CHRISTIAN SERVICE UNIVERSITY COLLEGE

DEPARTMENT: COMPUTER SCIENCE

SAMPLE PROJECT PROPOSAL SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE IN COMPUTER SCIENCE

BY

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B.SC COMPUTER SCIENCE

DECLARATION

We declare that this project/thesis is us own work. It is being submitted for the Degree of Bachelor of Science in Computer Science (Bsc in Computer Science) in Christian Service University College.

....

.....day of .....2014.

ABSTRACT

Ghana is rated as one of the major tourism destinations in Africa. Tourism attractive activities such as Wli waterfall, mountain Afadjato, larabanga Mosque, Paga crocodile ponds etc. In the nation caused both problems and opportunities in the hotels industry. It creates tension in the country and hence affects both the people and the hotel organizations. Based on the need for effective and efficient online application system for the hotels is the reason why

Customer satisfaction is an ultimate goal of any business. That is why it is necessary to create a market that is interactive for business owners to meet there customers and know the problems and get positive responds.

DEDICATION

I SINCERELY DEDICATE THIS WORK TO MY

FATHER

DONGMEN YOUNAKUU

AND

MY MOTHER NAMAALE

ALL

MY LOVING

BROTHER AND SISTERS

AND

ALL

MY COURSE MATES

AND

FINALLY

MISS BAMILE JUSTINA

An ounce of good planning prevent pounds of confusion later

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ACKNOWLEDGMENTS

Thanks to the Almighty God, the supreme architect of the universe. Weexpress us gratitude to Miss lindaAmoako, Us Project Supervisor under whose guidance and support we have been able to produce this work. GOD Richly Bless You Madam and May you dwell in the Lord all the days of your life.

We also wish to express us sincere gratitude to us (HOD) Dr Thomas Yeboah Computer Science Department and a numerous thanks to all lecturers of the Department of Computer Science.

Finally, we express us appreciation to all us course mates and on CSUC campus who contributed in diverse ways to the success of this work. God bless you all and may you dwell in the Lord all the days of your life.

We, however, wish to state that any errors and omissions are the author's own responsibility. Recommendations are therefore welcome.

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CHAPTER ONE

1.0 INTRODUCTION

An “Online hotel reservations are a popular method for booking hotel rooms. Travelers can book rooms on a computer by using online security to protect their privacy and financial information”.[1]For the past ten years, computer networks have been common, helpful to organizations and also lucrative for those who had the means to study into networking management. [5]It has been the vehicle through which most organization subject to exchange of information which is very fast as compared to the manual system of information circulation within every organization. However, many people are subscribing to the use of computer network as the means of transferring data or information locally or sometimes over the internet. Well, many of them choose various kinds of technology for the installation of such network according to the abilities or the insight of the network administrator. Ghana has been one of the major international tourism destinations since the early 1980s.[2]The obvious activities include the Cruise along and boti falls in the Eastern region of Ghana, Wli waterfall and MountainAfadjato in the Volta region of Ghana and other tourist sites like Larabanga Mosque, Paga crocodile ponds in the northern region and others do attract many expatriates for this reason many hospitality organizations like hotels have adopted the use of internet facilities for business transactions. However, little research has been done to explore the ICT and Internet adoption status and the impact of ICT on the hotel industry. This study concentrates on exploring the ICT applications and their impacts on the development of the hotel industry in Ghana.

1.1 OBJECTIVES OF THE RESEARCH

The project will be an execution of a real, competent and a more reliable online application system for the hotels in aiding all problems acknowledged in the existing systems. The project objectives are to achieve the successful betterment of all recognized and specified problems for the case study. This innovative system will be highly efficient, easy and faster as compared to the traditional manual processes and methods used in the present system. Other objectives include

- To has the ability to book anytime, from anywhere with internet access

- To use the internet facilities to collect and store information of clients for future reference.
- To increase the booking system speed by automating the manual system within the hotels or hospitality organizations.
- To expose the hidden hotels and other hospitality organizations online.
- To expose to the world the available resorts in the county online that people can go for holidays.
- To help client to be able to communication with management online for fast transactions to be enhanced.
- It also save money and time
- To reduced errors to nil

1.2 PROBLEM STATEMENT

Ghana is rated as one of the major tourism destinations in Africa.[3]Tourism attractive activities such as Wli waterfall, mountain Afadjato, larabanga Mosque, Paga crocodile ponds etc. in the nation has caused both problems and opportunities in the hotel industry. It creates tension in the country andhence affects both the people and the hotel organizations. Some hotels organizations wish to show to the world what they have to offer to help in situation like this, but how? There are many resorts inGhana which are not known by many people and those who are aware of these available resorts ask how secure are they?Those who get a place to sleep or spend holidays may not get the level of choice they wish. The hotels which are located at exposed places are slow in booking. One of the major problems thataffect management of the hospitality or hotels is an ineffective collection and storage of client's information for transaction. However, all these points described in the problem statement need to be resolved by the use of Information Technology and for this matter this research is being undertaken to look at how best problems can solved or reduced and to provide a web site that can allow a user to search and reserve a hotel room or cancel his /her reservation over the internet at any time.

1.3 RESEARCH QUESTIONS

Based on the need for effective and efficient online application system for the hotels and on the results of the preliminary interviews carried out, the following problems were identified:

- How can online reservation system help save client time and money?
- How can information of clients be collected and stored for future reference?
- How can online reservation system help expose the hidden hotels in the country?
- Can the internet help to reduce the insecurity in the hospitality industry?
- Can the online reservation system help increase the face of the slow booking systems?
- How can the online reservation system help reduced errors as compares to the manual system?

1.4 BACKGROUND OF STUDY

Ghana has been one of the major international tourism destinations since the early 80s.[2]the obvious activities include the Cruise along and boti falls in the Eastern region of Ghana, Wli waterfall and mountain Afadjato in the Volta region of Ghana and other tourist sites like larabanga Mosque, Paga crocodile ponds in the northern region and others do attract many expatriates for this reason many hospitality organizations like hotels have adopted the use of internet facilities for business transactions. However, little research has been done to explore the ICT and Internet adoption status and the impact of ICT on the hotel industry. This study concentrates on exploring the ICT applications and their impacts on the development of the hotel industry in Ghana.

1.5 SIGNIFICANCE OF THE RESEARCH

- The research provides a mean of showcasing Ghana's rich tourism sector.

- It will also provide a mean of comparing prices of different hotel room booking' and thus helped customer to be better informed.
- It project helps advertise the products of the hotel organization.
- OHR System also help reduces the tension in the hotel industry.
- The research help hotels in Ghana have the platform that will enable foreigners and local alike find and book for hotel room online.
- The project helps reduced errors in the hotel industry
- It cushions the burden of management in the hotel organizations.
- It helps both management and front end users to be able to track their history visit the site.

1.6 PROJECT DEVELOPMENT, METHODS AND METHODOLOGY

In the project development and methodology, several models exist to streamline the development process and will be engaged to successfully test and evaluate the system. Since we have more than 95% of the desired information,the research exposed the techniques and methods used to collect data about the subject,Online Reservation System from both primary source and secondary source. Observation and interview strategies are used for the data collection and Rapid Application Development (RAD) for the system development that is breaking the overall system into a series of version that is developed. Each version has analysis, design, and implementation. The output from one version is the input to the next is used to cut development time and expense by involving the users in every phase of systems development (reduce cost of change), In the analysis, Data Flow Diagram (DFD), Use Case and Entity Relationship Diagram (ERD) are used for the analysis. Data flow diagram is a common technique for crating process models. The diagrams are displayed bellow.

CONTEXT DIAGRAM

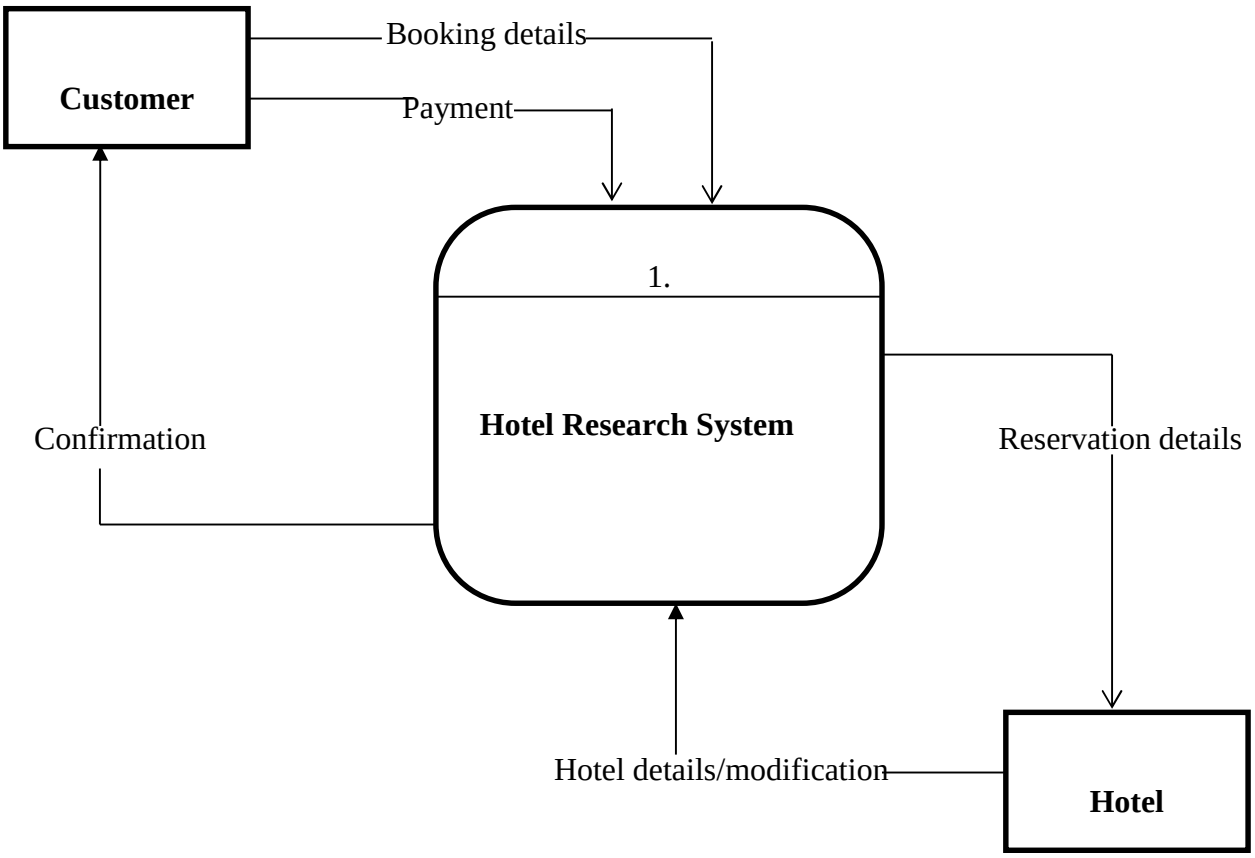


Figure 1.1

The context diagram above briefly describes the flow of data among the external entities or organization that interact with the system. The customer is an external entity that interacts with the online reservation system. In short it shows what the system is.

