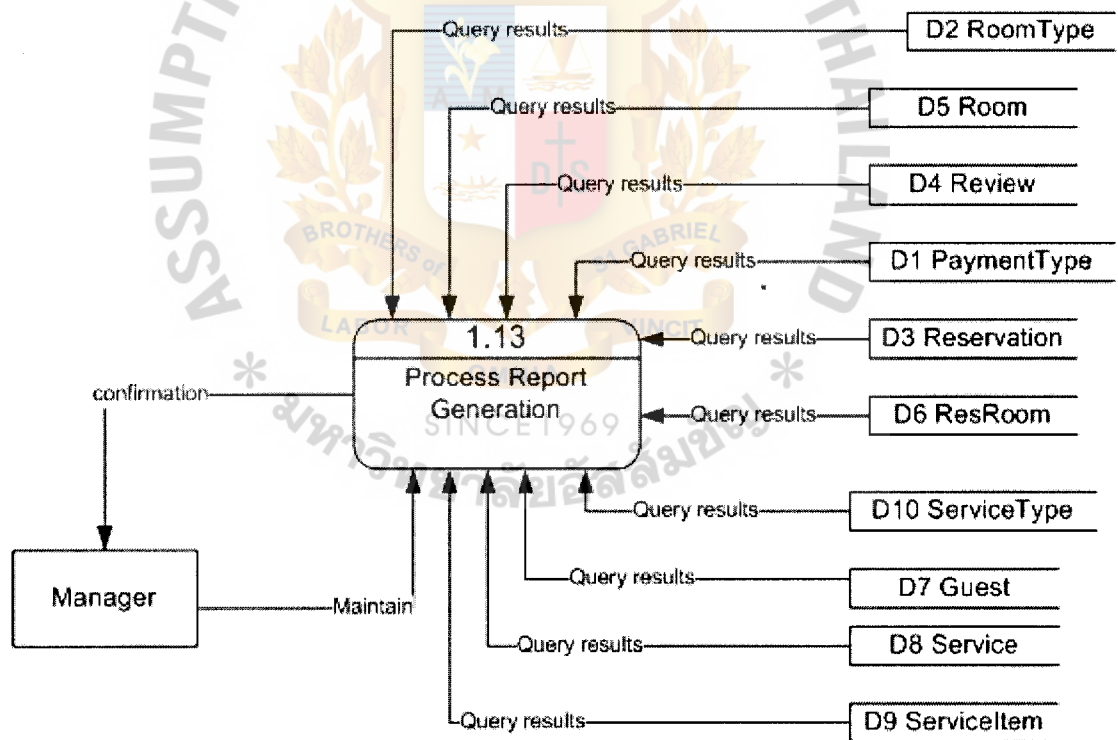


Figure 3.15 Get Reports Process

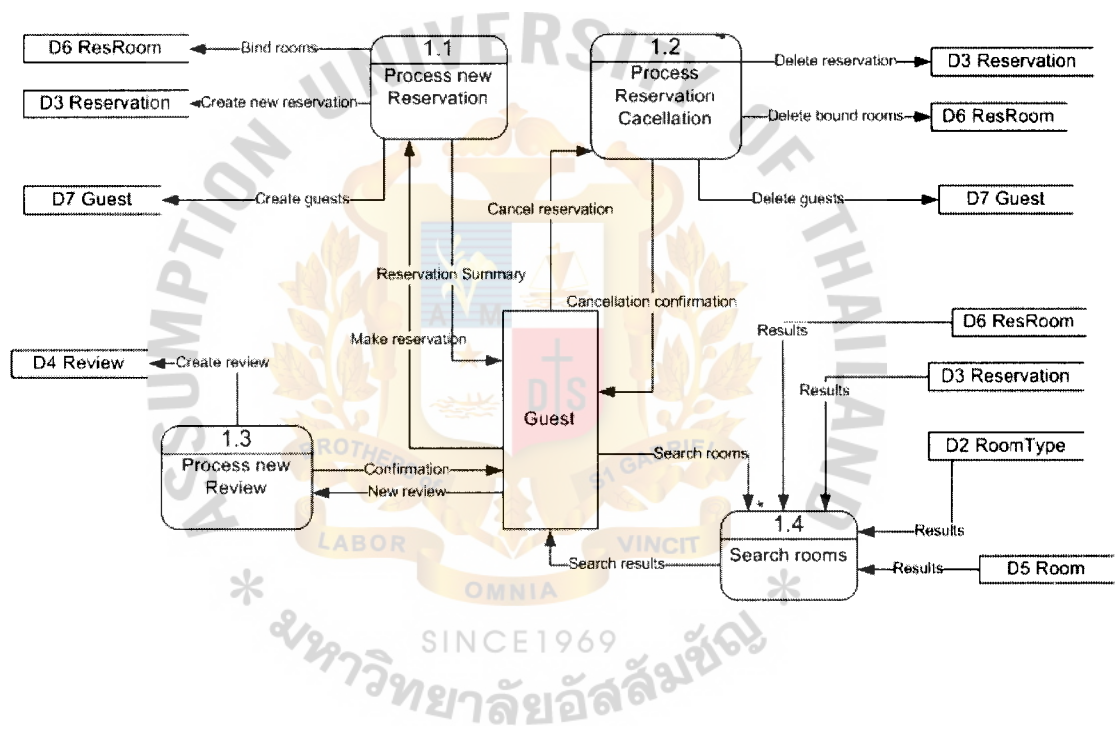


Figure 3.16 System Diagram (Guest View)

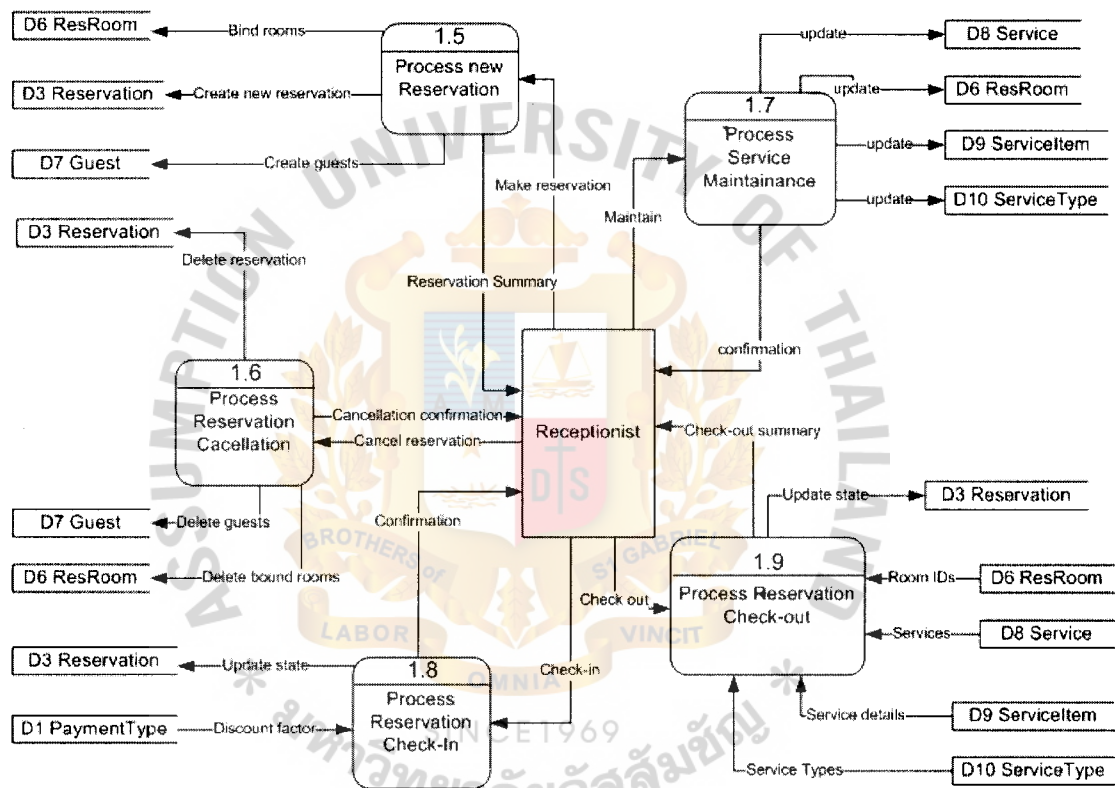


Figure 3.17 System Diagram (Receptionist View)

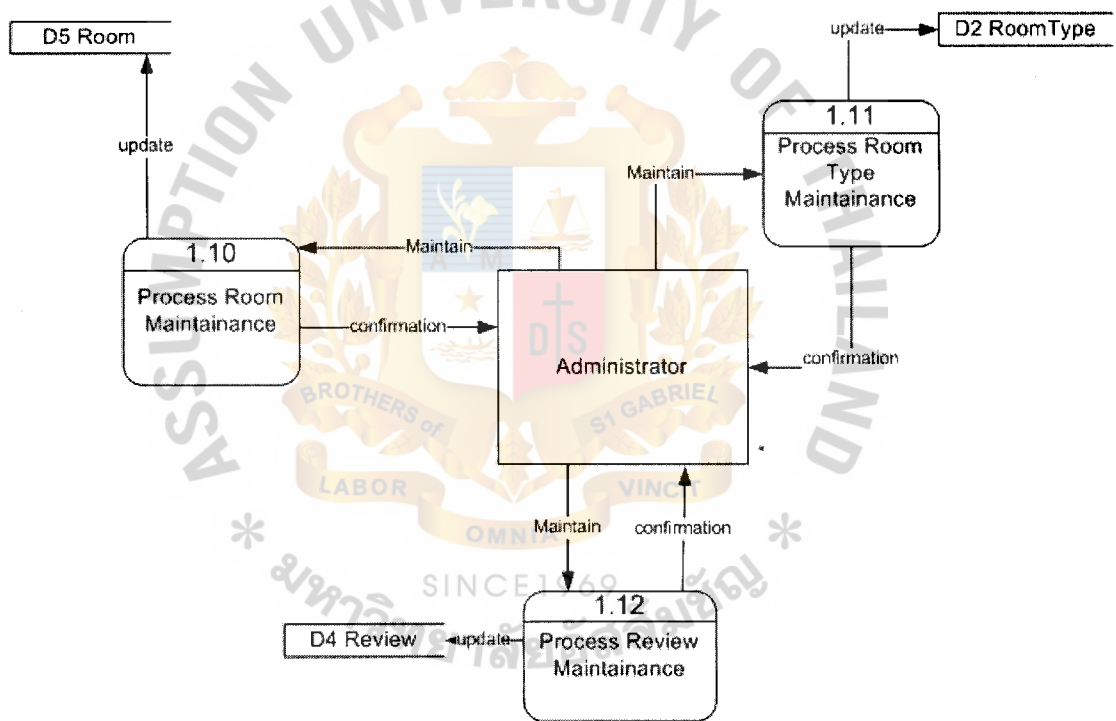


Figure 3.18 System Diagram (Admin View)

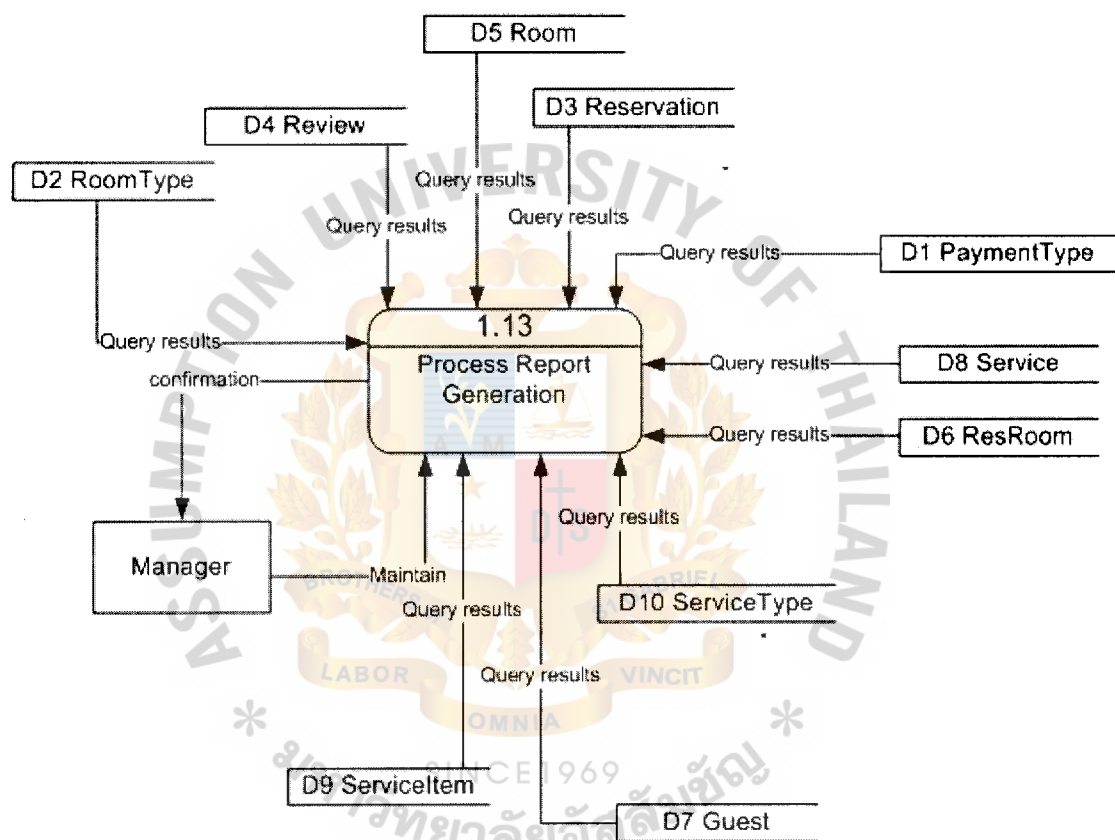


Figure 3.19 System Diagram (Manager View)

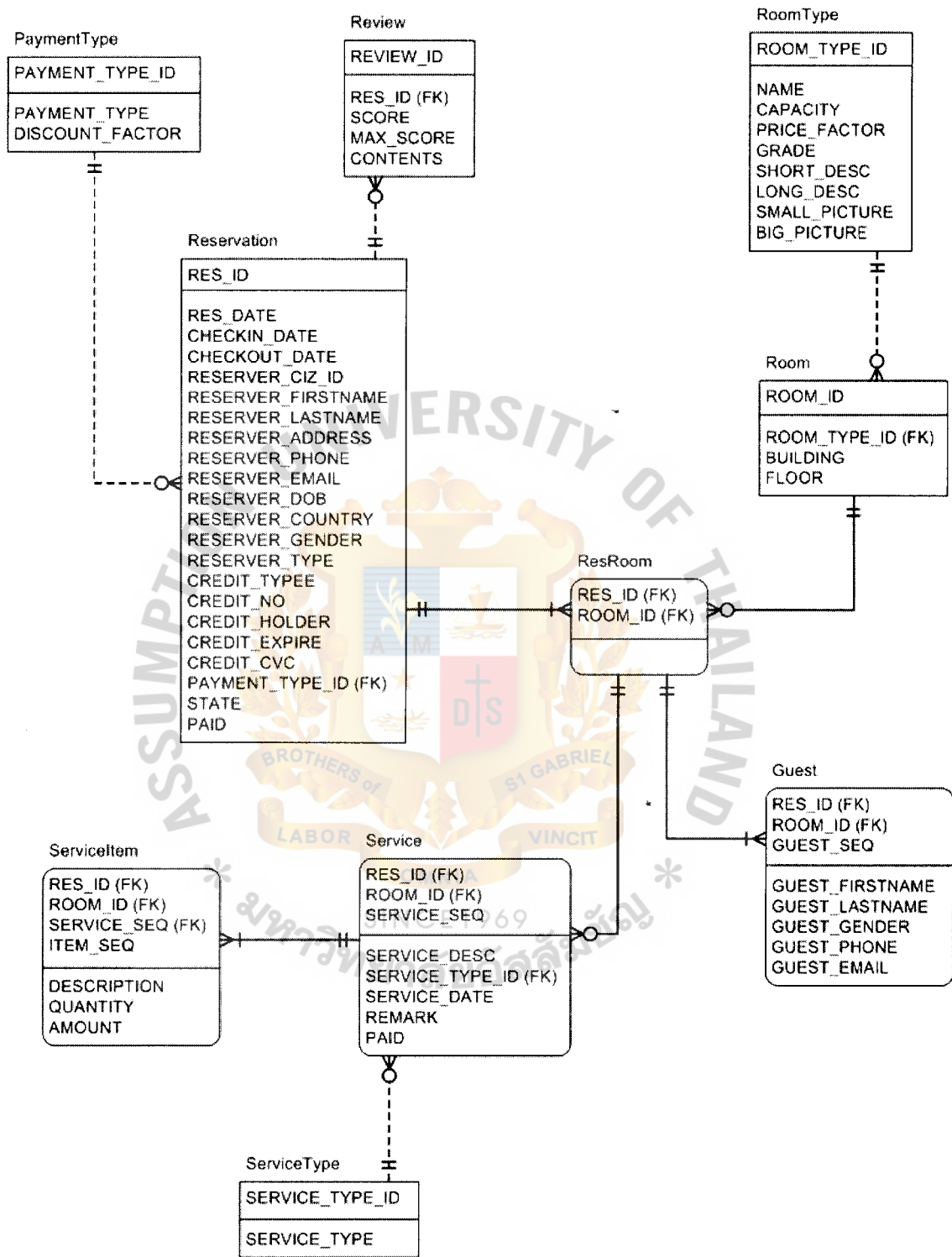


Figure 3.20 Entity Relationship Diagram

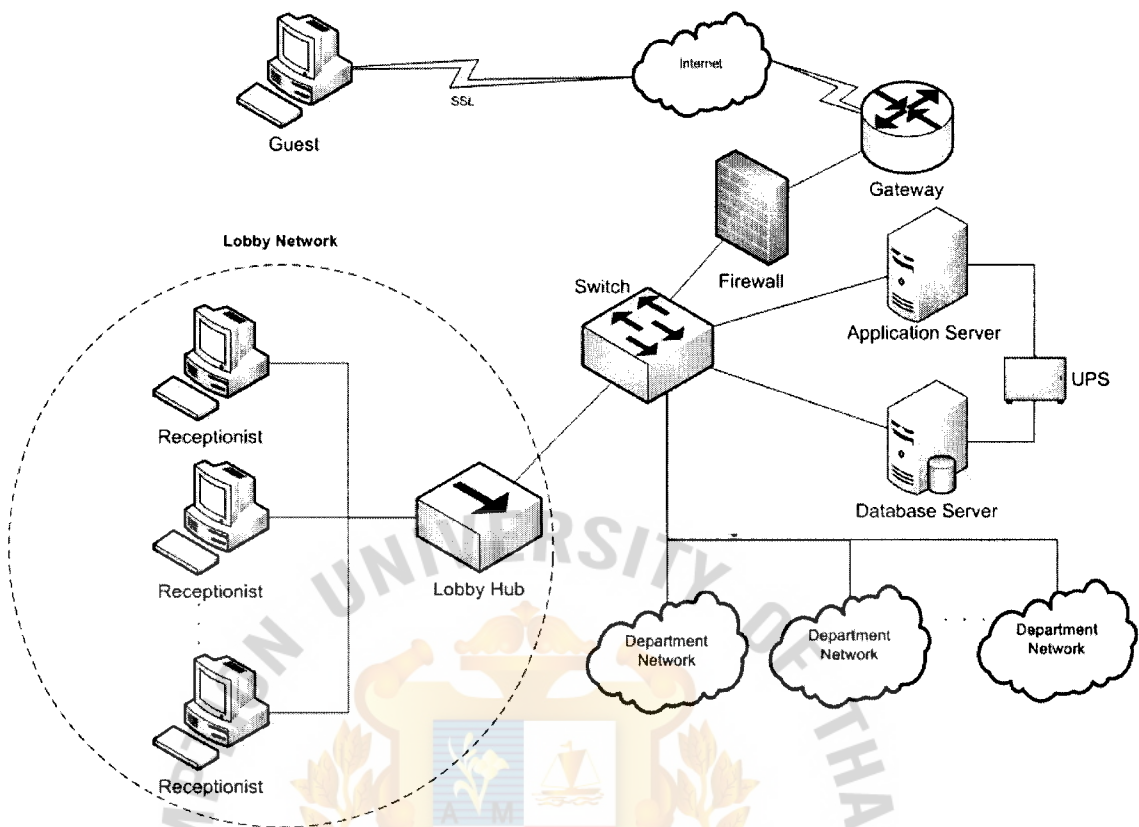


Figure 3.21 Hardware Configuration Diagram

3.3 Candidate Solutions Analysis

According to previous analysis and design of the system, it is now the time to identify strategies and select one of them to implementing the system. There are three choices to choose: (1) Using package software, (2) Outsourcing, and (3) In-house development. Criteria that the team used in selecting the strategy are characteristics of the project, in-house experience, project skills, project management, and timeframe.

The nature of the project is quite unique since it covers from making reservation up to checking out. Also, the business rules of the hotel are quit special. The in-house experience of the hotel is some what acceptable because the hotel has it own IT

department to handle technical issues. The hotel executives do want the IT department to have strong project development skills because they planned to extend the project already. Therefore, project development skills are really significant from their points of view. Since this project is a kick-start of all IT project the hotel is going to invest as well as it supports the core business of the hotel. They have provided plenty of time to do it. They expect high quality of the system. A decision table below shows the comparisons of each strategy by each criterion.

Table 3.2 Comparison of design strategies

| Criteria/Strategy | Using software package | Outsourcing | In-house development |
|--|------------------------|-------------|----------------------|
| Characteristics of the project | 1 | 1 | 3 |
| In-house experience | 2 | 2 | 2 |
| Project skills | 3 | 3 | 2 |
| Timeframe | 2 | 3 | 3 |
| Cost | 1 | 1 | 3 |
| Total | 9 | 10 | 13 |
| <i>*Note: score range from least suitable (1) to most suitable (3)</i> | | | |

From the decision table, the in-house development strategy wins the selection. Now the team turns to the selection of technologies to be used to develop the system. The project has to be web-based because it is an online system. There are two candidate solutions: PHP technology and Microsoft ASP 3.0. The advantage of PHP is it is free of charge but the disadvantage is the lack of support from vendor. The IT department has long term familiarity with Microsoft Visual Basics. Therefore, there is no need to learn new technologies since VB and VBScript in ASP is quite the same. Also, the application server IIS is bundled in every Microsoft Servers already so there is no need to invest any other software. Thus, the team unanimously selects ASP.

3.4 Hardware and Software Requirement

The platform for this system will be Microsoft platform on Microsoft Windows Servers 2003. The management does not want the system to be tied with expensive software licenses. Microsoft Windows Servers 2003 has a bundled Internet Information Servers already so there is no need to purchase any extra application servers. Another critical point is the DBMS. The project team chooses Microsoft SQL Server 2005 DBMS server since they needs a very high performance DBMS for this project. The project team needs an easy-to-use platform for all client machines. Therefore Windows XP is the most suitable platform for this.

Table 3.3 Hardware Specification for the Application Server and Database Server

| Hardware | Specification |
|-----------------|-----------------------------|
| CPU | 2.0 GHz Pentium or higher |
| Cache | 1MB Level 2 cache or higher |
| Memory | 1GB or higher |
| Hard Disk | 80GB or higher |
| Network Adapter | 1000Base-T Ethernet port |
| CD-ROM Drive | 1X or higher |
| Floppy Drive | 1.44MB |
| Display Adapter | SVGA card |
| Display monitor | 14" monitor |

Table 3.4 Hardware Specification for the Clients

| Hardware | Specification |
|-----------------|------------------------------------|
| CPU | Intel Pentium IV Processor 2.0 GHz |
| Memory | 512 MB or higher |
| Hard Disk | 40 GB or higher |
| Network Adapter | 100Base-T Ethernet |
| CD-ROM Drive | 1X or higher |
| Floppy Drive | 1.44MB |
| Display Adapter | SVGA card |
| Display monitor | 14" monitor |

Table 3.5 Hardware Specification for the Network Infrastructure

| Hardware | Specification |
|----------|---|
| Gateway | At least 1 1000Base-T Ethernet port |
| Switch | 2 1000Base-T and at least 24 100Base-T Ethernet ports |
| Hub | 24 100Base-T Ethernet port |

Table 3.6 Software Specification

| Software | Specification |
|-------------------------|---|
| Application Server | Internet Information Server |
| DBMS | Microsoft SQL Server 2005 |
| Server Operating System | Microsoft Windows 2003 Servers |
| Client Operating System | Window XP Home Edition |
| Web browser | Microsoft Internet Explorer 6.0 or higher |

3.5 Security and Control

The project team has put great concern and emphasis on the security as well. They have invested a lot of hardware and software to prevent attacks and unauthorized accesses. The database server is the most critical point in the infrastructure. There will be a firewall separating it from other nodes. The application server has build-in security in place already so there is no problem this server. The team also put an anti-virus-software in all machines to prevent virus outbreak. The database server and the application server must be always available so the team also put a UPS on both to secure them from power shortage.

Table 3.7 Security Software and Hardware

| Software/Hardware | Specification |
|---------------------|----------------------------|
| Firewall | Stateful packet inspection |
| Anti Virus Software | Any |
| UPS | Any |

3.6 Cost and benefits analysis

(1) Cost of Existing System

Table 3.8 Existing System Cost Analysis

| Cost items | Year | | | | |
|--|--------------|--------------|--------------|--------------|--------------|
| | 1 | 2 | 3 | 4 | 5 |
| Fixed Cost | | | | | |
| PC 30 units @ 25,000 | 750,000.00 | - | - | - | - |
| Printer 6 units @ 2,000 | 12,000.00 | - | - | - | - |
| Calculator 20 units @ 250 | 5,000.00 | - | - | - | - |
| Software license | 150,000.00 | - | - | - | - |
| Total Fixed Cost | 917,000.00 | - | - | - | - |
| Operating Cost | | | | | |
| Salary Cost | | | | | |
| Operation Manager 1 person @ 45000 | 540,000.00 | 567,000.00 | 595,350.00 | 625,117.50 | 656,373.38 |
| Receptionist Supervisor 3 person @ 20000 | 720,000.00 | 756,000.00 | 793,800.00 | 833,490.00 | 875,164.50 |
| Receptionist 30 person @ 15000 | 5400,000.00 | 5670,000.00 | 5,953,500.00 | 6,251,175.00 | 6,563,733.80 |
| Technician 3 person @ 18000 | 648,000.00 | 680,400.00 | 714,420.00 | 750,141.00 | 787,648.05 |
| Total salary cost | 7308,000.00 | 7,673,400.00 | 8,057,070.00 | 8,459,923.50 | 8,882,919.70 |
| Miscellaneous Cost | | | | | |
| Stationary per annual | 5,000.00 | 5,250.00 | 5512.50 | 5788.13 | 6,077.53 |
| Paper per annual | 25,000.00 | 26,250.00 | 27,562.50 | 28,940.63 | 30,387.66 |
| Utility per annual | 8,500.00 | 8,925.00 | 9,371.25 | 9,839.81 | 10,331.80 |
| Miscellaneous per annual | 5,000.00 | 5,250.00 | 5,512.50 | 5,788.13 | 6,077.53 |
| Total miscellaneous cost | 43,500.00 | 45,675.00 | 47,958.75 | 50,356.69 | 52,874.52 |
| Total Operating cost | 7,351,500.00 | 7719075.00 | 8,105,028.80 | 8,510,280.20 | 8,935,794.20 |
| Total Manual System Cost | 8,268,500.00 | 7,719,075.00 | 8,105,029.00 | 8,510,280.00 | 8,935,794.00 |

Table 3.9 Five-year accumulated existing system cost

| Year | Total Existing Cost | Accumulated Cost |
|------|---------------------|------------------|
| 1 | 8,268,500 | 8,268,500 |
| 2 | 7,719,075 | 15,987,575 |
| 3 | 8,105,029 | 24,092,604 |
| 4 | 8,510,280 | 32,602,884 |
| 5 | 8,935,794 | 41,538,678 |