This project is used by types of user.

i. Online user

ii. Administrator (management of the Hotel)

Online users can see the required articles or new.

Administrator maintains daily updates in the record. Administrator is must be an authorized user. He can further change the password.

The main objective of the entire activity is to automate the process of day to day activities of the Hotel like Room activities, Admission of new customer, assign a new room according customer demand, checkout of a customer and releasing the room and finally compute the bill, .etc.

Our Hotel Reservation system has been designed to cater for three broad categories of functions. These are enumerated as follow.

- Customer enquiries. This category includes function like customer checker, customer checking room details, checking price of room, and online payment.etc.
- Reservation and booking details. This category cater for Check-in of customer, Check-out of customer, Make reservation, Cancel reservation, and Modification to room assign. etc.
- Payment and administration cater for making payment, and room assigning releasing to customer's needs. etc.

LEVEL 1.DATA FLOW DIAGRAM

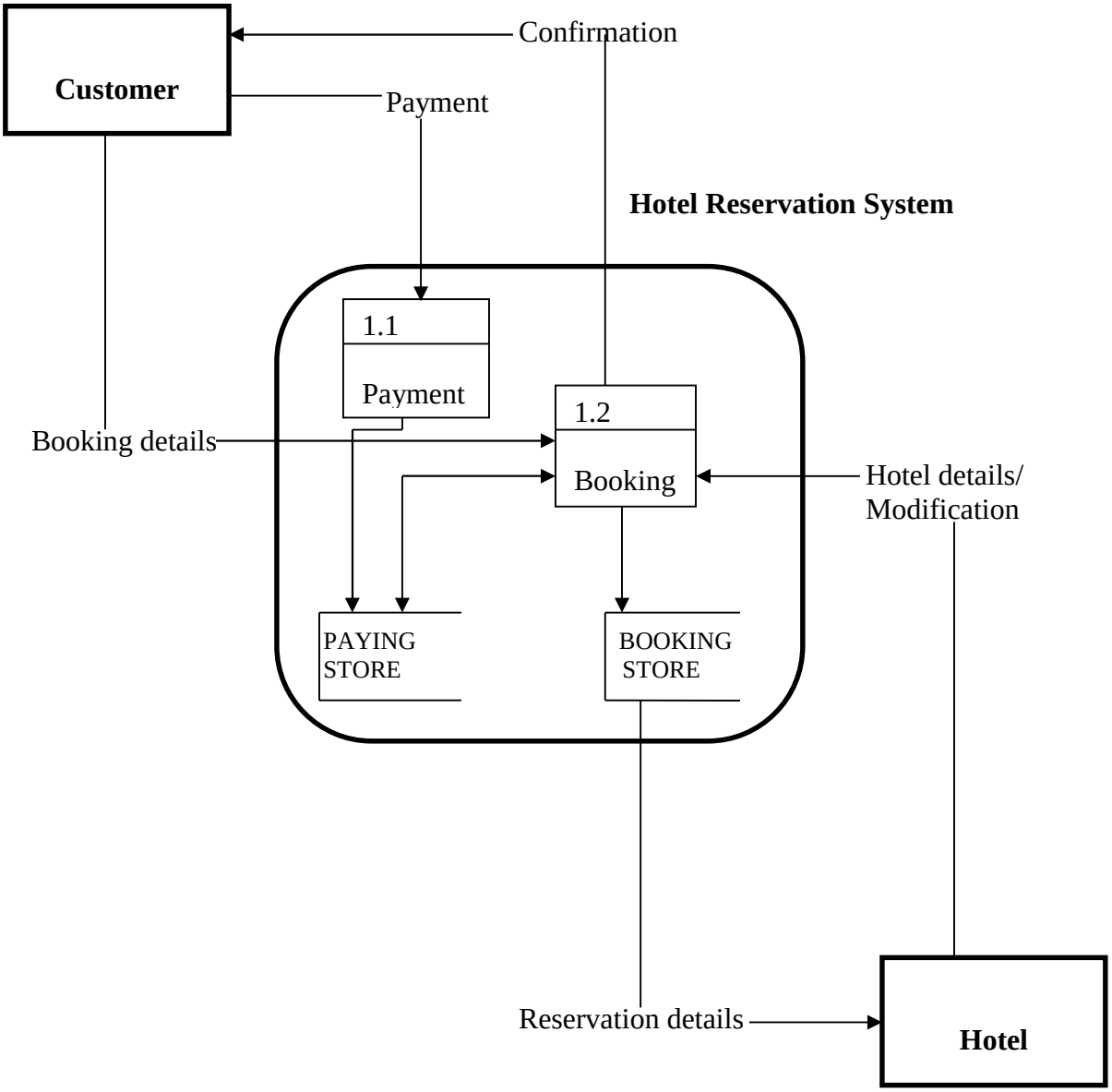


Figure 2.1

LEVEL 2, DATA FLOW DIAGRAM

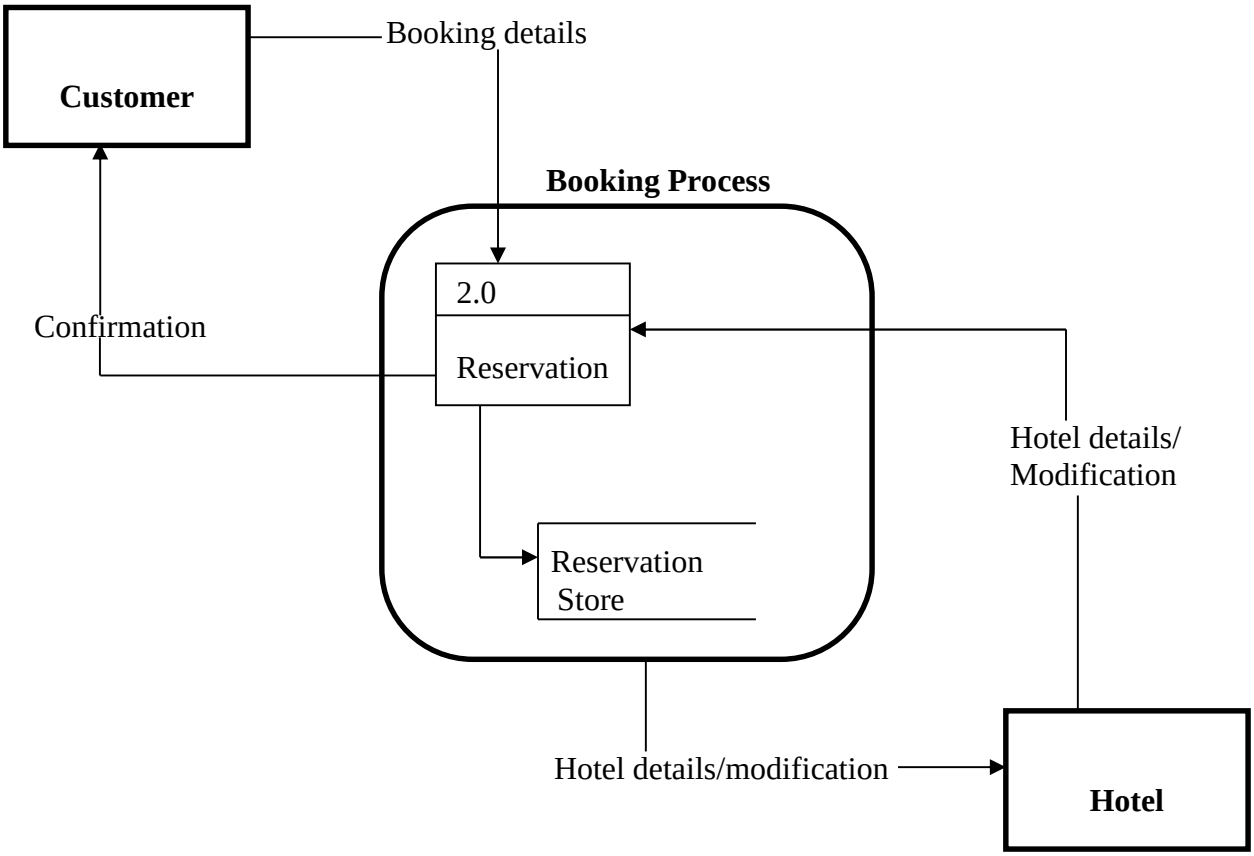


Figure 3.1

A use case is also used in the analysis of the project. A **Use Case** is a set of scenarios that describing an interaction between a user and a system.

The use case diagram displays the relationship among an actors and use case. An **Actor** represents a user or another system that interacts with the system you are modeling and a use case is an external view of the system that represents some action the user might perform in order to complete a task.