(2) Cost of the proposed system

Table 3.10 Proposed System Cost Analysis

| Cost items | Year | | | | |
|--|--------------|--------------|--------------|--------------|--------------|
| | 1 | 2 | 3 | 4 | 5 |
| Fixed Cost | | | | | |
| Hardware Cost | | | | | |
| 2 Compaq ML370 Servers @ 58,000 | 158,000.00 | - | - | - | - |
| 20 Acer Aspire Client PCs @ 45000 | 900,000.00 | - | - | - | - |
| Cisco 2821 Router | 78,000.00 | - | - | - | - |
| D-Link DES-1026G Layer2 Swich | 14,000.00 | - | - | - | - |
| D-Link DES-1024D Express EtherNetwork switch | 12,000.00 | - | - | - | - |
| D-Link DFL-210 Firewall | 15,000.00 | - | - | - | - |
| Victron UPS | 82,000.00 | - | - | - | - |
| Miscellaneous hardware | 32,000.00 | - | - | - | - |
| Total Hardware Cost | 1,291,000.00 | - | - | - | - |
| Software Cost | | | | | |
| Internet Information Server (IIS) | 0.00 | - | - | - | - |
| Microsoft SQL Server 2005 | 150,000.00 | - | - | - | - |
| Microsoft Windows 2003 Server | 78,000.00 | - | - | - | - |
| 25 Window XP Home Client OS license | 135,000.00 | - | - | - | - |
| Total Software Cost | 363,000.00 | - | - | - | - |
| Implementation Cost | | | | | |
| Software Development Cost | 500,000.00 | - | - | - | - |
| Deployment Cost | 210,000.00 | - | - | - | - |
| Training Cost | 180,000.00 | - | - | - | - |
| Total Implementation Cost | 890,000.00 | - | - | - | - |
| Total Fixed Cost | 4,080,000.00 | - | - | - | - |
| Operating Cost | | | | | |
| Salary Cost | | | | | |
| Operation Manager 1 person @ 45000 | 540,000.00 | 567,000.00 | 595,350.00 | 625,117.50 | 656,373.38 |
| Receptionist Supervisor 3 person @ 20000 | 720,000.00 | 756,000.00 | 793,800.00 | 833,490.00 | 875,164.50 |
| Receptionist 25 person @ 15000 | 4,500,000.00 | 4,725,000.00 | 4,961,250.00 | 5,209,312.50 | 5,469,778.13 |
| Technician 3 person @ 18000 | 648,000.00 | 680,400.00 | 714,420.00 | 750,141.00 | 787,648.05 |
| Total salary cost | 6,408,000.00 | 6,728,400.00 | 7,064,820.00 | 7,418,061.00 | 7,788,964.05 |
| Miscellaneous Cost | | | | | |
| Stationary per annual | 4,700.00 | 4,935.00 | 5,181.75 | 5,440.84 | 5,712.88 |
| Paper per annual | 20,000.00 | 21,000.00 | 22,050.00 | 23,152.50 | 24,310.13 |
| Utility per annual | 5,800.00 | 6,090.00 | 6,394.50 | 6,714.20 | 7,049.94 |
| Miscellaneous per annual | 4,200.00 | 4,410.00 | 4,630.50 | 4,862.03 | 5,105.13 |
| Software Maintenance Cost | - | 40,000.00 | 42,000.00 | 44,100.00 | 46,305.00 |
| Hardware Maintenance Cost | - | 45,000.00 | 47,250.00 | 49,612.50 | 52,093.13 |
| Total miscellaneous cost | 34,700.00 | 121,435.00 | 127,506.75 | 133,882.09 | 140,576.19 |
| Total Operating cost | 6,442,700.00 | 6,849,835.00 | 7,192,326.75 | 7,551,943.09 | 7,929,540.24 |
| Total Proposed System Cost | 8,986,700.00 | 6,849,835.00 | 7,192,327.00 | 7,551,943.00 | 7,929,540.00 |

Table 3.11 Five-year accumulated proposed system cost

| Year | Total Proposed Cost | Accumulated Cost |
|------|---------------------|------------------|
| 1 | 8,986,700.00 | 8,986,700.00 |
| 2 | 6,849,835.00 | 15,836,535.00 |
| 3 | 7,192,326.75 | 23,028,861.75 |
| 4 | 7,551,943.09 | 30,580,804.84 |
| 5 | 7,929,540.24 | 38,510,345.08 |

(3) Comparison of the system cost between existing system and the proposed system

Table 3.12 Comparison between systems cost

| Year | Accumulated Existing System Cost | Accumulated Proposed System Cost |
|------|----------------------------------|----------------------------------|
| 1 | 8,268,500.00 | 8,986,700.00 |
| 2 | 15,987,575.00 | 15,836,535.00 |
| 3 | 24,092,603.75 | 23,028,861.75 |
| 4 | 32,602,883.94 | 30,580,804.84 |
| 5 | 41,538,678.13 | 38,510,345.08 |

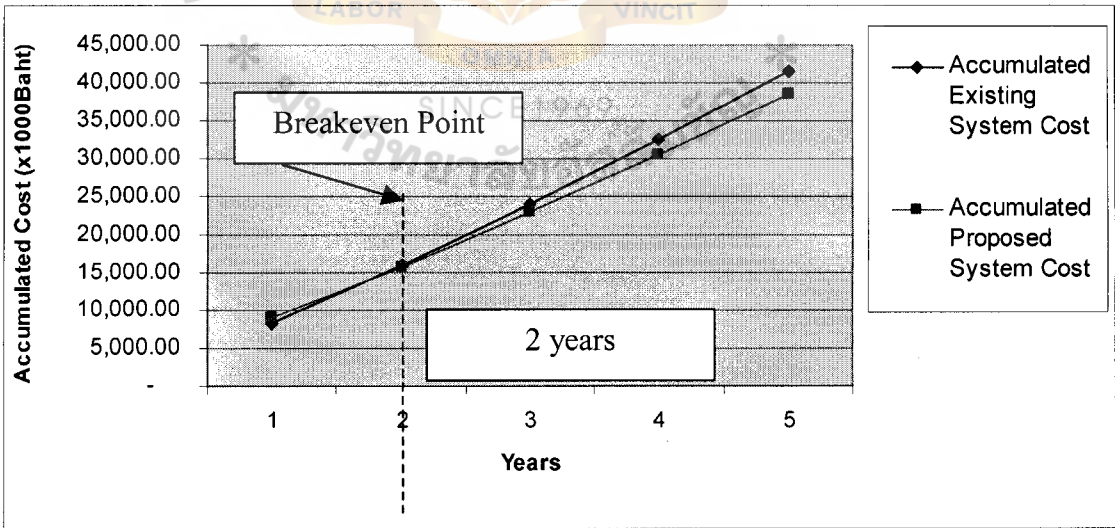


Figure 3.22 Comparison between existing system and the proposed system

IV. PROJECT IMPLEMENTATION

4.1 Overview of Project Implementation

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

- (1) Software acquisition, development and installation
- (2) Hardware acquisition and installation
- (3) Personnel training
- (4) Site preparation
- (5) Data preparation
- (6) Testing
- (7) Conversion
- (8) Documentation

Moreover, it also involves fine tuning system elements, in order to maximize the system efficiency and productivity.

- (1) Software acquisition, development and installation

The project team follow phase development paradigm because this system is new to the hotel. Some of processes are reengineered to meet the desired goals therefore requirements are somewhat unclear. Another issue is that the system will be the basis for future systems as the hotel might expand so the technology use is rather new to the team.

(2) Hardware acquisition and installation

After the software development is finished. The project team acquired hardware according to the specification and installs them accordingly.

(3) Personnel training

Phase development paradigm hands over pieces of the project to users incrementally. Users will be trained gradually when each piece is handed to them.

(4) Site preparation

Site preparation are handle by the technical support department in accompany with system analyst and users.

(5) Data preparation

Users, system analysts, and database administrators handle this part of the project.

(6) Testing

Programmers have unit test each piece before they submit to the team for integration. After necessary pieces are gathered they are integrated and perform an integration test by testers. If there is something wrong in a module the tester hand it back to the programmer for correction. After the integration test is complete, the tester hands it to the analyst who in turn introduces it the users.

(7) Conversion

The project team chooses a parallel conversion as it methodology because the project is new to the users. Half of the receptionists in the lobby will use the old process while the other half uses the new one. The hotel still opens lines for customers to book for rooms as the old days. The new

method also opens as another choice for customers to choose. The hotel sends emails to customers to inform them about the new way to book for rooms.

(8) Documentation

The management emphasizes on an easy-to-use system. They want their staff to spend less time studying the system. The team acknowledges this issue so they put a lot of help screens on almost every page. Furthermore, system manuals are distributed to users as well as customers.

4.2 Source Code

The language chosen for this project is Microsoft ASP 3.0 using VBScript language. The project will be implemented as web application both external and internal modules.

4.3 Test Plan

The project team has schedule test plan for the project as follows. First programmers unit test their own responsible modules. After that all modules are collected, integrated, and tested. Finally, the whole project will be handed over to users for acceptance test.

4.4 Conversion

The conversion process starts internally at the lobby first. They will be half of receptionists using the new system and the other half using the old. When everything is alright, the conversion is then expanded to other departments and finally to the guests. E-mails will be sent to guests as well as information regarding the use of new system will be posted on the hotel's web site.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

As shown in the previous chapter, the proposed system reduces an amount of cost spent in the existing system to some degree. The set up cost for the new system is quite high at the first place because a lot of high performance technologies are introduced here. This high technology software and hardware, as well as the project itself, will serve as a basis for the next project and so on. This will bring great benefit to the hotel in the long run. The project needs two years to reach the breakeven point as shown in the graph. The number is acceptable and is worth investing to get it done. Furthermore, the success of the project also introduces some intangible benefits to the hotel as well. The obvious one and the most important is the increase of customer satisfaction since guests can easily make reservations from anywhere anytime by themselves. The system also reduces guests efforts and expenses their previously suffer with the old system. In conclusion the system successful offer benefits to hotel as expected as shown in the following table.

Table 5.1 Achievement List

| Criteria | Achievement |
|------------------------|---|
| Number Reservations | The reservation channel is open to all customers around the globe through the Internet. It is also always available. The number of reservation will be increase by 10% at least. |
| Speed of operation | Most of the reservation tasks, e.g. customer personal information fill in, has done by the customer already. Therefore at the lobby, receptionist just only checks in the reservation to complete the process. The operating speed is increase significantly. |
| Reduction in workforce | Number of receptionist will be increase from 30 to 25. |
| Correctness of data | The system is computerized so most of the tasks are done by computer, which increase the correctness of data significantly. |

5.2 Recommendation

By moving some parts of the job to the customer, receptionist has only a few tasks left to continue the reservation process. More customers can be serviced than the old days within the same amount of time. This is the main objective of the system. Unfortunately, there are some limitations that prevent them from using the system. The first one is that, new customers who have never come to the area before wants to see the real view of the area not just pictures. These customers may not use the system. Another limitation is that some customers are not sure about the security so they may not expose their information, e.g. credit card number, online so these customers may also not use the system.

It is possible to apply this system to other kinds of reservation system. In the future, if successful, the hotel may put the system to its branches at other areas such resorts, and conference center. As mentioned earlier, the system is the basis for future systems. The hotel aims for absolute integration of all its departments and branches. In the future, the system might be converted to be object oriented system, which much better in many aspects.



APPENDIX A
INTERFACE DESIGN

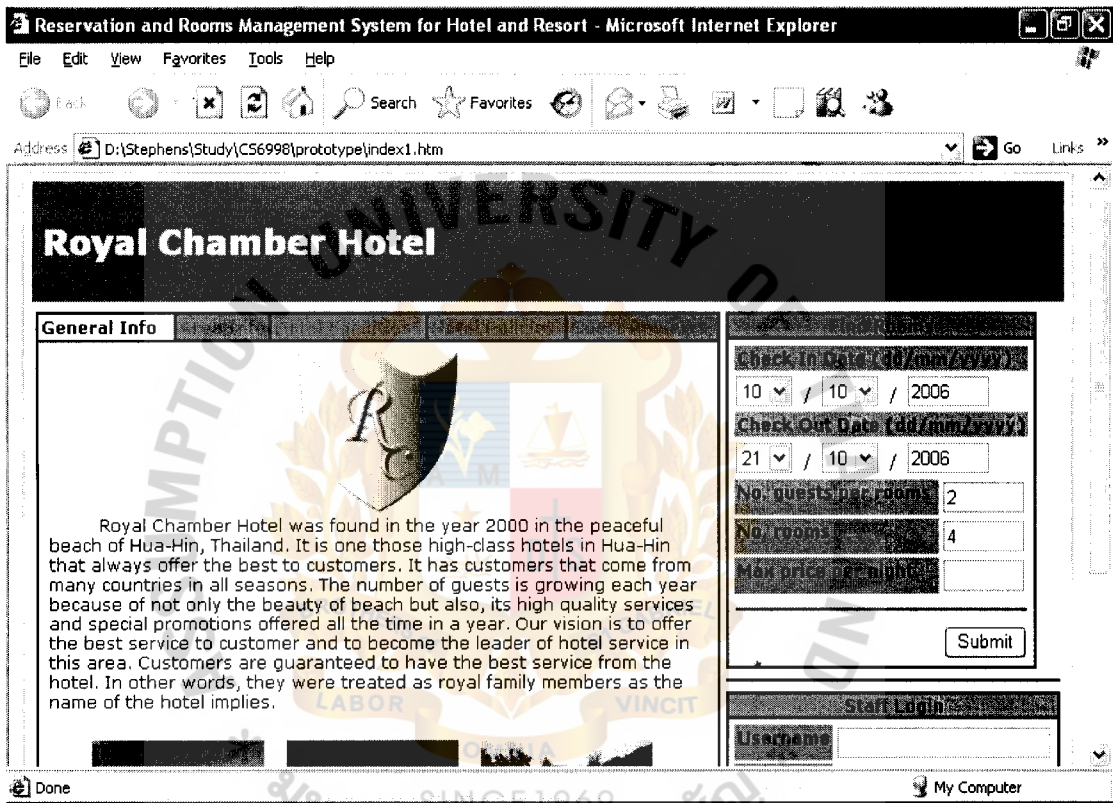


Figure A.1 General Info Page

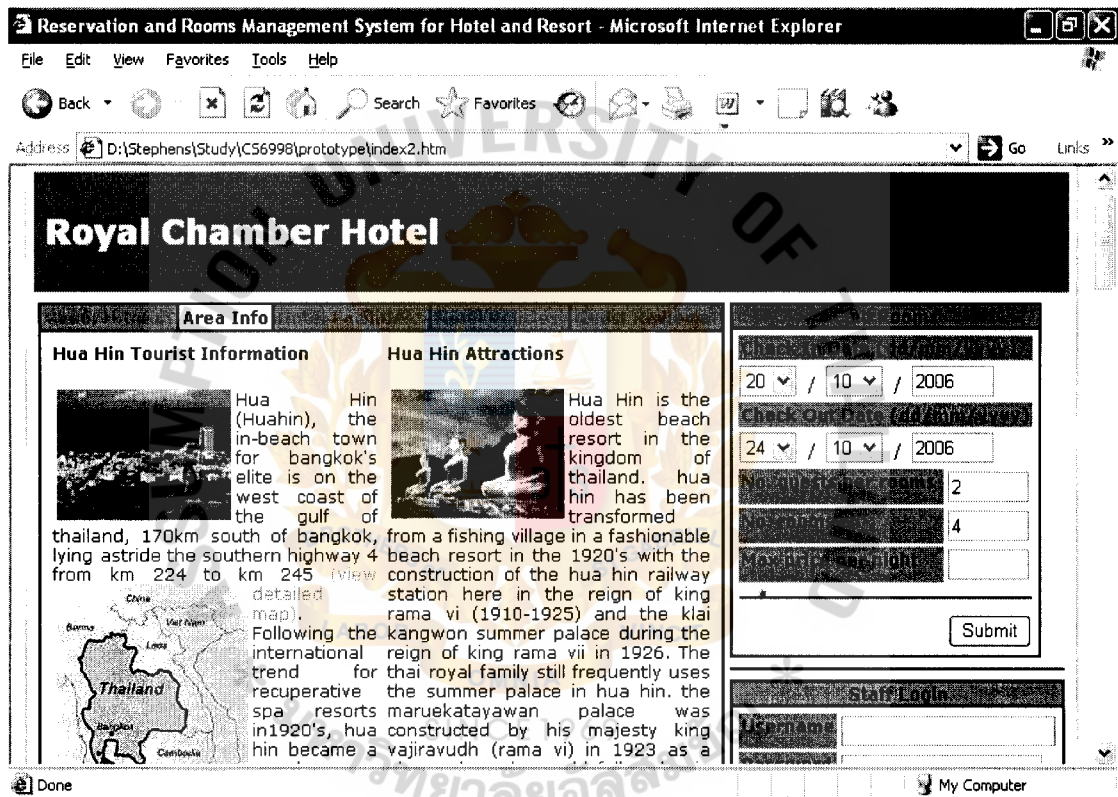


Figure A.2 Area Info Page

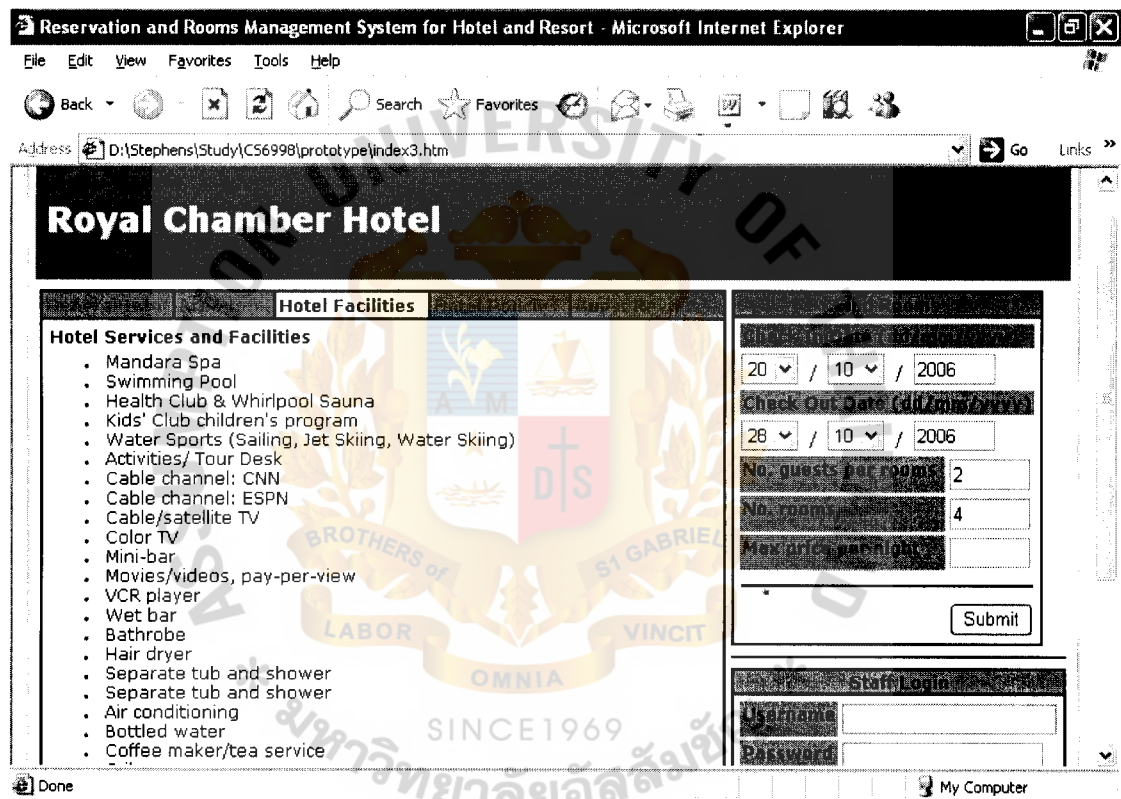


Figure A.3 Hotel Facilities Page

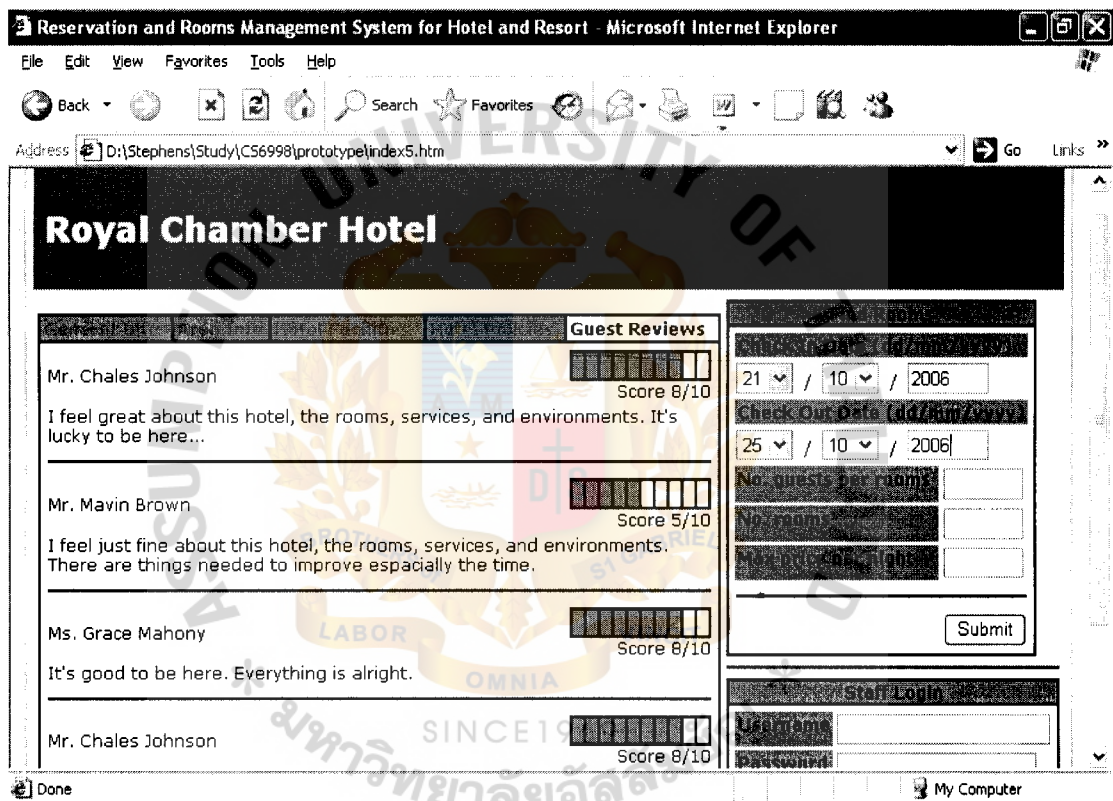


Figure A.5 Guest Review Page

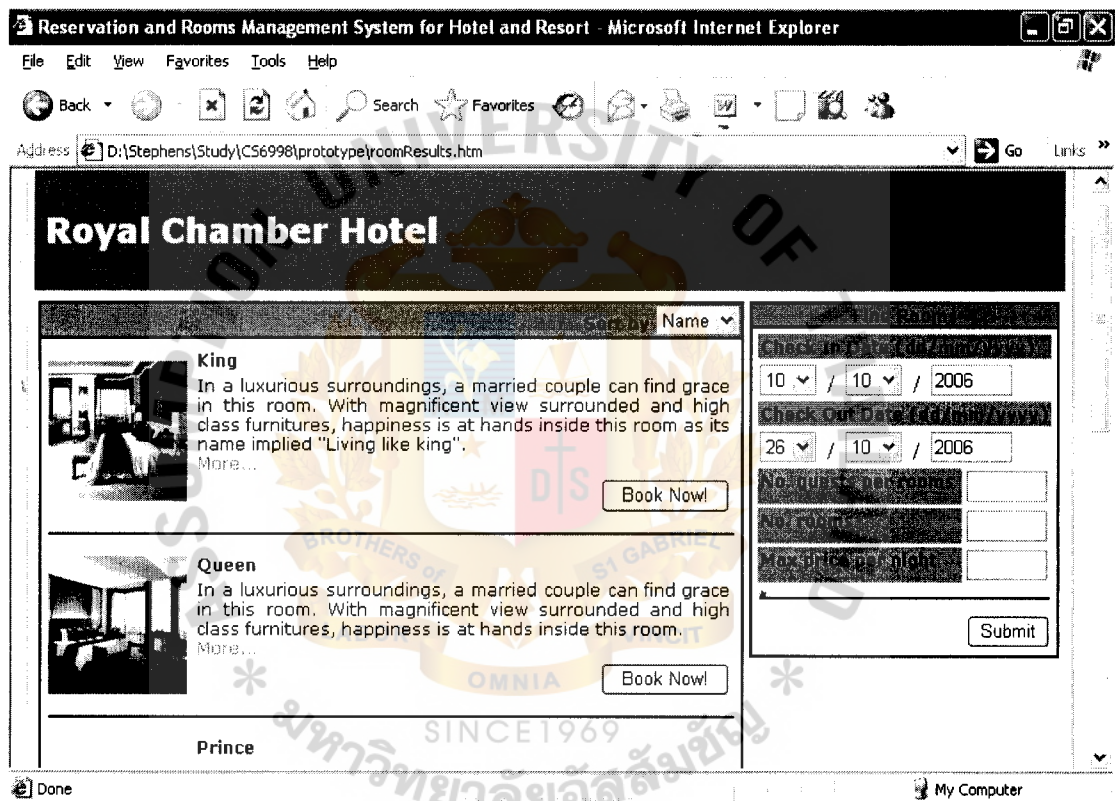


Figure A.6 Room Search Results Page

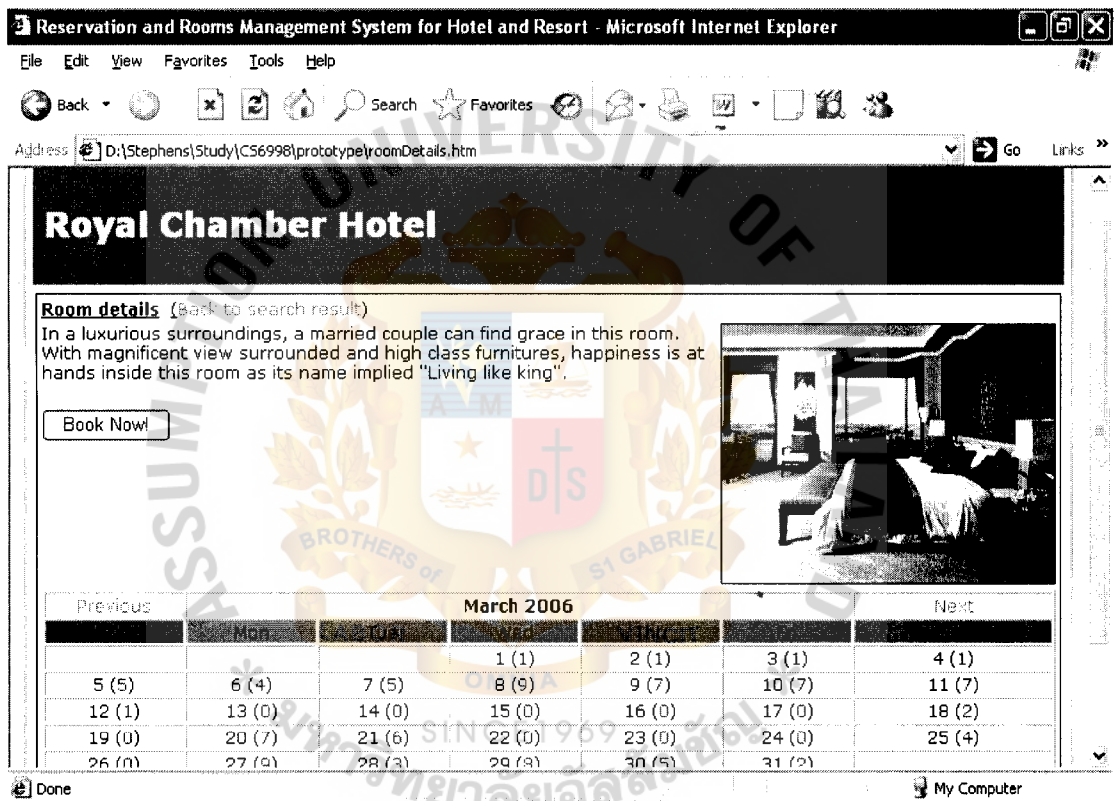


Figure A.7 Room Details Page

Reservation and Rooms Management System for Hotel and Resort - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Go Links

Address D:\Stephens\Study\CS6998\prototype\step2.htm

Royal Chamber Hotel

1. Find rooms 2. Guest details 3. Payment 4. Summary

| | |
|----------------------------|-----------------------|
| Citizen ID or passport no. | 3770400106246 |
| Firstname | Christ |
| Lastname | Jones |
| Address | 81/3 Happy Land road. |
| Phone | 097876345 |
| E-Mail address | christj@hotmail.com |
| Confirm e-mail address | christj@hotmail.com |
| Credit card type | American Express |

Done My Computer

Figure A.8 Step 2-Guest Details Page (1)

Reservation and Rooms Management System for Hotel and Resort - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites

Address Go Links »

Confirm e-mail address

Credit card type American Express ▼

Credit card no.