Below is the Use Case Diagram

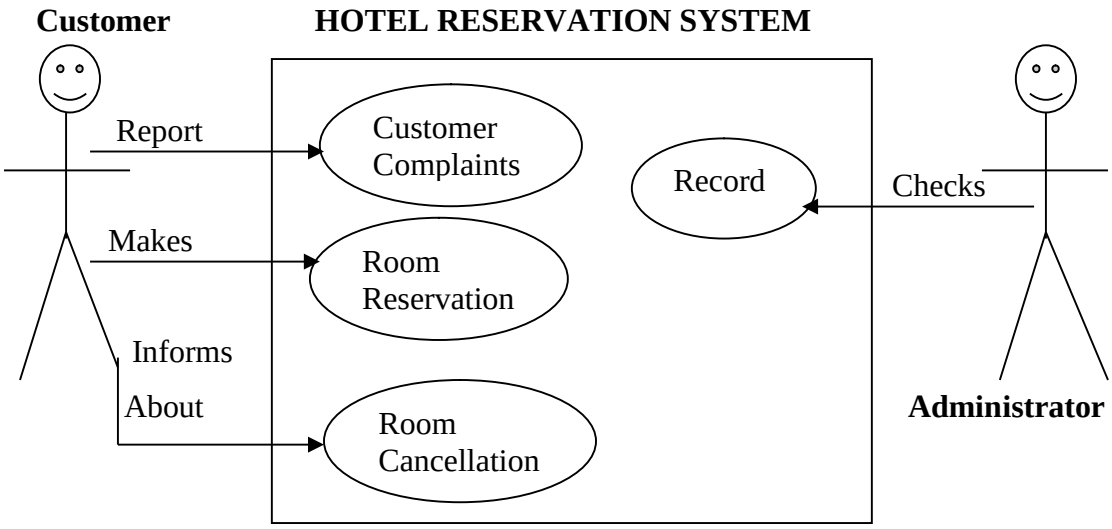


figure 4.1

Architecture Design Data Tier

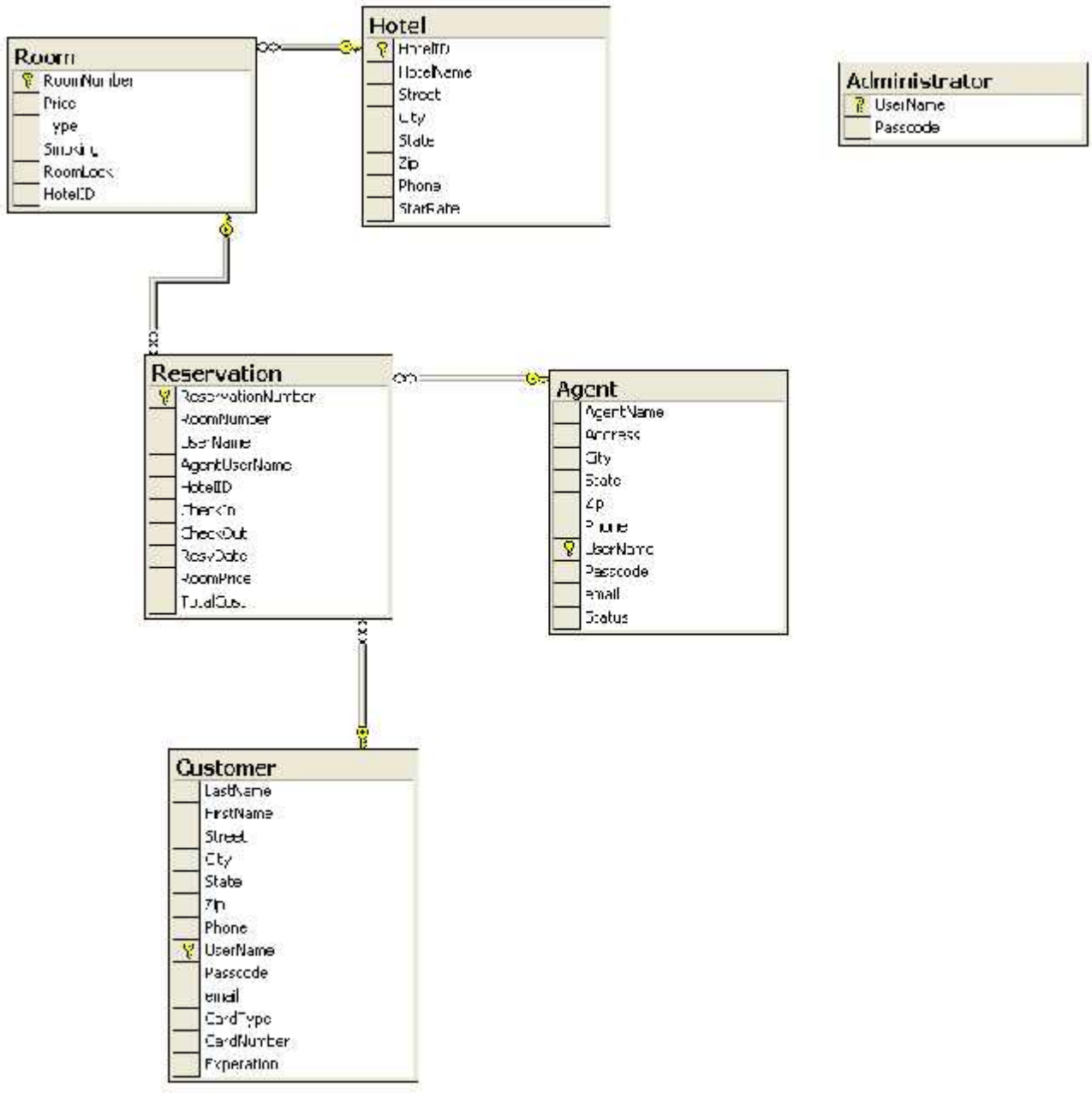


Figure 5.1

1.6.1 USER DESIGN

At the initial stage, the requirements for Online Hotel Reservation System (OHRS) are gathered through primary data collected from document analysis, interviews and observations conducted. Following that, the information gathered is analyzed to provide input for the next step.

- **User interface**: design an overall user interface, including screens, commands, controls and features that enable users to interact with an application..
- **Input and output formats and reports:** design the physical layout for each input and output screen and printed report.
- **Data:** determine how data will be organized, stored, and maintained, updated, accessed, and used.
- **System architecture:** determine processing strategies and methods, clients/server interaction, network configuration, and internet/intranet interface issues.

1.6.2 SPECIFICATION (INPUT, PROCESSING AND OUTPUT) OF ONLINE HOTEL RESERVATION SYSTEM (OHRS)

System Requirements: a statement of what the system must do or focus on what system must do, not how to do it.

There are two types of requirements the system must performed.

- Functional requirement
- Nonfunctional requirement

Functional Requirement defines the functions the system must carry out, specifies the process that must be performed, that is, the system must search for inventory, perform calculations and produce a specific report.

Nonfunctional Requirement deal with how the system behaves. How it operate - physical/technical, performance - speed and reliability.

In the functional requirement the system allows new customer to become a member of the HRS system by registrations, that is, the customer will have to enter some data, which is required by the HRS system. E.g. Name, Address, User Name, Password.

After the customer enters his or her details, the system then checks the user name to see if it is valid. If the user name already exists, the user needs to re-enter a new user name. Otherwise, the customer information will not be saved appropriate into the database but if the customer input valid, the confirmation web page will be displayed.

After the confirmation web page displayed, the user can then **login** by entered his or her user name and password for the system to checks, if the user inputs are valid, the reservation and billing information page will be displayed but if the inputs are not valid, the appropriate error message will be displayed and the user needs to re-enter user name and password.

At stage the user can then search for available room at the hotel and make reservation of roomby enter inputs like (city, state, country, E-mail, customer name check-in date, check-out date, and number of guests) for the system to validate and the appropriate message is displayed.

The customer can also cancel a reservation by entered user name and password for the system to checks and displayed appropriate message

1.6.3 UPDATE HOTEL OR ROOM INFORMATION REQUIREMENTS

The purpose of this part of the application is to enter new hotel or room information or update information on exist hotel or room. To update new hotel or room information or update information on exists hotel or room, the manager enter inputs like (hotel ID, location, facilities, Type, and price of room) for the system to validate and the appropriate message is displayed.

1.7 SCOPE OF THE RESEARCH

The research has been conducted on Reservation Systems and Online Reservation System for the hospitality departments but this study creates a system, integrated Hotel Reservation System, aid

publishing for hotel in Ashanti Region, and provides reservation data for ministry of tourism as mentioned above.

1.8 JUSTIFICATION OF STUDY

We have designed the proposed system to automate the process of Hotel Reservation System. This project is useful for the authorities which keep track of their entire user registered in a particular state. The authority can add hotel packages, room details, availability of rooms, online booking

The following give the detailed information of the need of the proposed system

Performance: for the past year, records are supposed to be manually handled for all activities. The manual handling of record is time consuming and highly prone to error. To improve the performance of the Hotel Reservation System (HRS), the computerized OHRS is undertaken. This project is fully computerized and user friendly and even that any of the members can see the report and the status of the company.

Efficiency: The basic need of this website is the efficiency. The website should be efficient so that whenever a new website user submits his/her details the website is updated automatically

1.9.0 ORGANIZATION OF REPORT

This section summarizes the various sections involved in the research.

1.9.1 CHAPTER ONE IS THE INTRODUCTION

The background and history highlights empirical foundations of research. The purpose of a background/history section is to give the reader the relevant facts about the topic and/or research site so that they understand the material or case in the proposal and how it links to the questions posed.

1.9.2 CHAPTER TWO IS THE LITERATURE REVIEW

A review of relevant literature is the second step and is of great significance. The literature review helps relate the proposed study to the larger ongoing discourse in the literature about a phenomenon, filling in gaps in the literature and extending earlier studies. The literature review is neither a chronological summary of related works nor a mere catalogue of previous studies published in the field. Literature review is a well-organized critical appreciation of related and relevant literature conceptually integrated within the logic of the proposed investigation.