Holder's name

Expires date (dd/mm/yyyy) / /

CVC Code

Room details

| Room No. | Building | Floor | Guest Name |
|----------|----------|-------|-----------------|
| A715 | A | 7 | Christ Jones |
| A613 | A | 6 | Mariana Jones |
| A714 | A | 7 | Jonathan Jones |
| B814 | B | 8 | Christina Jones |

Reservations and Rooms Management System for Hotel and Resort v1.2
CS6998 System Development Project 1/2006

Done My Computer

Figure A.9 Step 2-Guest Details Page (2)

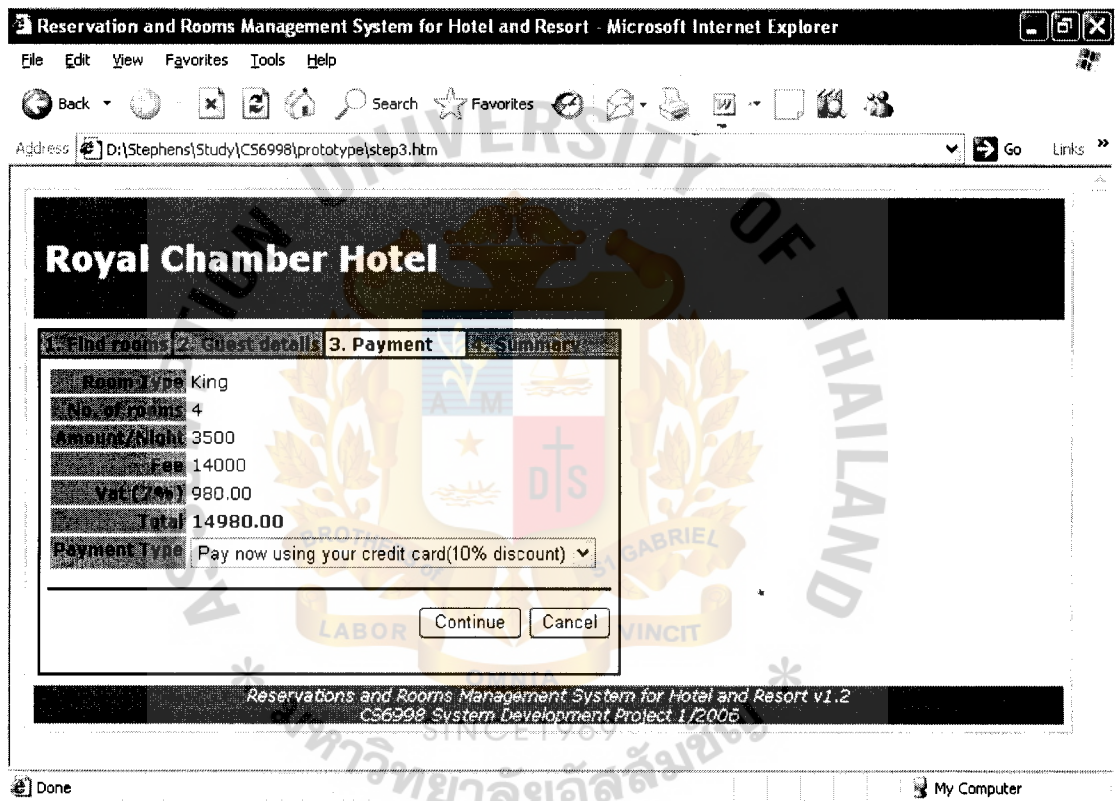


Figure A.10 Step 3 – Payment Page

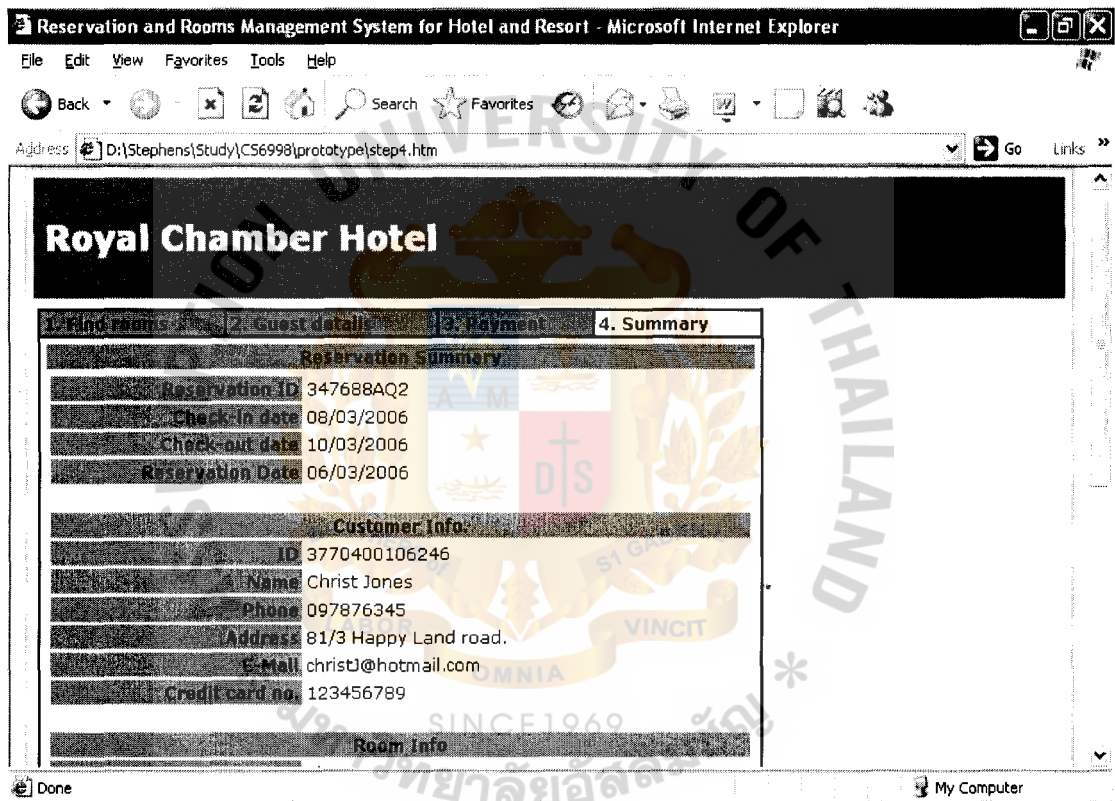


Figure A.11 Step 4 – Reservation Summary Page (1)

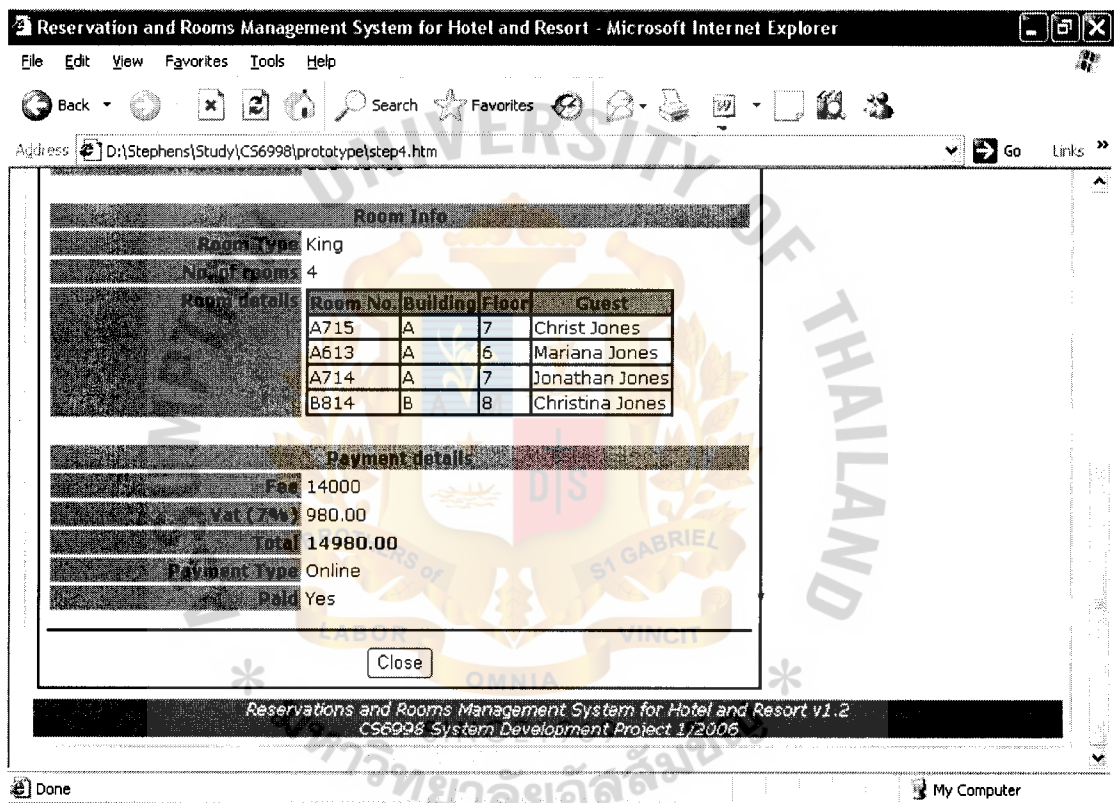


Figure A.12 Step 4 – Reservation Summary (2)

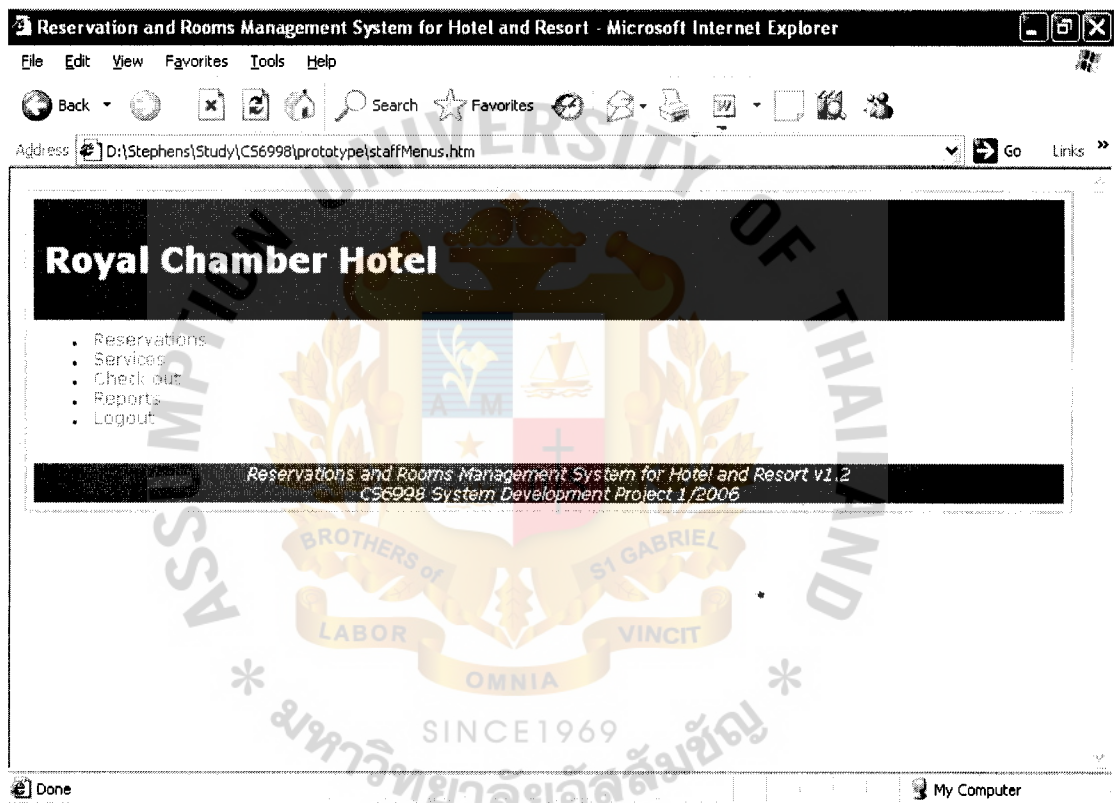


Figure A.13 Staff Menus Page

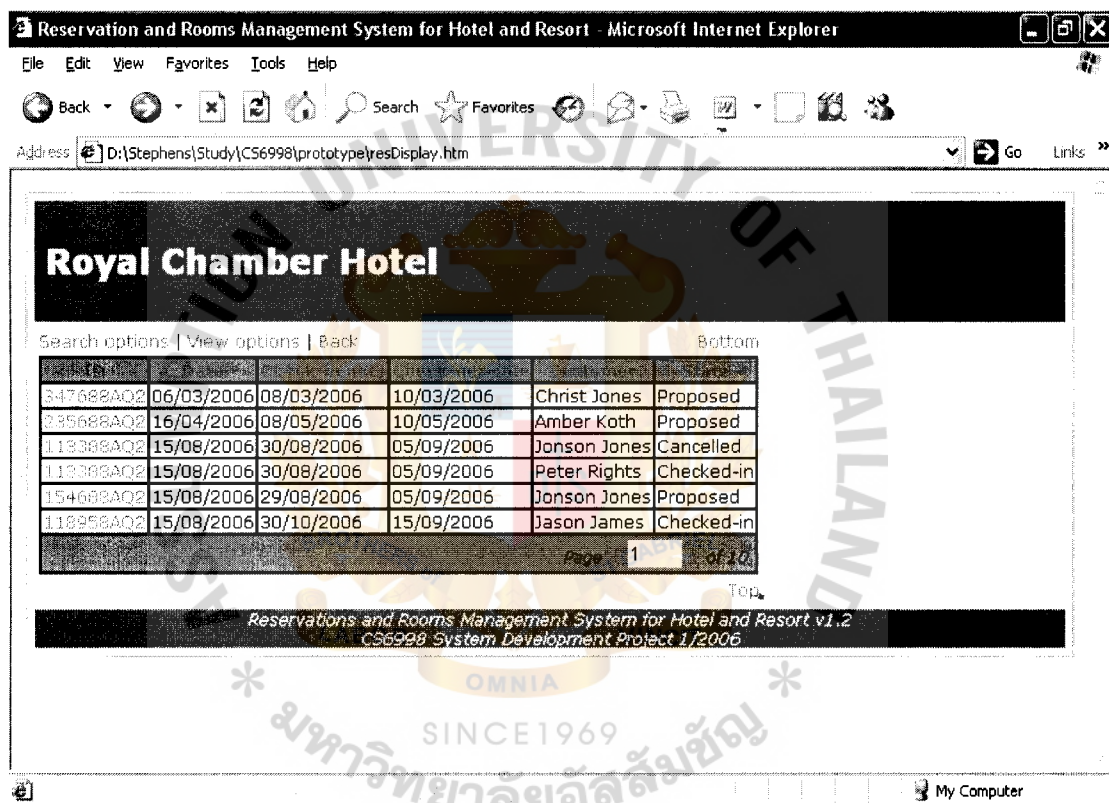


Figure A.14 Reservation Search Page

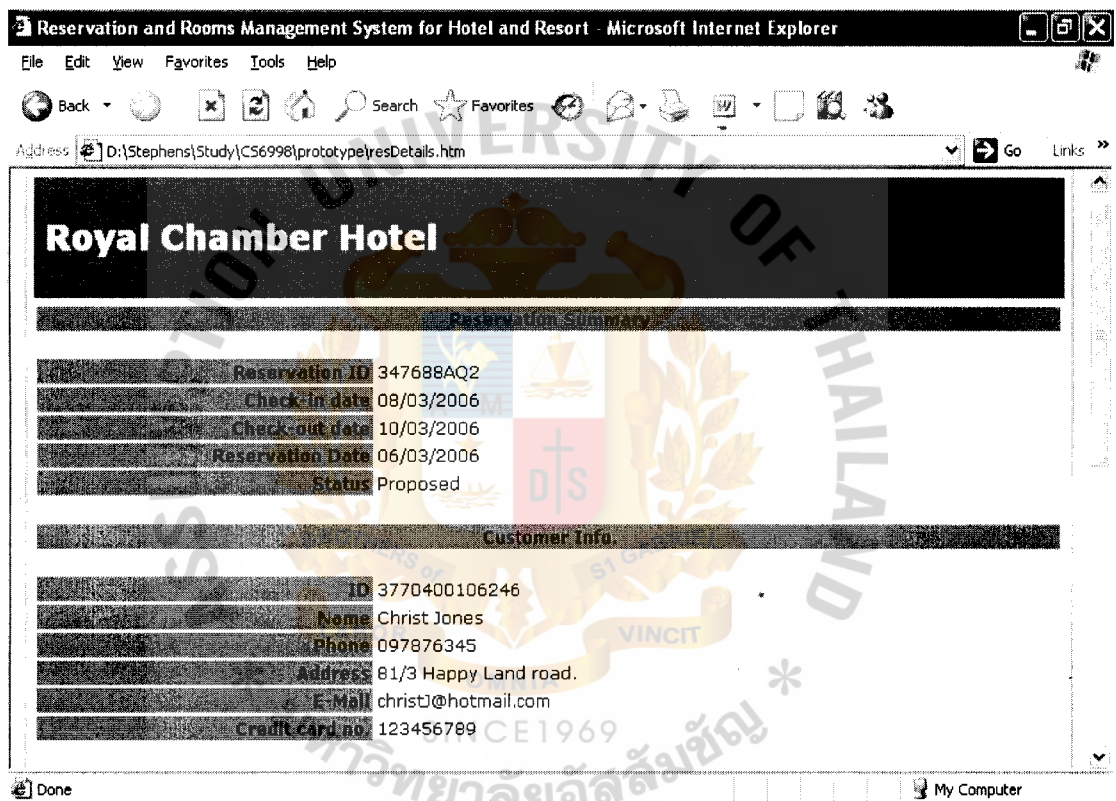


Figure A.15 Reservation Details Page (1)

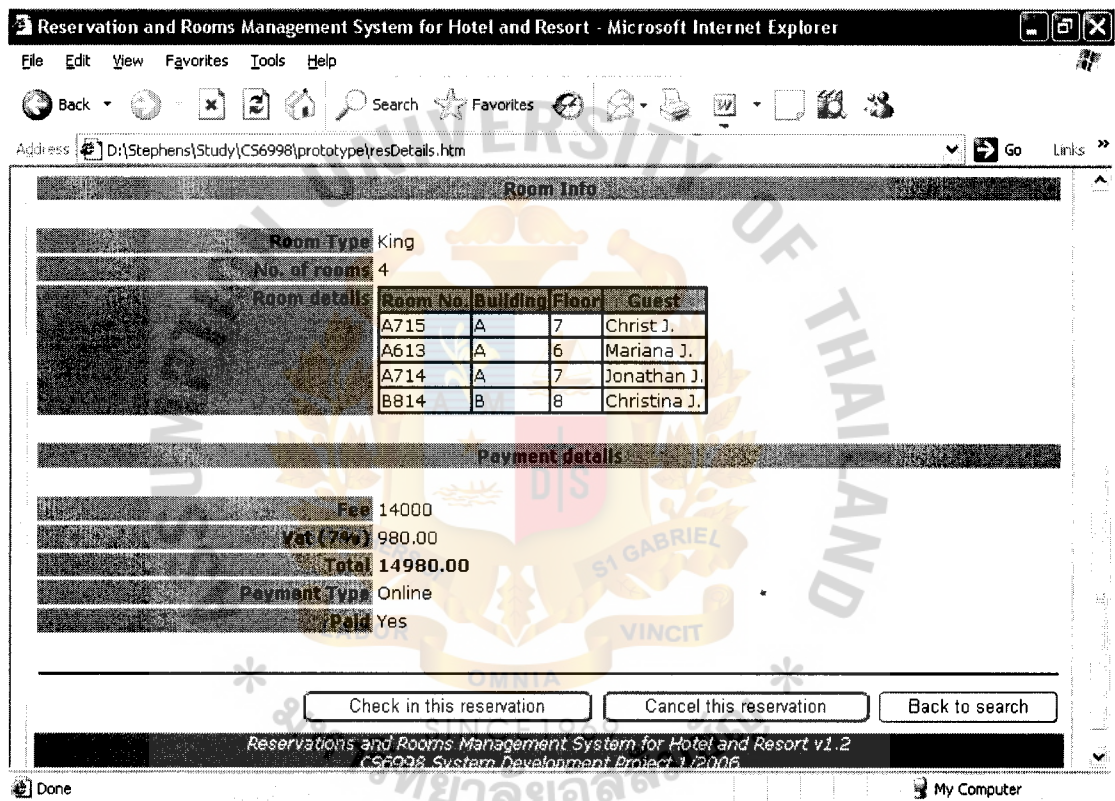


Figure A.16 Reservation Details Page (2)

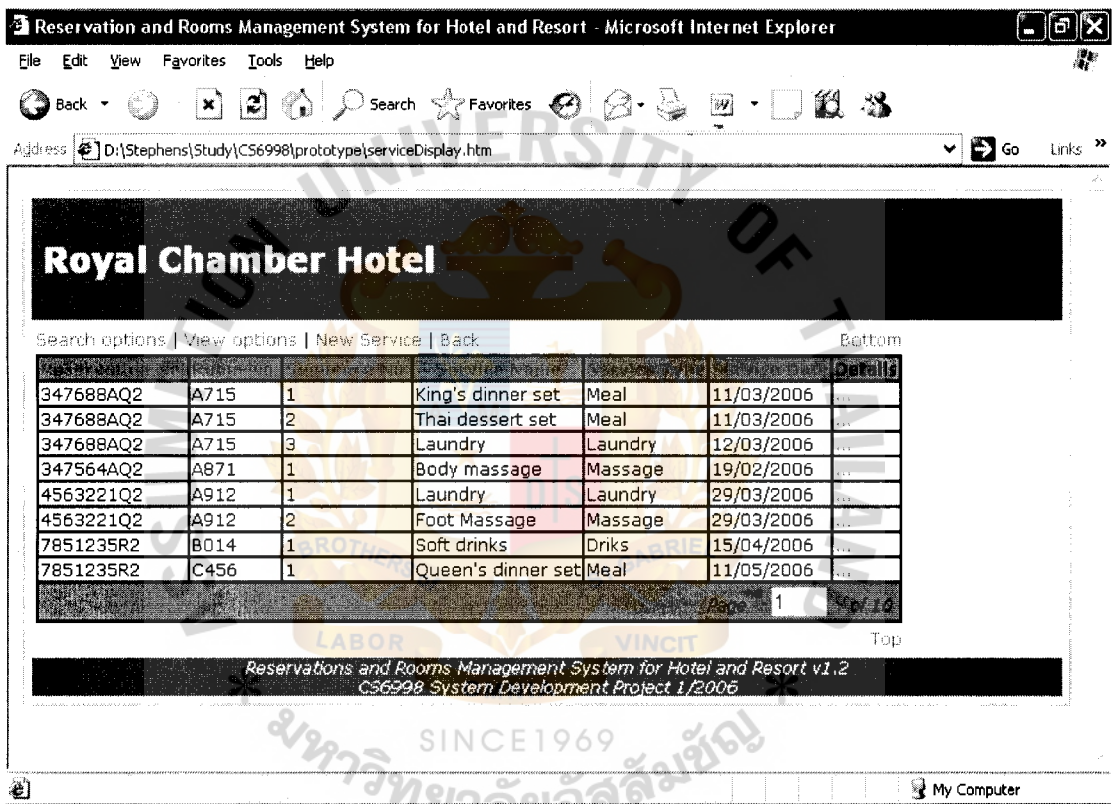


Figure A.17 Service Search Page

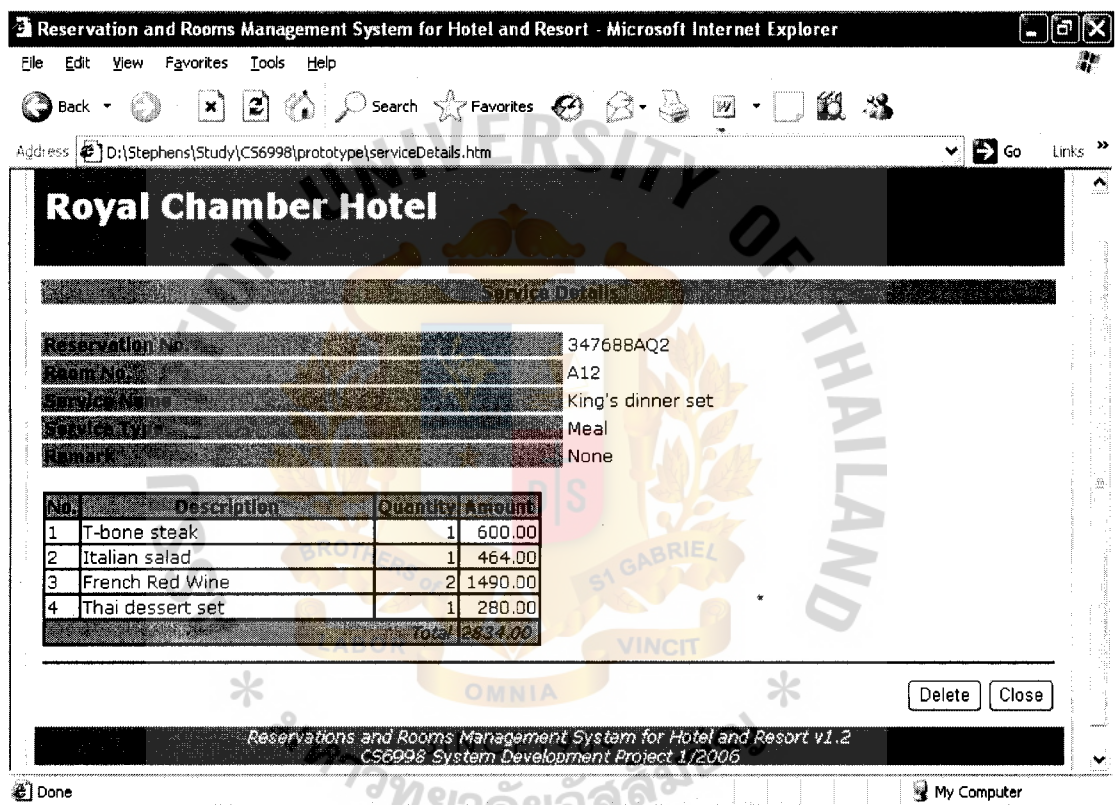


Figure A.18 Service Details Page

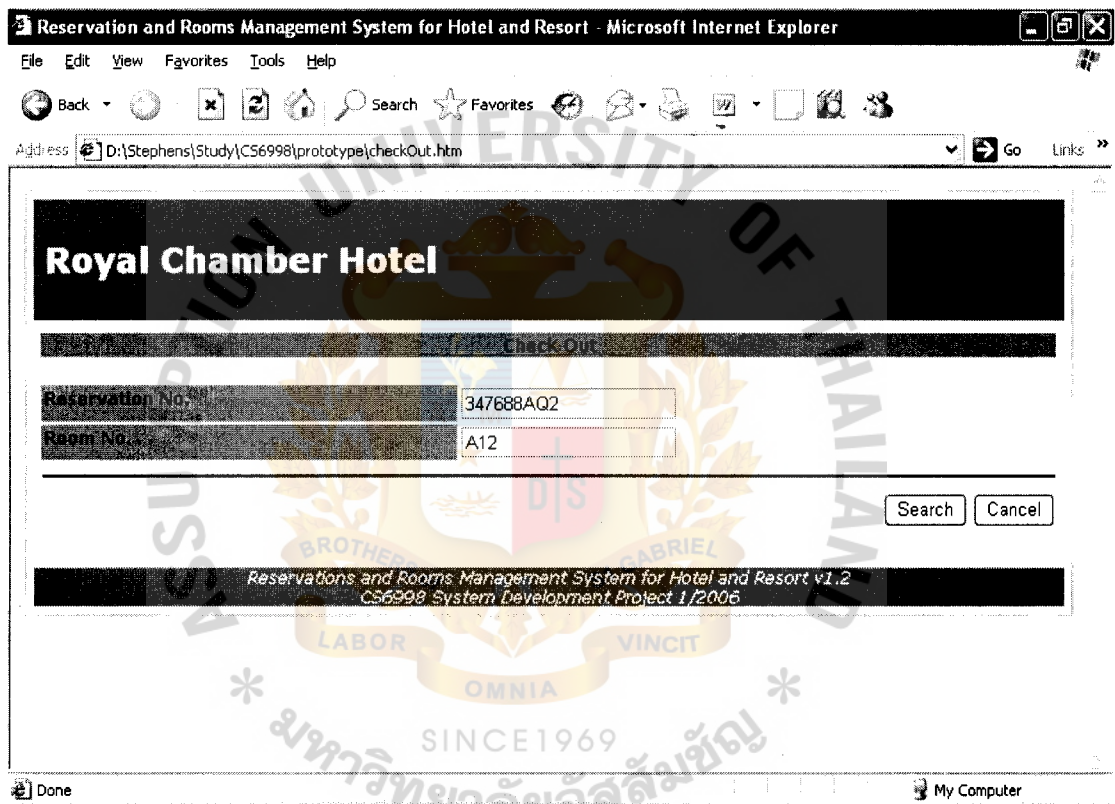


Figure A.19 Check out Step 1 – Room Search Page

Reservation and Rooms Management System for Hotel and Resort - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites

Address D:\Stephens\Study\CS6998\prototype\checkOutConf.htm Go Links

Royal Chamber Hotel

Check Out Details

Reservation No. 347688AQ2
 Room No. A12
 Guest Name Christ Jones
 Check-in Date 23/09/2006 14:00