1.9.3 CHAPTER THREE IS METHODOLOGY

The methods or procedures section is undeniably the heart of the research proposal. This section normally includes four main areas: the type of study being conducted, data collection procedures, the sample selection and data analysis.

1.9.4 CHAPTER FOUR IS SYSTEM DEVELOPMENT AND IMPLEMENTATION (the Results)

This section of the research describes the plan for the systems requirement analysis, the design, development implementation/construction and testing of the required output (system/process/procedure/product) of the research project physically.

1.9.5 CHAPTER FIVE IS CRITICAL DISCUSSION

This section heightens on the objectives of the system, the project objectives in other words and the reasons why certain functionalities could not be attained. It also gives the summary of the systems functionalities (OHRS).

1.9.6 CHAPTER SIX IS CONCLUSION

The section gives the overall general conclusion of the project that is the summary of the proposed study.

CHAPTER TWO
LITERATURE REVIEW

2.0 INTRODUCTION

The application of modern information technology in tourism, dominated so far by the use of Internet websites and online reservation systems, gives competitive advantage to tourist companies. However, the potential competitive advantage can be transformed into real advantage if only the websites have proper design. As a result, the design of travel and tourism websites has received substantial attention by scholars as well.

2.1 PROBLEMS WITH THE EXISTING SYSTEM

- Ineffective collection and storage of client's information for transaction.
- The interface of the existing system is very complex. Which is not very good for novices and people who cannot type nor have little knowledge on how to usea computer.
- Some of the existing may be very frustrating for experienced users who want to do something buried behind 10 menus.

2.2 PROJECT MOTIVATION

- Customer satisfaction is an ultimate goal of any business. That is why it is necessary to create a market that is interactive for business owners to meet there customers and know the problems and get positive responds.
- Automotive Response to customers is another motivation in designed the propose system. Here information has to be sent to the customer's email domain, it happens by inserting a code to the registration email field on the form which has a very strong check on input data to make sure the data input is a proper email address. This information automatically forwarded to the customer indicates that the system is active and real time.

2.3 PROJECT'S OBJECTIVES

The OHRs as stated before envisaged to achieve two main things;

- Client's exploration availability of hotels and possible booking through the same system.
- It must also be able to help management to reserve hotels for advertisement and business transactions in the industry of hotels. The system in the same vein should be able to accept the subscriber's information online so as to publish it by the reservation system. Apparently, these are the main goals of this project.

3.4 QUALITY OF WEB-SITE

Authors indicate that information completeness and clarity are important determinant of web-site quality and Schegg et al (2002) analyzed Swiss hotel web-sites over different criteria and concluded that static information have a limited transactional functions, therefore the quality of a website is measured by it's dynamism**[6].** Further, Laundon and Laudon (1993) show that, it is not the interface or the hardware technology used for the system development that makes the web-site high quality but how it fits into the business arena. In other words the profit or benefit your site can add to the client's business **[7].** Therefore, understanding the flow of client's business during systems analysis helps developing a good website.

Elsenpeter&Velte (2001) also stated that, the quality of a website is also influenced by how information flows swiftly and not getting stuck in any network clogs **[8].** They argued that though the bandwidth may not be enough, the tools or technology should be able to ensure speed and efficiency which may actually cause customers and potential customers to repeat their visits.

Jeong*et al.* (2005) discuss the role of website quality in attracting online bookings and empirically test their proposed model with potential lodging customers. The authors indicated that information completeness and ease of use are important determinants of website quality**[9].**

2.5 ONLINE HOTEL RESERVATION BOOKING SYSTEM (OHRBS)

Landvogt (2004) defines online booking engines as tools to store, publish and update the dynamic data availability and prices, and additionally provide the users with a regular reservation process[10]. A specific characteristic of the OHRSs is that users can make and see the changes in reservation status *online*.

This differs from online hotel catalogues (or information providers, according to the terminology used by Järvelä (1999)[11], where users can only see descriptions and pictures of hotels, sometimes rates but they could not check availability and make bookings online. This means that all business models which provide the possibility for an *online* booking (electronic booking service, electronic travel agent, electronic market place, and flexible comparison shopping services) are compatible with the above mentioned definition of OHRS.

The system has two levels. The primary level defines *who* can use the system and *what* he can do in it, i.e. the users with access rights to the system and the functions they can perform. Users can be classified into internal (the system owner's staff) and external (suppliers, agents, clients) users. Each of them has different access rights to the system and can fulfill different functions – database management, handling of active bookings, handling of travel and booking related documents, handling of payments. Every function is a set of activities which the users can perform in their profiles and is visualized as specific features/options in the particular user's interface.

It is obvious that the internal users have full access to the system, although different employees might have different access rights to the administration of the system. Usually the reservation department staffs have access to the handling of active bookings and documents, and viewing past reservations; the accounting department also deals with the handling of payments. A separate department takes care of the database management –hotel descriptions and pictures, allotment and price control, contact details of users, editing remarks and special conditions on bookings.

Clients can only make booking requests, view their own past reservations (the so called "customization of reservations"), amend active booking requests, edit their contact details and fill credit card authorization form for payments due. They have the most restricted access.

Agents have access to the same activities, but for all bookings made by their clients, and, depending on the contract with the owner of the system, might also issue vouchers, invoices and consumer contracts from the system. If an agent has the right to issue such documents, it is usually done within a contracted credit limit – the total money value of bookings with issued vouchers and outstanding payments due to the owner of the system. The credit limit may be fully or partially guaranteed by a deposit made by the agent. When the amount of the outstanding payments is exceeded, the agent is blocked from issuing new vouchers and/or making new bookings until settlement of payments on previous reservations have been made.

Suppliers might have full access to the database management function, for the preparation of and issuing of travel and booking related documents and for the handling of payments as this facilitates the reservation and accounting process and update the information in the system. However, suppliers could only change the status of active booking requests (requested, confirmed, rejected, or cancelled) or confirm alternative hotels if that originally requested by client are unavailable.

We can firmly state, that the more functions and activities the online hotel reservation system performs, the higher its utility for clients, agents, suppliers and internal users, the higher its competitive advantage is over other systems. That is why a current trend in the industry is to increase the number of travel related services that can be booked through an OHRS and the functions the system performs, transforming the OHRS into a one stop-shop travel services reservation system.

The secondary level determines *how* well the users will perform the different activities and whether they will use the system at all. This level has five dimensions:

- Quality of software and web-design
- Quality of information provided

- Scope of offered properties
- Price competitiveness of offers in the system
- Trust in the system and the online payments it provides (if any)

Users of the OHRS will make reservations in it if they have a choice, competitive price and a guarantee about the information in the system and about the booking per se (trust). This means that the OHRS should offer enough properties in order to attract traffic and to satisfy the booking queries of its users, and to offer prices lower than competitors for the same or similar hotels. The system should generate trust by providing reliable software (which does not hang up and no booking mistakes are made by the software), website navigation that follows the natural steps in the hotel booking process, sufficient, up-to-date and unbiased information for the hotels (description and photos), etc.

The five dimensions at the secondary level are interrelated. Reservation systems with only few hotels can be competitive if they offer extremely low prices, and/or hotels from a specific geographical region, and/or unique properties that cannot be booked elsewhere. In this way, the system gains a significant competitive advantage.

2.6 MARKETING PRINCIPLE OF (OHRs) DESIGN

Website design has attracted the attention of researchers like Lynch and Horton, Palmer, Stone, etc in recent times. This partly is due to the fact that the quality of the website influences the expected service quality which contributes to website loyalty (Srinivasan, 2002)**[13].** Lynch and Horton (2002) list general principles of a website design as user-centered and a user friendly interface with easy navigation, no dead-end pages, efficient hierarchy of information, bandwidth and interaction, simplicity and consistency, design integrity and stability, feedback and dialog provided by the system's design**[14].** An empirical survey undertaken by Udo and Marquis (2000) shows that an effective website design must have short download time, easy navigation, use graphics that do not take too long to load, use animations that are not distracting, must be highly interactive and careful with the use of frames, choice of grammar and color combination and shows high degree of cohesion and consistency throughout the pages**[15].** Another study by Lim

(2002) reveals the designer has to follow a sequential progression, mimic real-life scripts, provide visual indicators, place functionality above aesthetics and avoid conditioning automatic actions in order to enhance the usability of online store interfaces[16]. Considering the above mentioned general website design principles and the website dimensions and attributes identified as important to users in the empirical literature we can derive several marketing principles marketers and IT specialist should adhere to in order that the online hotel reservation system they develop will be competitive:

- Ease of use/Easy navigation. This is the most important marketing principle stated in every research (Nielsen, 2000). Greater usability was found to have a positive influence on user satisfaction and this also generates higher website loyalty[16]. If the OHRS does not have a user friendly interface its price competitiveness will be offset by the unwillingness of the external users (suppliers, agents, clients) to use the system. The ease of use also requires the sequential pages in the OHRS to follow the natural procedures in hotel booking process and the hyperlinks between them to allow easy navigation in the system.

- Information sufficiency/completeness. The hospitality product is in its essence a service which cannot be visualized. Therefore, agents and potential clients will make decisions on the quality of the accommodation service based on elements like descriptions and pictures of hotel facilities, the category of the property, location maps, customer reviews, etc. In this regard, the information provided in the system must be sufficient for the agents' and clients' proper choice. This principle is directly connected to the database management function in OHRSs. The more detailed the description of the property and more the pictures, the more informed the clients' choice of hotel accommodation. Jeong(2005) finds that richness of information and the ease of use are the most important determinants of perceived website quality, which, in turn, influences customers' expectations of the quality, value, and attractiveness of the lodging property featured on the website[11].

- Information transparency. Despite sufficiency, the information must also be transparent. This is particularly required for prices. In some systems, clients are charged additional service/facilitation/handling/processing fees (to name just few of them) which increase the price per room per night the client is going to pay. Although the application of additional fees is widespread, we think that, it is better all charges to be included in the offered rate per room per night, so that the client could make a clear price comparison with other OHRSs which will also stimulate trust in the system and the new bookings.