Services

| No. | Service | Date | Amount |
|-------|--------------------------|------------|---------|
| 1 | Meal (King's dinner set) | 23/09/2006 | 3464.00 |
| 2 | Laundry | 24/09/2006 | 250.00 |
| 3 | Massage | 25/09/2006 | 560.00 |
| 4 | Meal (breakfast set) | 25/09/2006 | 1200.00 |
| 5 | Mini bar | 27/09/2006 | 570.00 |
| Total | | | 2934.00 |

SINCE 1969

Check out Cancel

Done My Computer

Figure A.20 Check out Step 2 – Check Out Page

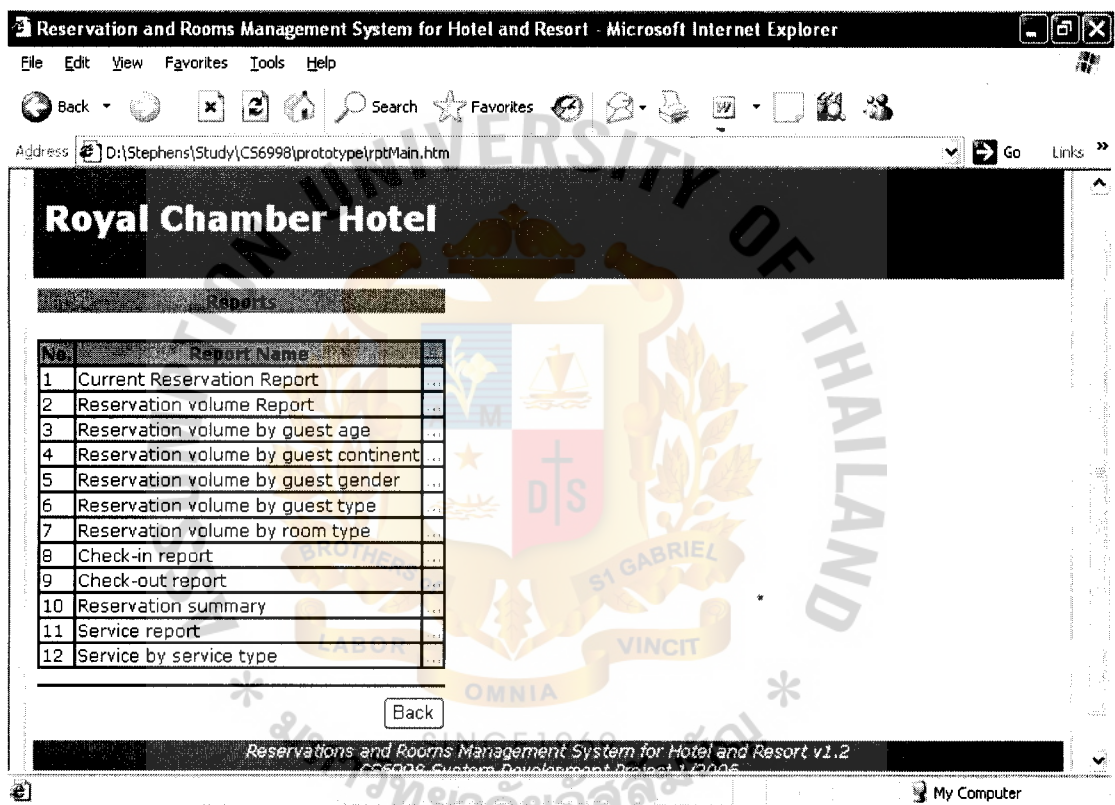


Figure A.21 Report Menus Page



APPENDIX B

REPORT DESIGN

Royal Chamber Hotel

Reservation Report

From 1/9/2006 To 1/10/2006

| Res. No. | Res. Date | Check-in date | Check-out date | Room Type | No. Of Rooms | Reserver |
|-----------|------------|---------------|----------------|-----------|--------------|---------------|
| 347688AQ2 | 06/10/2006 | 08/03/2006 | 10/03/2006 | King | 4 | Christ Jones |
| 545779PA1 | 19/10/2006 | 25/10/2006 | 30/10/2006 | Queen | 2 | Jan Kurosky |
| 452365FB2 | 28/09/2006 | 30/09/2006 | 02/10/2006 | King | 3 | Micheal Deens |
| 455621CV3 | 18/10/2006 | 20/10/2006 | 22/10/2006 | Knight | 1 | Marin Blue |
| 560565PO5 | 21/09/2006 | 21/10/2006 | 24/10/2006 | Princes | 2 | Amy Lee |
| 560565PO5 | 21/09/2006 | 21/10/2006 | 24/10/2006 | Princes | 2 | Amy Lee |

Figure B.1 Current Reservation Report

Royal Chamber Hotel

Reservation Volume for year 2006

| Month | Reservation Volume |
|-------|--------------------|
| Jan | 49 |
| Feb | 6 |
| Mar | 12 |
| Apr | 64 |
| May | 54 |
| Jun | 23 |
| Jul | 21 |
| Aug | 32 |
| Sep | 23 |
| Oct | 12 |
| Nov | 12 |
| Dec | 57 |
| | 365 |

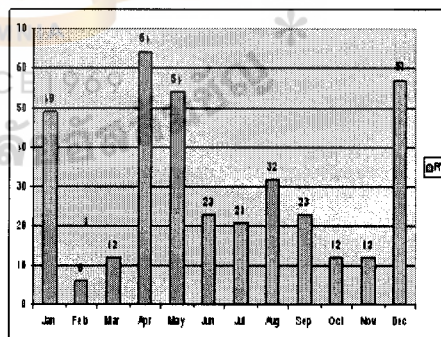
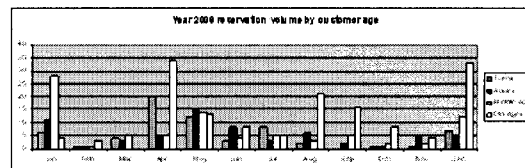


Figure B.2 Reservation Volume Report

Royal Chamber Hotel

Reservation Volume by Guest Age

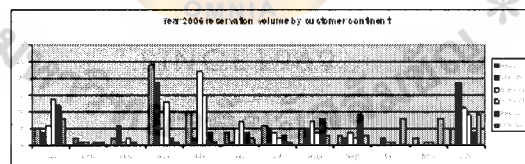


| Age/Month | Teens | Adults | Middle ages | Old ages |
|-----------|-------|--------|-------------|----------|
| Jan | 6 | 11 | 28 | 4 |
| Feb | 1 | 1 | 1 | 3 |
| Mar | 4 | 3 | 5 | 0 |
| Apr | 20 | 5 | 5 | 34 |
| May | 12 | 15 | 14 | 13 |
| Jun | 3 | 8 | 4 | 8 |
| Jul | 8 | 3 | 5 | 5 |
| Aug | 2 | 6 | 3 | 21 |
| Sep | 0 | 2 | 5 | 16 |
| Oct | 1 | 1 | 2 | 8 |
| Nov | 1 | 5 | 2 | 4 |
| Dec | 7 | 5 | 12 | 33 |

Figure B.3 Reservation Volume by Guest Age Report

Royal Chamber Hotel

Reservation Volume by Guest Continent

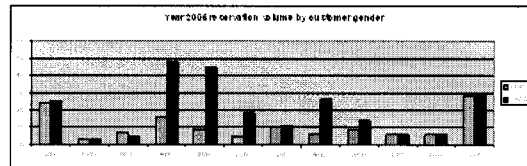


| Continent/Month | Asia | Europe | N America | S America | Africa | Oceania |
|-----------------|------|--------|-----------|-----------|--------|---------|
| Jan | 5 | 4 | 6 | 14 | 12 | 8 |
| Feb | 2 | 1 | 1 | 0 | 1 | 1 |
| Mar | 2 | 6 | 1 | 2 | 1 | 0 |
| Apr | 24 | 19 | 5 | 13 | 2 | 1 |
| May | 10 | 2 | 22 | 16 | 4 | 1 |
| Jun | 4 | 1 | 5 | 7 | 4 | 2 |
| Jul | 6 | 5 | 4 | 2 | 3 | 1 |
| Aug | 5 | 5 | 7 | 4 | 8 | 3 |
| Sep | 3 | 2 | 4 | 2 | 9 | 3 |
| Oct | 0 | 2 | 1 | 1 | 0 | 8 |
| Nov | 2 | 0 | 1 | 1 | 0 | 8 |
| Dec | 5 | 19 | 11 | 9 | 4 | 9 |

Figure B.4 Reservation Volume by Guest Continent

Royal Chamber Hotel

Reservation Volume by Guest Gender

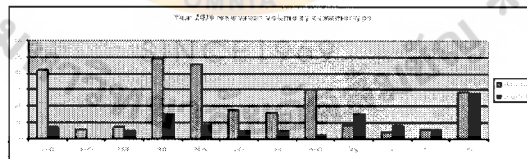


| Gender/Month | Male | Female |
|--------------|------|--------|
| Jan | 24 | 25 |
| Feb | 3 | 3 |
| Mar | 7 | 5 |
| Apr | 15 | 48 |
| May | 9 | 45 |
| Jun | 5 | 18 |
| Jul | 10 | 11 |
| Aug | 6 | 28 |
| Sep | 9 | 14 |
| Oct | 6 | 6 |
| Nov | 6 | 6 |
| Dec | 28 | 29 |

Figure B.5 Reservation Volume by Guest Gender

Royal Chamber Hotel

Reservation Volume by Guest Type

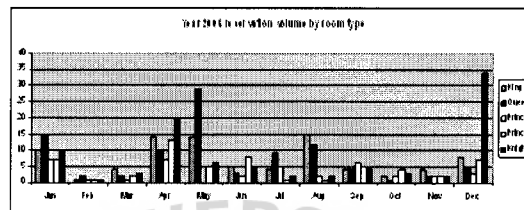


| Customer type/Month | Individual | Corporate |
|---------------------|------------|-----------|
| Jan | 42 | 7 |
| Feb | 6 | 0 |
| Mar | 7 | 5 |
| Apr | 40 | 15 |
| May | 48 | 8 |
| Jun | 18 | 5 |
| Jul | 16 | 5 |
| Aug | 30 | 2 |
| Sep | 8 | 15 |
| Oct | 4 | 8 |
| Nov | 6 | 6 |
| Dec | 29 | 28 |

Figure B.6 Reservation Volume by Guest Type

Royal Chamber Hotel

Reservation Volume by Room Type



| RoomType/Month | King | Queen | Prince | Princes | Knight |
|----------------|------|-------|--------|---------|--------|
| Jan | 10 | 15 | 7 | 7 | 10 |
| Feb | 1 | 2 | 1 | 1 | 1 |
| Mar | 4 | 2 | 1 | 2 | 3 |
| Apr | 14 | 10 | 7 | 13 | 20 |
| May | 14 | 29 | 0 | 5 | 6 |
| Jun | 5 | 3 | 2 | 8 | 5 |
| Jul | 4 | 9 | 5 | 1 | 2 |
| Aug | 15 | 12 | 2 | 1 | 2 |
| Sep | 4 | 4 | 6 | 5 | 4 |
| Oct | 2 | 1 | 2 | 4 | 3 |
| Nov | 4 | 2 | 2 | 2 | 2 |
| Dec | 8 | 5 | 3 | 7 | 34 |

Figure B.7 Reservation Volume by Room Type

Royal Chamber Hotel

Reservation Summary

Reservation ID 347688AQ2
 Check-in date 08/03/2006
 Check-out date 10/03/2006
 Reservation date 06/03/2006
 Reserver Name Christ Jones

Room Type King
 No. of Rooms 4
 Room details

| Room No. | Building | Floor | Guest |
|----------|----------|-------|-----------------|
| A715 | A | 7 | Christ Jones |
| A613 | A | 6 | Mariana Jones |
| A714 | A | 7 | Jonathan Jones |
| B814 | B | 8 | Christina Jones |

Figure B.8 Check In Summary Report

Royal Chamber Hotel

Check out summary report

Reservation No. 347688AQ2
Room No. A715
Checked in date 23/09/2006 14:00
Guest Christ Jones

Additional services

| No. | Service | Date | Amount |
|-----|--------------------------|------------|----------------|
| 1. | Meal (King's dinner set) | 23/09/2006 | 3464.00 |
| 2. | Laundry | 24/09/2006 | 250.00 |
| 3. | Massage | 25/09/2006 | 560.00 |
| 4. | Meal(Breakfast set) | 25/09/2006 | 1200.00 |
| 5. | Mini bar | 27/09/2006 | 570.00 |
| | <i>Total</i> | | <i>2834.00</i> |

Figure B.9 Check Out Summary Report

Royal Chamber Hotel

Review Report

| Score Range | Volume |
|-------------|--------|
| 1 to 2 | 78 |
| 3 to 4 | 124 |
| 5 to 6 | 879 |
| 7 to 8 | 674 |
| 9 to 10 | 641 |

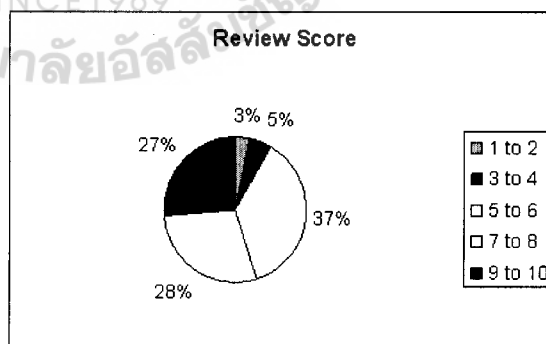


Figure B.10 Review Report

Royal Chamber Hotel

Current Service Report

From 1/9/2006 To 1/10/2006

| Res. No. | Room No. | Seq. No. | Service | Type | Date |
|-----------|----------|----------|--------------------|---------|------------|
| 347688AQ2 | A715 | 1 | King's dinner set | Meal | 11/03/2006 |
| 347688AQ2 | A715 | 2 | Thai dessert set | Meal | 11/03/2006 |
| 347688AQ2 | A715 | 3 | Laundry | Laundry | 12/03/2006 |
| 347564AQ2 | A871 | 1 | Body massage | Massage | 19/02/2006 |
| 4563221Q2 | A912 | 1 | Laundry | Laundry | 29/03/2006 |
| 4563221Q2 | A912 | 2 | Foot Massage | Massage | 29/03/2006 |
| 7851235R2 | B014 | 1 | Soft drinks | Drinks | 15/04/2006 |
| 7851235R2 | C456 | 1 | Queen's dinner set | Meal | 11/05/2006 |

Figure B.11 Service Report

Royal Chamber Hotel

Service volume by service type

| Service Type | Volume |
|--------------|--------|
| Meal | 42 |
| Laundry | 6 |
| Massage | 7 |
| Drink | 49 |
| Room Service | 46 |
| Car Rent | 18 |

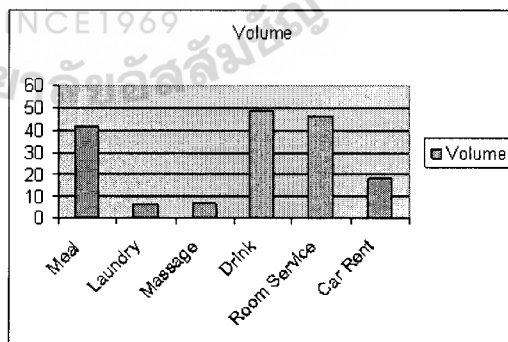


Figure B.12 Service By Service Type Report



APPENDIX C

DATABASE DESIGN

HRS Database

Table C.1. PaymentType table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|-----------------|-------------|-------|--------|----------|----------------------|-----------|-------------|
| 1 | PAYMENT_TYPE_ID | Integer | Y | Y | | | | Primary Key |
| 2 | PAYMENT_TYPE | Varchar(50) | | | | | | Attribute |
| 3 | DISCOUNT_FACTOR | Decimal | | | | | 0.0 - 1.0 | Attribute |

Table C.2. RoomType Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|---------------|--------------|-------|--------|----------|----------------------|-------------|-------------|
| 1 | ROOM_TYPE_ID | Integer | Y | Y | | | | Primary Key |
| 2 | NAME | Varchar(50) | | | | | | Attribute |
| 3 | CAPACITY | Integer | | | | | ≥ 0 | Attribute |
| 4 | PRICE_FACTOR | Decimal | | | | | ≥ 0 | Attribute |
| 5 | GRADE | Char(1) | | | | | { A, B, C } | Attribute |
| 6 | SHORT_DESC | Varchar(50) | | | | | | Attribute |
| 7 | LONG_DESC | Varchar(255) | | | | | | Attribute |
| 8 | SMALL_PICTURE | Blob | | | | | | Attribute |
| 9 | BIG_PICTURE | Blob | | | | | | Attribute |

Table C.3. Reservation Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|--------------------|--------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | RES_ID | Integer | Y | Y | | | | Primary Key |
| 2 | CHECK_IN_DATE | Date | | | | | | Attribute |
| 3 | CHECK_OUT_DATE | Date | | | | | | Attribute |
| 4 | RESERVATION_DATE | Date | | | | | | Attribute |
| 5 | RESERVER_CIZ_ID | Varchar(20) | | | | | | Attribute |
| 6 | RESERVER_FIRSTNAME | Varchar(50) | | | | | | Attribute |
| 7 | RESERVER_LASTNAME | Varchar(50) | | | | | | Attribute |
| 8 | RESERVER_ADDRESS | Varchar(255) | | | Y | | | Attribute |
| 9 | RESERVER_PHONE | Varchar(20) | | | | | | Attribute |
| 10 | RESERVER_EMAIL | Varchar(40) | | | | | | Attribute |
| 11 | CREDIT_TYPE | Varchar(50) | | | | | | Attribute |
| 12 | CREDIT_NO | Varchar(20) | | | | | | Attribute |
| 13 | CREDIT_HOLDER | Varchar(50) | | | | | | Attribute |
| 14 | CREDIT_EXPIRE | Date | | | | | | Attribute |
| 15 | CREDIT_CVC | Varchar(10) | | | | | | Attribute |
| 16 | PAYMENT_TYPE_ID | Integer | | | | PaymentType | | Attribute |
| 17 | STATE | Char(1) | | | | | | Attribute |
| 18 | PAID | Boolean | | | | | | Attribute |

Table C.4. Review Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|------------|--------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | REVIEW_ID | Integer | Y | Y | | | | Primary Key |
| 2 | RES_ID | Integer | | | | Reservation | | Attribute |
| 3 | SCORE | Integer | | | | | | Attribute |
| 4 | MAX_SCORE | Integer | | | | | | Attribute |
| 5 | CONTENTS | Varchar(255) | | | | | | Attribute |

Table C.5. Room Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|--------------|-------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | ROOM_ID | Char(4) | Y | Y | | | | Primary Key |
| 2 | ROOM_TYPE_ID | Integer | | | | RoomType | | Attribute |
| 3 | BUILDING | Varchar(50) | | | | | | Attribute |
| 4 | FLOOR | Varchar(10) | | | | | | Attribute |

Table C.6. ResRoom Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|------------|------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | RES_ID | Integer | Y | | | Reservation | | Primary Key |
| 2 | ROOM_ID | Char(4) | Y | | | Rom | | Primary Key |

Table C.7. Guest Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|-----------------|-------------|-------|--------|----------|----------------------|--------|-------------|
| 1 | RES_ID | Integer | Y | | | ResRoom | | Primary Key |
| 2 | ROOM_ID | Char(4) | Y | | | | | Primary Key |
| 3 | GUEST_SEQ | Integer | Y | | | | | Primary Key |
| 4 | GUEST_FIRSTNAME | Varchar(50) | | | | | | Attribute |
| 5 | GUEST_LASTNAME | Varchar(50) | | | | | | Attribute |
| 6 | GUEST_GENDER | Char(1) | | | | | { M,F} | Attribute |
| 7 | GUEST_PHONE | Varchar(20) | | | | | | Attribute |
| 8 | GUEST_EMAIL | Varchar(30) | | | | | | Attribute |

Table C.8. Service Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|--------------|--------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | RES_ID | Integer | Y | | | ResRoom | | Primary Key |
| 2 | ROOM_ID | Char(4) | Y | | | | | Primary Key |
| 3 | SERVICE_SEQ | Integer | Y | | | | | Primary Key |
| 4 | SERVICE_DESC | Varchar(50) | | | | | | Attribute |
| 5 | SERVICE_TYPE | Varchar(10) | | | | | | Attribute |
| 6 | SERVICE_DATE | Date | | | | | | Attribute |
| 7 | REMARK | Varchar(255) | | | | | | Attribute |
| 8 | PAID | Boolean | | | | | | Attribute |

Table C.9. ServiceItem Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|-------------|-------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | RES_ID | Integer | Y | | | Service | | Primary Key |
| 2 | ROOM_ID | Char(4) | Y | | | | | Primary Key |
| 3 | SERVICE_SEQ | Integer | Y | | | | | Primary Key |
| 4 | ITEM_SEQ | Integer | Y | | | | | Primary Key |
| 5 | DESCRIPTION | Varchar(50) | | | | | | Attribute |
| 6 | QUANTITY | Integer | | | | | >= 0 | Attribute |
| 7 | AMOUNT | Decimal | | | | | >= 0 | Attribute |

Table C.10. ServiceType Table

| No | Field Name | Field Type | Index | Unique | Nullable | Foreign Key to Table | Check | Key Type |
|----|-----------------|-------------|-------|--------|----------|----------------------|-------|-------------|
| 1 | SERVICE_TYPE_ID | Integer | Y | | | | | Primary Key |
| 2 | SERVICE_TYPE | Varchar(20) | | | | | | Attribute |



APPENDIX D
PROCESS SPECIFICATION

PROCESS SPECIFICATION

Table D.1. Make Reservation Online Process

| | |
|---------------|---|
| Process Name: | Make Reservation Online |
| Data In: | Make Reservation Request |
| Data Out: | Reservation Summary |
| Process: | (1) Get reservation criteria, check-in date, check-out date, etc. (2) Get guest info (3) Create reservation |
| Attachment: | (1) Guest (2) Reservation Data Store (3) ResRoom Data Store (4) Guest Data Store |

Table D.2. Cancel Reservation Online Process

| | |
|---------------|---|
| Process Name: | Cancel Reservation Online |
| Data In: | Cancel Reservation Request |
| Data Out: | Cancellation confirm |
| Process: | (1) Get reservation no. (2) Delete reservation |
| Attachment: | (1) Guest (2) Reservation Data Store (3) ResRoom Data Store (4) Guest Data Store |

Table D.3. Post Review Process

| | |
|---------------|---|
| Process Name: | Post Review |
| Data In: | New Review Request |
| Data Out: | Success Message |
| Process: | (1) Write review (2) Create review in the system |
| Attachment: | (1) Guest (2) Review Data Store |

Table D.4. Search Rooms Process

| | |
|---------------|---|
| Process Name: | Search Rooms |
| Data In: | Search rooms criteria |
| Data Out: | Search results |
| Process: | (1) Get search criteria (2) Return search results |
| Attachment: | (1) Guest (2) Reservation Data Store (3) ResRoom Data Store (4) RoomType Data Store (5) Room Data Store |

Table D.5. Make Reservation Local Process

| | |
|---------------|---|
| Process Name: | Make Reservation Local |
| Data In: | Make Reservation Request |
| Data Out: | Reservation Summary |
| Process: | (1) Get reservation criteria, check-in date, check-out date, etc. (2) Get guest info (3) Create reservation |
| Attachment: | (1) Receptionist (2) Reservation Data Store (3) ResRoom Data Store (4) Guest Data Store |

Table D.6. Cancel Reservation Local Process

| | |
|---------------|--|
| Process Name: | Cancel Reservation Local |
| Data In: | Cancel Reservation Request |
| Data Out: | Cancellation confirm |
| Process: | (1) Get reservation no. (2) Delete reservation |
| Attachment: | (1) Receptionist (2) Reservation Data Store (3) ResRoom Data Store (4) Guest Data Store |

Table D.7. Maintain Service Process

| | |
|---------------|--|
| Process Name: | Maintain Service |
| Data In: | Maintain Service Request |
| Data Out: | Success Message |
| Process: | (1) View, Add, Edit, or Delete Service (2) Do the task accordingly |
| Attachment: | (1) Receptionist (2) ResRoom Data Store (3) Service Data Store (4) ServiceItem Data Store |

Table D.8. Check in Reservation Process

| | |
|---------------|---|
| Process Name: | Check in Reservation |
| Data In: | Reservation ID for check in |
| Data Out: | Check in summary |
| Process: | (1) Get Reservation ID to check in reservation (2) Change state to check-int |
| Attachment: | (1) Receptionist (2) Reservation Data Store (3) PaymentType Data Store |

Table D.9. Check out Reservation Process

| | |
|---------------|--|
| Process Name: | Check out Reservation |
| Data In: | Reservation ID, Room ID for check out |
| Data Out: | Confirmation message |
| Process: | (1) Get Reservation ID and Room ID to check out reservation (2) Change state to check-out |
| Attachment: | (1) Receptionist (2) Reservation Data Store (3) ResRoom Data Store (4) Service Data Store (5) ServiceItem Data Store |

Table D.10. Maintain Rooms Process

| | |
|---------------|--|
| Process Name: | Maintain Rooms |
| Data In: | Maintain Room Request |
| Data Out: | Success Message |
| Process: | (1) View, Add, Edit, or Delete Room (2) Do the task accordingly |
| Attachment: | (1) Receptionist (2) Room Data Store |

Table D.11. Maintain Room Types Process

| | |
|---------------|---|
| Process Name: | Maintain Room Types |
| Data In: | Maintain Room Type Request |
| Data Out: | Success Message |
| Process: | (1) View, Add, Edit, or Delete Room Type (2) Do the task accordingly |
| Attachment: | (1) Receptionist (2) RoomType Data Store |

Table D.12. Maintain Reviews Process

| | |
|---------------|--|
| Process Name: | Maintain Reviews |
| Data In: | Maintain Room Request |
| Data Out: | Success Message |
| Process: | (1) View, Add, Edit, or Delete Room (2) Do the task accordingly |
| Attachment: | (1) Receptionist (2) Room Data Store |

Table D.13. Get Reports Process

| | |
|---------------|---|
| Process Name: | Get Reports |
| Data In: | Report Request |
| Data Out: | Reports |
| Process: | (1) Get report request criteria (2) Generate reports |
| Attachment: | (1) Manager (2) Reservation Data Store (3) ResRoom Data Store (4) Service Data Store (5) ServiceItem Data Store (6) Room Data Store (7) RoomType Data Store (8) PaymentType Data Store (9) Guest Data Store (10) Review Data Store |





APPENDIX E
DATA DICTIONARY

DATA DICTIONARY

Table E.1. Data Dictionary of HRS Database

| Field Name | Meaning |
|--------------------|---|
| AMOUNT | Amount of a service item |
| BIG_PICTURE | Big picture of a room type |
| BUILDING | Building of a room |
| CAPACITY | Capacity of a room type |
| CHECK_IN_DATE | Check in date of a reservation |
| CHECK_OUT_DATE | Check out date of a reservation |
| CONTENTS | Contents of a review |
| CREDIT_CVC | Reserver's credit card's CVC code |
| CREDIT_EXPIRE | Reserver's credit card's expire date |
| CREDIT_HOLDER | Reserver's credit card's holder name |
| CREDIT_NO | Reserver's credit card's number |
| CREDIT_TYPE | Reserver's credit card's type e.g American Express |
| DESCRIPTION | Service item description |
| DISCOUNT_FACTOR | Discount factor of a payment type |
| FLOOR | Floor of room |
| GRADE | Grade of a room type |
| GUEST_EMAIL | Guest's email |
| GUEST_FIRSTNAME | Guest's firstname |
| GUEST_GENDER | Guest's gender |
| GUEST_LASTNAME | Guest's lastname |
| GUEST_PHONE | Guest's phone |
| GUEST_SEQ | Sequence number of a guest |
| ITEM_SEQ | Sequence number of a service item |
| LONG_DESC | Detailed description of a room type |
| MAX_SCORE | Maximum score of a review |
| NAME | Room type name |
| PAID | Paid flag |
| PAYMENT_TYPE | Payment type |
| PRICE_FACTOR | Factor of a room type used when calculating reservation fee |
| QUANTITY | Quantity of a service item |
| REMARK | Service item remark |
| RESERVATION_DATE | Date of reservation |
| RESERVER_ADDRESS | Reserver's address |
| RESERVER_CIZ_ID | Reserver's citizen ID or passport |
| RESERVER_EMAIL | Reserver's email |
| RESERVER_FIRSTNAME | Reserver's firstname |
| RESERVER_LASTNAME | Reserver's lastname |
| RESERVER_PHONE | Reserver's phone |
| ROOM_ID | Room number |
| SCORE | Score given by the guest in a review |
| SERVICE_DATE | Service date |
| SERVICE_DESC | Service description |
| SERVICE_SEQ | Sequence number of a service |
| SERVICE_TYPE | Type of service such as Meal, Laundry, etc. |
| SHORT_DESC | Short description of a room type |
| SMALL_PICTURE | Thumbnail picture of a room type |

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