- Customization/Personalized service: Srinivasan(2002) states that, customization of the website is one of the key attributes of websites that leads to users' website loyalty**[16].** OHRSs are designed to serve every customer or agent and therefore have a standardized interface that is no obscure commands and syntax to learn. An interface which is easier for new users to use and less training. However, personalized service can be achieved through customization of the interface and the reservations. The customization of reservations means that the external user of the system can view and keep track of its own past and active bookings through limited access to the system. Additionally, some Global Distribution Systems allow the customization of user's interface – the user can chose the functions and the input search criteria sections he/she can see in the interface.

- Ease of updating. Clients and agents will make bookings on the OHRS if the information in it (rates, inventory, booking remarks, hotel descriptions and pictures, etc.) is up-to-date. Because database management is a labor- and time-consuming function, the company can save both time and money if the information in the system can be easily updated.

- Compatibility. The reservation system will increase its value to the customer if it can be integrated with other systems which can be achieved if only the software of the system is compatible with the software of other systems. This has been widely acknowledged by tourism practitioners.

2.7 BOOKING ADDITIONAL SERVICE

From a technical point of view booking a flight, renting-a-car, sightseeing tour, package tour, or transfer is not something different to hotel bookings. The booking details of the electronic request in the system may be different but not the principles for designing and running the system. From a marketing standpoint, however, the possibilities for booking additional services in the OHRS creates a competitive advantage for its owner and agents, because the enlarged choice of travel related services generates greater customer satisfaction. We can identify:

- OHRS for hotel bookings only. Usually they belong to a hotel chain local tourism marketing organization. They limit the user's choice of hotels to properties belonging to a hotel chain or located in specific city/area. That is why now even the users of OHRSs of hotel chains can book additional services online.

- OHRSs with online bookings of additional services. Sometimes, the rates for online bookings of additional services are the same or even higher than the rack rates of same services when bought on spot from the suppliers, which hinders the online sales. The reason is that most of the services are low priced and the commissions/mark-ups do not generate enough net income for the tour operator to cover the booking costs. However, tour operators offer their clients the possibility to prearrange local transfers and sightseeing tours, which reduces the perceived risk of the whole trip and offsets the sometimes higher than rack rates charged by the tour operators.

2.8 BOOKING LIMITATIONS

Usually the maximum number of rooms or beds in an OHRS that can be booked with one booking request is limited in order to minimize the risk of agents or clients blocking too many rooms at the hotel, their subsequent cancellation short before the check-in date and the impossibility to resell the rooms to other agents or clients. The limitations might sometimes be very strong and the agents/clients cannot book more than one or two rooms simultaneously with

one reservation. Other limitations include the number of days to check-in date when the user can make a booking, or the possibility to make a request for hotel without allotment, i.e. to book on request basis. Most of the reservation systems give the possibility to book on request, but others do not. They predominantly belong to hotel chains and are integrated with the internal information and reservation systems of member hotels.

2.9 ONLINE PAYMENTS

Online payments are another non-specific characteristic of OHRSs. The possibility for an online payment is a function that creates value added for the user and facilitates the process of payments handling and accounting. In this situation, clients may not even interact with any employees. However, the online payments function has a high perceived risk (Nysveen, 2003) and raises the questions of security of transactions and privacy of clients' information. One way to increase the trust for the system's security is to elaborately explain to clients all the actions undertaken to ensure the transactions and the privacy of information which is in a direct connection with the customer confidence determinant of online consumer experience and the principle of information transparency.

CHAPTER THREE
METHODOLOGY

3.0 INTRODUCTION

In this chapter, the research method, population, sample, research instrumentation and data analysis are discussed. The information systems development methodology used to develop the online Hotel reservation system is also specifically described.

3.1 RESEARCH METHODS AND DATA COLLECTION PROCEDURE

In project development and methodology, several models exist to streamline the development process and will be engaged to successfully test and evaluate the system. The above research proposal exposed the techniques and a method used to collect data about the subject, data was gathering through both primary source and secondary source. Observation and interview strategies are used for the data collection and Rapid Application Development (RAD) for the system development that is breaking the overall system into a series of version that is developed. Each version has analysis, design, and implementation. The output from one version is the input to the next version is used to cut development time and expense by involving the users in every phase of systems development (reduce cost of change), Initial data collection efforts included reviewing official hotel management documents provided by managers to help understand the practices in the system. This provided adequate knowledge to proceed to the interview sessions and prepare for the survey questionnaire.

For the interviews, one-to-one question and answer sessions were held with the managers as well as current and previous users of the systems. The interviews were recorded and reviewed later while incorporating researchers' additional remarks.

An observation of the current system was also conducted to determine its strengths and weaknesses while assessing its suitability for users in the hotels in terms of addressing the complexity of the profession. To do so, potential users were requested to demonstrate how the system worked and information required from the users in different instances.

3.2 RESEARCH INSTRUMENTATION

In order to understand the practice of the Hotel system, official strategic planning documents provided by the Strategic planning and Development Units in the hotels were reviewed to have a better comprehension of top management aspirations. Among the official documents reviewed were the hotel's strategic steps and map.

To further aid the research, primary data was also collected using interview and survey questionnaire as the main means of instrumentation for the data gathering process.

The responses obtained from all the interviews were used to analyze the consistency of information from all parties and observe if tactical planning at lower levels are parallel to top level aspirations.

3.3 SYSTEM DEVELOPMENT METHODOLOGY

The systems development methodology selected for this research (RAD) is prototyping.

In this methodology, the first prototype is usually the first part of the system that the user will use. This is shown to the user and the project sponsor, who provide reaction and comments. This feedback is uses to re-analyses, redesign, and re-implement a second prototype that provides a few more features. This process continues in a cycle until the users and sponsor agreed that the prototype provide enough functionality to be installed and used in the organization. After the prototype (now called the system) is installed, refinement occurred until it is accepted as the new system. The prototyping methodology also involves developing a temporary estimated model of how the final system should look and work. In terms of functions, the prototype would only encompass selected operations that best reflected the purpose of the proposed system and to quickly gather user feedback on its effectiveness as a performance management and measurement tool.

The diagram below show the prototyping approach methodology [17]

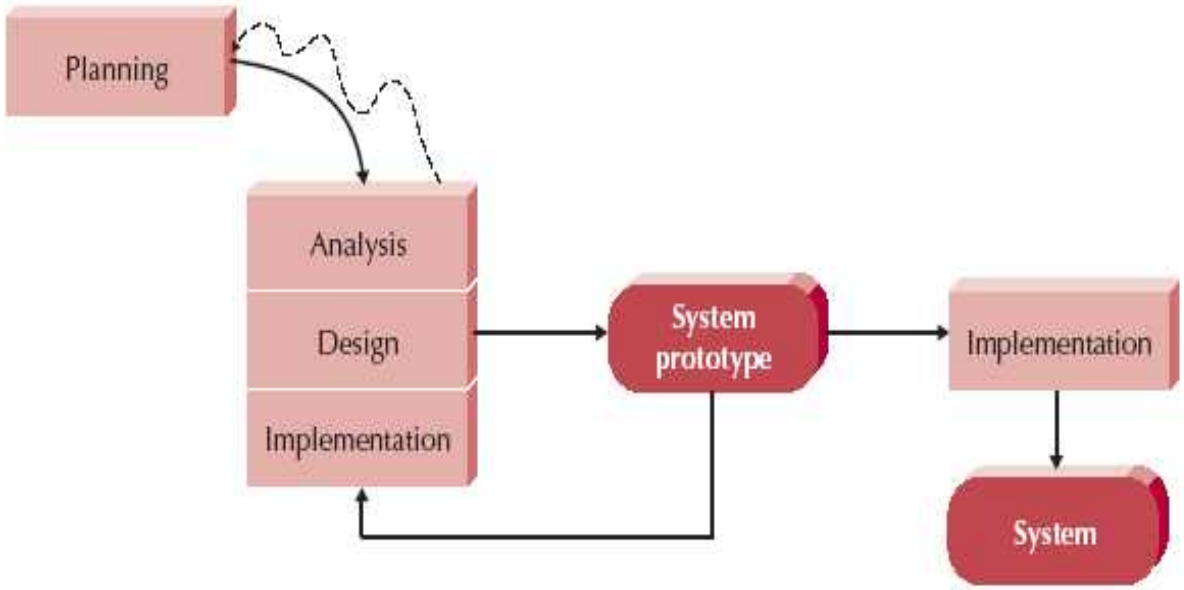


FIGURE 1.3

3.3.1 THE RATIONALES FOR CHOOSING PROTOTYPING ARE:

- The model places emphasis on user involvement in the development of the proposed system. By having user feedback, requirements can be quickly and effectively collected to ensure that the final system will fulfill the needs of potential users. For that reason, the system requirements can be easily verified with users.

- Development effort for the final system would be significantly reduced since the use interface has been developed according to users' requirements using the prototype.

- By building a prototype, the suitable technology to support the finalized system can be easily identified. As the requirements are elicited during the development of the

prototype, the system platform is determined and evolves to ensure that the final system will deliver its purpose.

- The prototype provides a simple platform for users to test the constructed user interface. By having a simple system for users to visualize, it would be easier to comprehend and conceptualize how the finalized system will work in the long run.

- The iterative nature of the model sanctions modifications or enhancements to be made to further add improvements as the prototype is developed. At each increment, users are encouraged to provide feedback with regards to the design of the prototype. Given that feedback is received earlier, the possibility of the prototype being rejected is lower for the reason that modifications are continually made to suit the needs of users.

The type of prototype that will be developed for this project is a Functional Prototype.
A Functional Prototype is a model that is rapidly developed to accomplish data gathering, demonstrating, testing and assessing the proposed functionality for the system. By implementing a functional prototype, critical user interface elements and essential system functionalities are prioritized to demonstrate the effectiveness of the OHRS towards improving the management and measurement of reservation performance.
This outlines the software prototype development steps used for online hotel reservation system.

- Online hotel reservation system requirements analysis.
- Preliminary design for OHRS.
- Develop initial OHRS prototype.
- Review and Evaluate OHRS prototype.
- Revise and Enhance OHRS prototype.
- OHRS prototype complete.

Every stage entails thorough actions to be taken to ensure that the proposed system is developed to fulfill its purpose. The following describes the steps taken in each stage:

3.3.1.1 OHRS Requirements Analysis

In the initial stage, the requirements for OHRS are elicited and are gathered through primary data collected from the document analysis, survey questionnaires, interviews and observations conducted. Following that, the information gathered is analyzed to provide input for the subsequent step.

3.3.1.2 Preliminary Design for OHRS

At this stage, a preliminary design for the system framework and architecture is made. The software design will take into account processes, inputs and outputs required to perform the proposed functionalities for the system. Besides that, a recommended user interface design is also made during this stage to give an introduction of the "look and feel" of the proposed system using Macromedia Dreamweaver 8 and PHP as the scripting language to communicate with the Apache web server. Meanwhile, the chosen database server for the proposed system is MySQL. Manipulation of database server and the actual databases is made through the easy to use web application.

3.3.1.3Develop Initial OHRS prototype

In the third stage, the initial prototype developed will be reviewed and evaluated by selected users to suggest modifications and enhancements that the prototype may require. At this stage, a close relationship is maintained with the users to ensure all concerns and issues are well communicated.

3.3.1.4Revise and Enhance OHRS

Following that, the prototype is revised and enhanced according to the feedback received in the prior step. The revised prototype will then be re-evaluated by the users to check for ambiguities that may have been overlooked. Stages iii and iv are repeated until a firm approval is received by the users with regards to the functionality and user interface of the system.

3.3.1.5OHRS Prototype Complete

At the last stage, new specifications for the proposed system are properly documented where new objectives for the system are highlighted.

CHAPTER FOUR
REQUIREMENT ANALYSIS

4.1.0 INTRODUCTION

There have been basically 3 approaches in information system development area: process-oriented, data-oriented and object-oriented approaches. As information technology (both hardware and software) has been advancing, people have moved from the earliest process-oriented approach to data-oriented approach and now begun to adopt the latest object-oriented analysis methodology.

Unlike its two predecessors that focus either on process or data, the object-oriented approach combines data and processes (called methods) into single entities called objects. Objects usually correspond to the real things an information system deals with, such as customers, suppliers, contracts, and rental agreements. Object-oriented model is able to thoroughly represent complex relationships and to represent data and data processing with a consistent notation, which allows an easier blending of analysis and design in an evolutionary process. The goal of object-oriented approach is to make system elements more reusable, thus improving system quality and the productivity of systems analysis and design.

4.1.1 ANALYSIS PROCESS

In the analysis phase, a model of the real-world application is developed showing its important properties. It abstracts concepts from the application domain and describes what the intended system must do, rather than how it will be done.Most proponents of object-oriented analysis (OOA) claim that the use of object-oriented concepts in the analysis phase (i.e., OOA) increases the understanding of problem domains, that OOA promotes a smooth transition from the analysis phase to the design phase, and that OOA provides a more natural way of organizing specifications.

Object-oriented approaches can be classified into three categories.

(1) Combinative approaches use different modeling techniques in different stages of the system development process.

(2) Adaptive approaches apply existing techniques (e.g., data-flow diagram and entity-relationship approach) in object-oriented ways to analyze the problem domain.

(3) Pure approaches adopt an object-oriented perspective in systems analysis and design.

Despite various ways to do modeling, this paper focused on use-case modeling, ERD modeling, sequence modeling and class modeling to explore how system analysis are conducted under different methods.

The software itself is a system for hotels linked to their own website to enable visitors book accommodation in the hotel. This means the system is a very single minded system, and no introduction is necessary, because when a customer enters, he has already pressed the 'Book now' button on the hotel's front page. The system will simply display a series of forms that will query the user about dates, rooms, additions, etc.

This paper does not go into the exact details of the interface but gives the description to programmers who wish to perform maintenance on the system, to help them understand the software better.
So what does the system do? I will answer that question first in text in this introduction.
The first half of the paper will answer it in increasing depth.
The second half will cover more of the actual code structure, and finally I will give some conclusions and recommendations.
The paper sums up what the system does during a typical booking:

- Queries the user for the date of arrival and length of stay
- Calculates available rooms from the database
- Displays the available rooms and queries the user to choose one or several rooms
- Requests from the user the number and kind of guests expected to be staying in each room
- After that a calculation is shown for the cost of the stay

- On the same screen the user is presented with general and room specific options and extras to choose from, like dinner and breakfast, or the possibility of renting bikes, etc.
- In the next step the user is queried for his name, address etc.
- After that the user will be asked to confirm the booking with a credit card or other payment. Hotels can let registered users (usually corporate customers) automatically skip this step
- A final confirmation screen is shown, where the user is shown a complete overview of the booking, can give some comments and confirm the booking.
- Emails are sent to the client and to the hotel receptionist, and the booking is added to the database.

As mentioned, there is also an option to log into the system for registered users.

When logged in, a customer can view and cancel bookings. Also, hotels may have discount policies for certain registered users.

For the hotels the main strength of the HRS system is that it is very flexible in pricing and availability issues, and can handle a wide variety of special clients, special offers, and any regional price fluctuations, for rooms as well as options, whilst allowing each hotel to have its own look. Of course, a competitive price is also a nice asset.

This is done by using several different UML diagrams to describe a variety of ways to look at the system.

So why is this necessary? There's a good chance other programmers will have to do maintenance on the system at some point. The system is too complex to easily understand it by just looking at the code and comments. This paper will allow those people to get a good understanding of the system before diving into the code.

4.1.2 REQUIREMENT ANALYSIS TECHNIQUES

- Structured Analysis Techniques
  - Data Flow Diagrams (DFD)
  - Entity Relationship Diagrams (ERD)
- Object Oriented Analysis
  - Use Case Diagrams

Some of the functional requirements of the hotel reservation system include:

(a) Cancellation of a reservation

(b) Accept a reservation request

(c) Calculate charges

(d) Allocation of particular rooms to a customer

(e) Receive confirmation of reservation from the customer.

Decision tables are used in process specification. Identify the correct decision table for the functionality of the following order processing operation.
If the customer has credit facilities accept the order. Otherwise if the customer is a prompt payer accept the order. New customers are referred to the credit manager for a decision.

4.3 Use case

Use-cases are shown as ellipses with their names inside and are performed by the actors outside the system. A use-case is always initiated by an actor. For example, Check in Guest is initiated by Receptionist.

A use-case may interact with other use-cases. Some of these relationships include extend and use and are reflected by single hollow arrow lines. For instance, Cancel Reservation use case uses information from Customer Requests Cancellation use case or Cancel Unconfirmed Reservation use case to finalize the actual cancellation of reservations.

Diagram

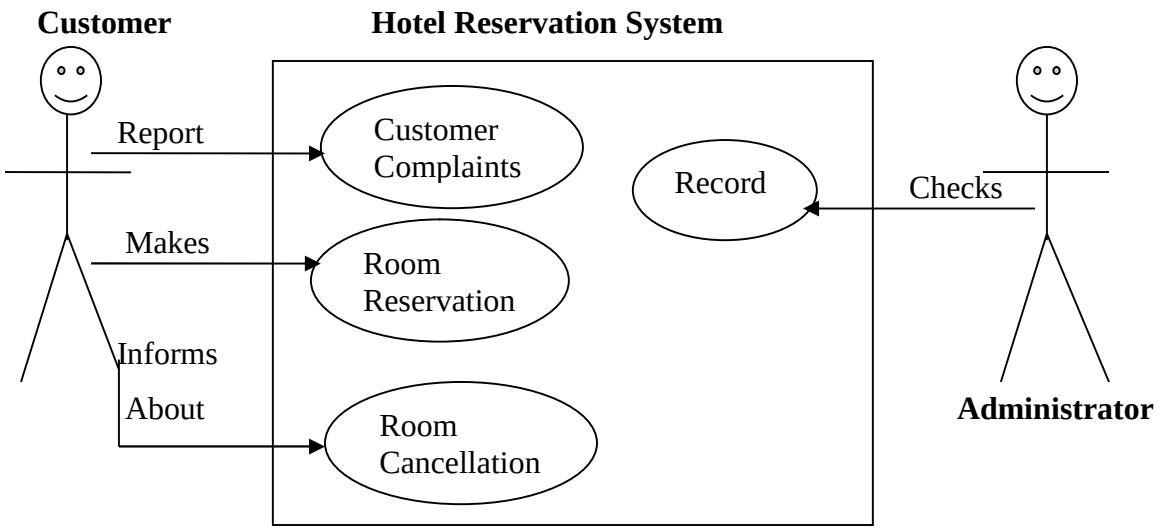


FIGURE 1.4

The concept of a process is intrinsically hierarchical. Processes may be defined at any level from enterprise-wide processes to processes performed by a single person. Low-level processes may be grouped together to achieve a common business goal. To avoid modeling to an inappropriate degree of detail we must identify the lowest level of process, which is needed at the Conceptual view.

SYSTEMS DESIGN

4.2.0 INTRODUCTION

System design is the third of the five phases in the systems development life cycle. This section of the research describes the plan for the systems implementation physically. The data documented during the analysis as the systems requirements on OHRS are used for the design.

4.2.1 LOGICAL DESIGN

Logical design talks about the functions and the features of OHRS and the relationships among its components. This includes the output that must be produced by the system, the input needed

by the system, and the processes that must be performed by the system without regard to how tasked will be accomplished physically (already considered in the analysis phase).

4.2.2 PHYSICAL DESIGN

In contrast to the logical design, the physical design of OHRS is the plan for the actual implementation of the system. It is built upon the logical design as a sort of blue print that describes the actual construction of a building. It concerns itself with how the systems requirements can be achieved.

4.2.3 DESIGN CONSIDERATIONS

There are three basic steps involved in systems design activities:

4.2.3.1 Step 1

System requirements are reviewed in order to be familiar with the logical design.

4.2.3.2 Step 2

Design the system

- User interface: design an overall user interface, including screens, commands, controls and features that enable users to interact with an application.
- Input process: determine how data will be input to system and design necessary source documents.
- Input and output formats and reports: design the physical layout for each input and output screen and printed report.
- Data: determine how data will be organized, stored, and maintained, updated, accessed, and used.
- System architecture: determine processing strategies and methods, clients/server interaction, network configuration, and internet/intranet interface issues.

4.2.3.3 Step 3

4.2.3.4 SPECIFICATION (INPUT, PROCESSING AND OUTPUT) OF OHRS

Search Room, Login, Register, Reservation, Update Hotel Information Requirements

- In the functional requirement the system allows new customer to become a member of the HRS system by registrations, that is, the customer will have to enter some data, which is required by the HRS system. E.g. Name, Address, User Name, Password.
- After the customer enters his or her details, the system then checks the user name to see if it is valid. If the user name already exists, the user needs to re-enter a new user name. Otherwise, the customer information will not be saved appropriate into the database but if the customer input valid, the confirmation web page will be displayed.
- After the confirmation web page displayed, the user can then **login** by entered his or her user name and password for the system to checks, if the user inputs are valid, the reservation and billing information page will be displayed but if the inputs are not valid, the appropriate error message will be displayed and the user needs to re-enter user name and password.
- At stage the user can then search for available room at the hotel and make reservation of room by enter inputs like (city, state, country, E-mail, customer name check-in date, check-out date, and number of guests) for the system to validate and the appropriate message is displayed.
- The customer can also cancel a reservation by entered user name and password for the system to checks and displayed appropriate message

4.2.4 DATABASE STRUCTURES FOR OHRS:

This section displays the data storage of OHRS on the following

1. Administration
2. login database

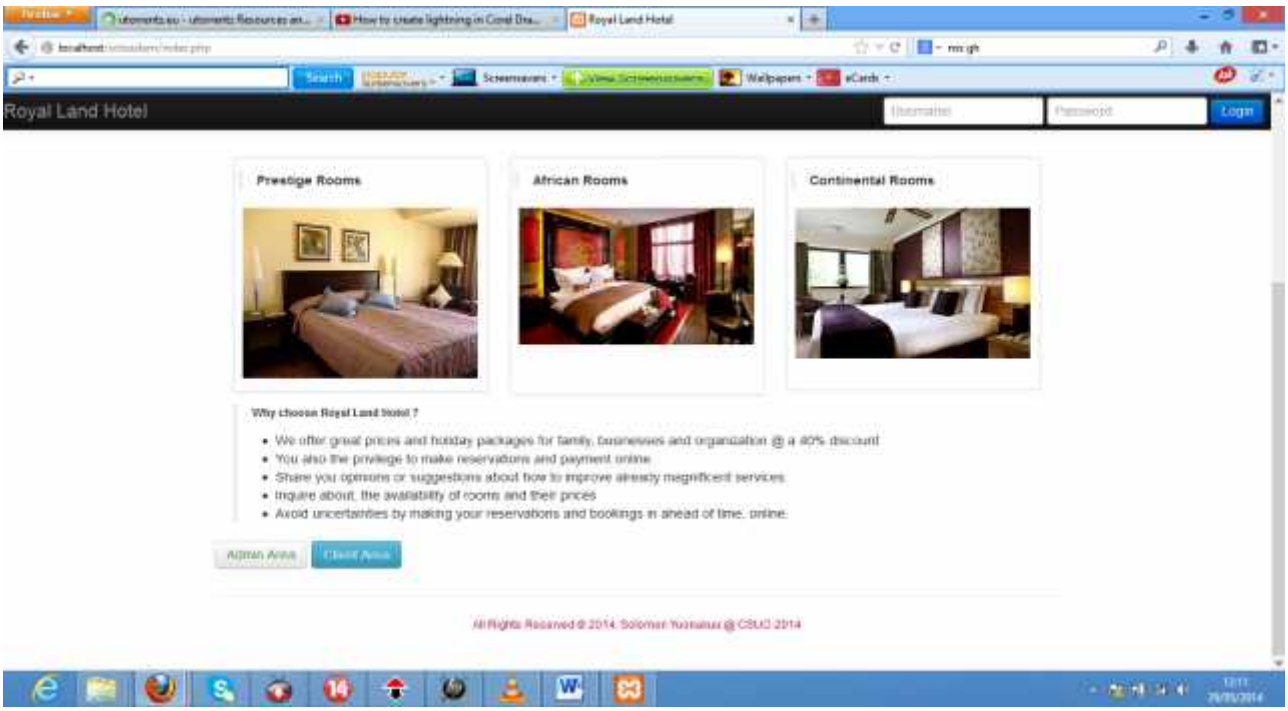
3. signup database
4. system history

4.2.5 USER INTERFACE DESIGN:

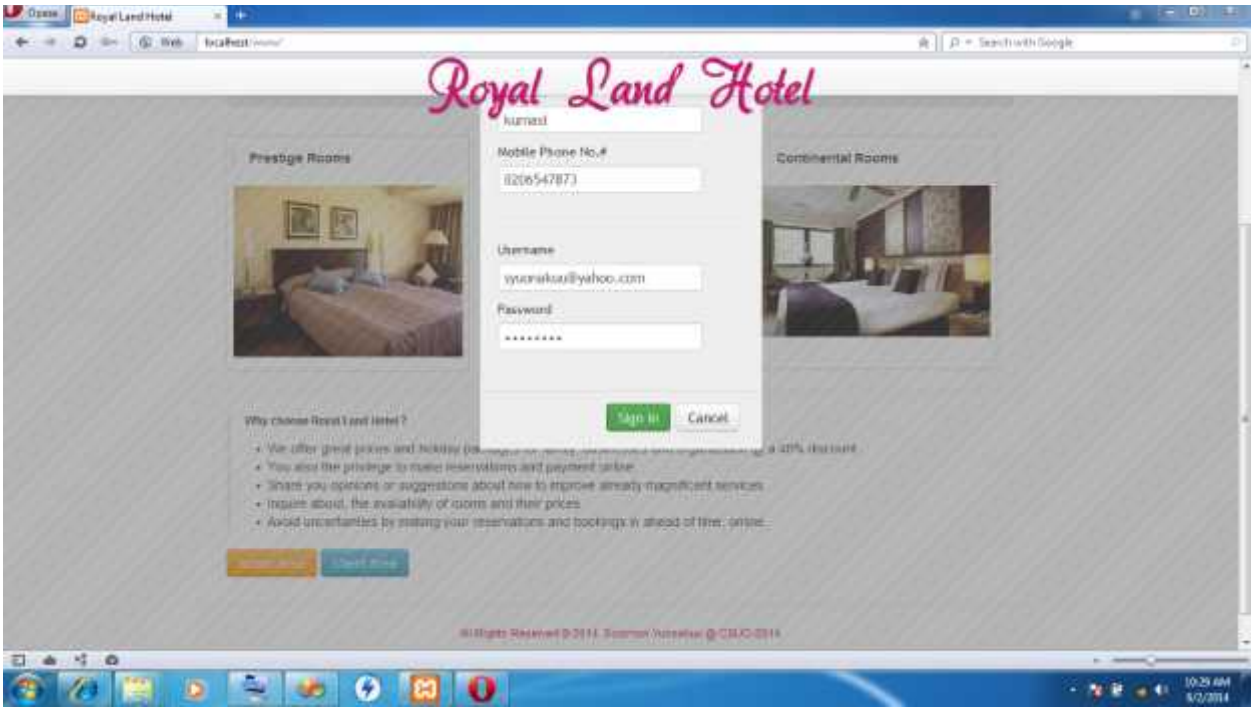
This section deals with the designing and prototyping of the user interface for the system. The user interface provides friendly menus and pages witch the user can interact with the application to process.

The system starts by displaying a home page. The home page consists of menus, links and sub pages to get to the following pages.

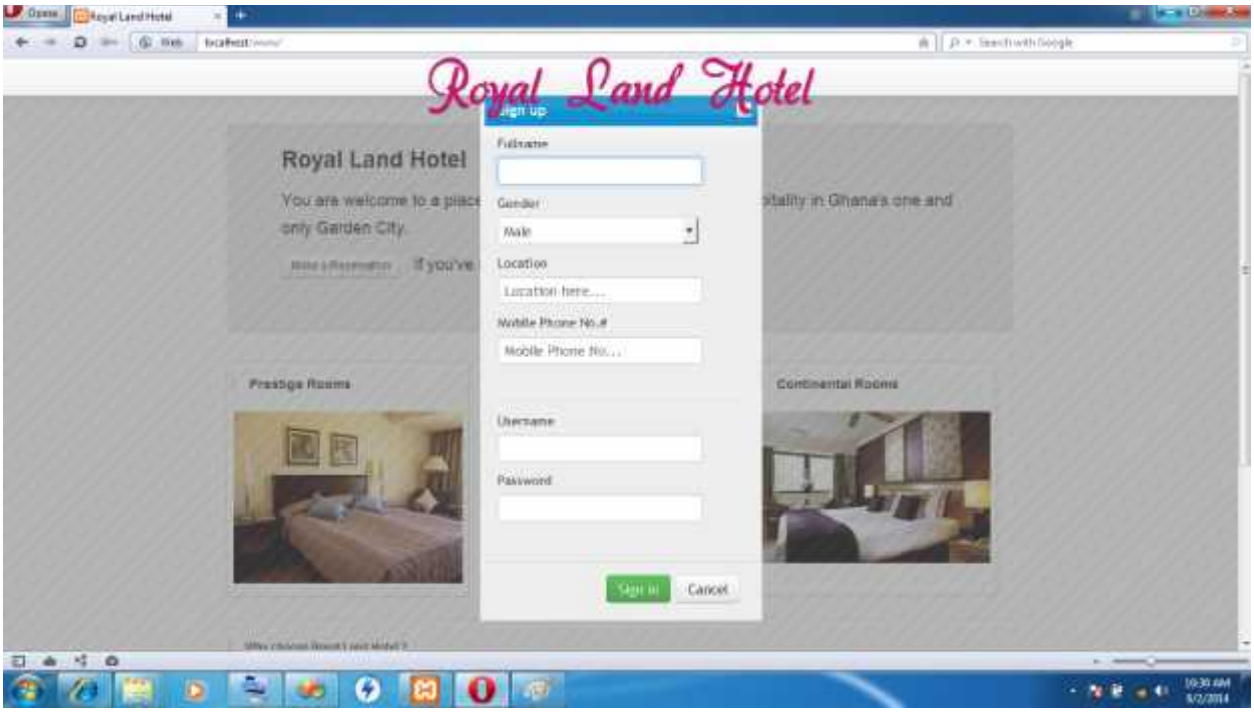
1. Home_html



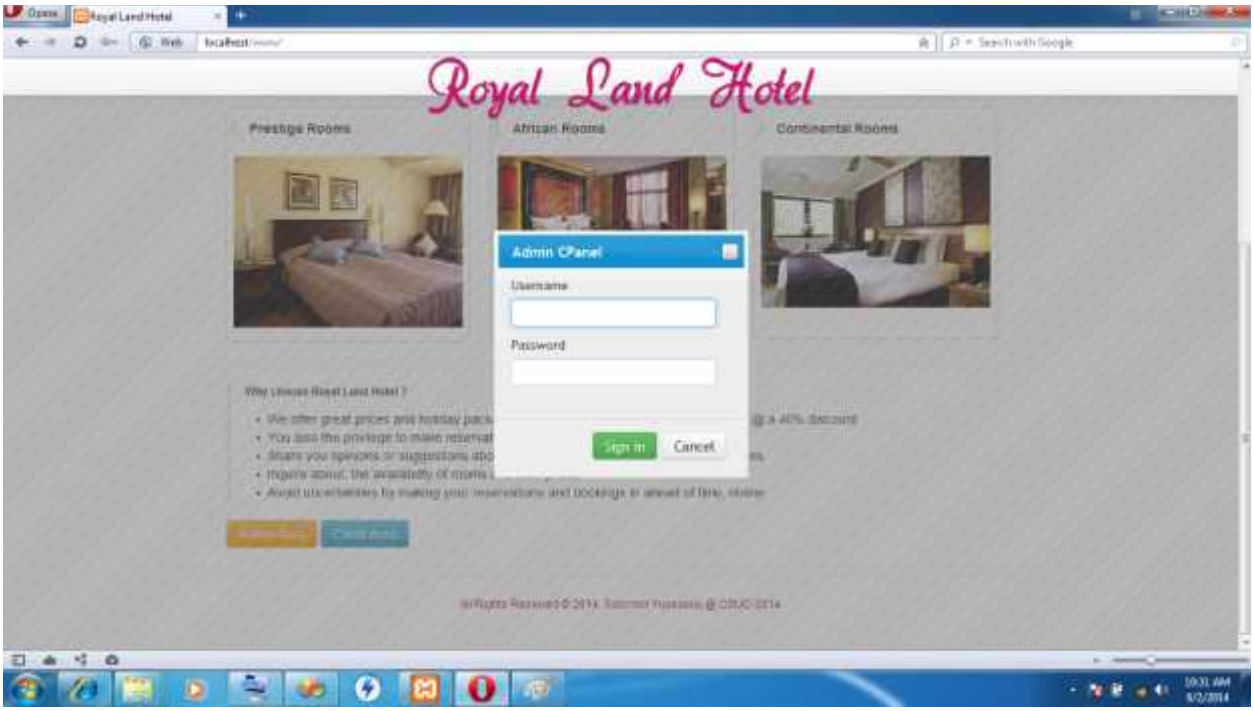
2. Administrator login



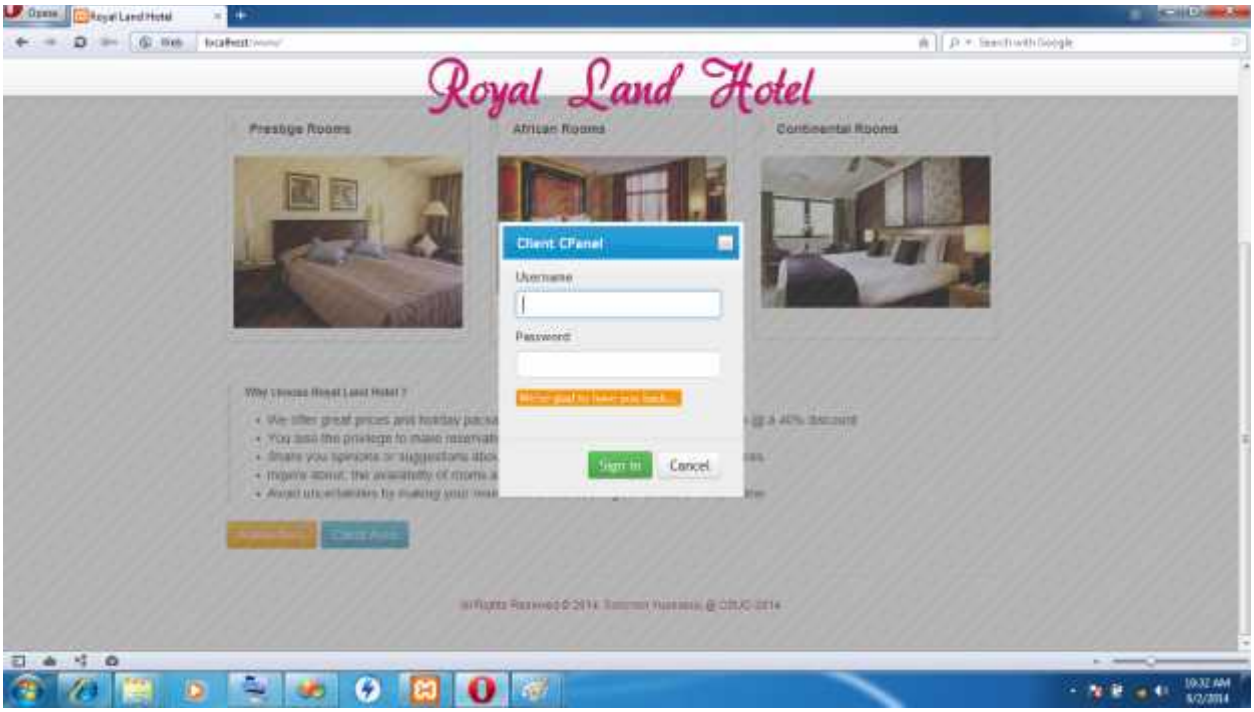
3. New_custom_Sign_in



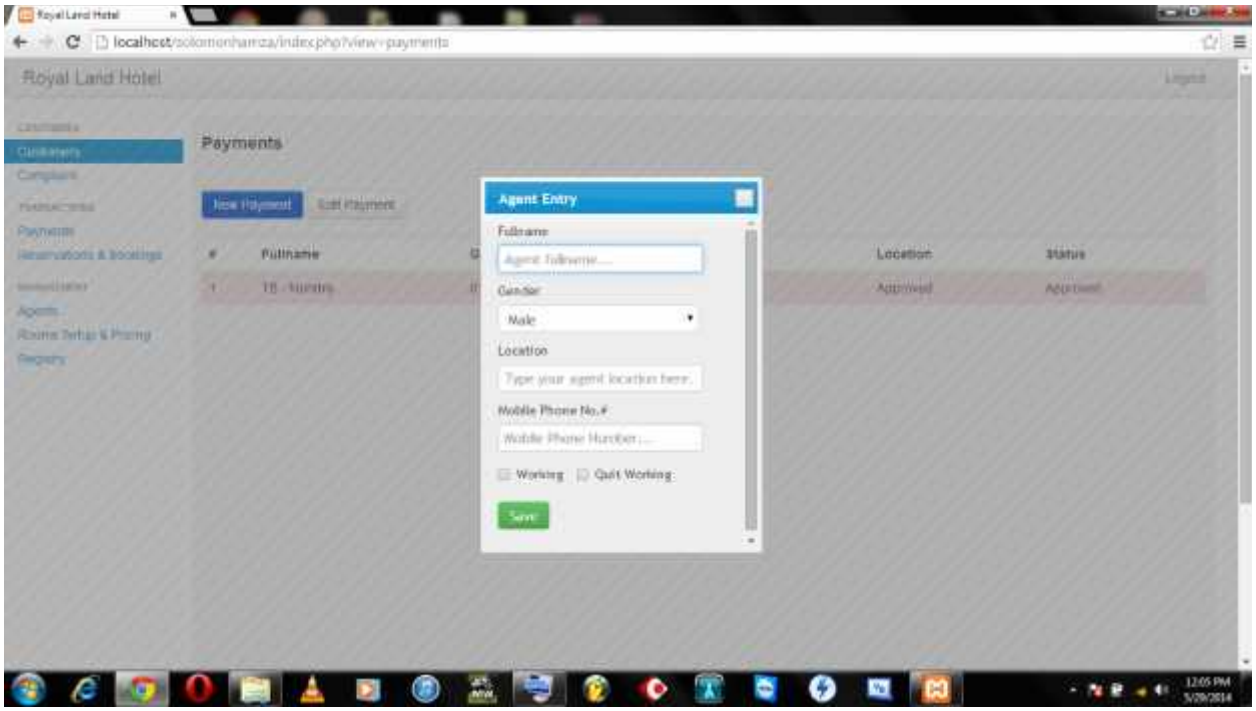
4. Admin_CPanel_Sign_in



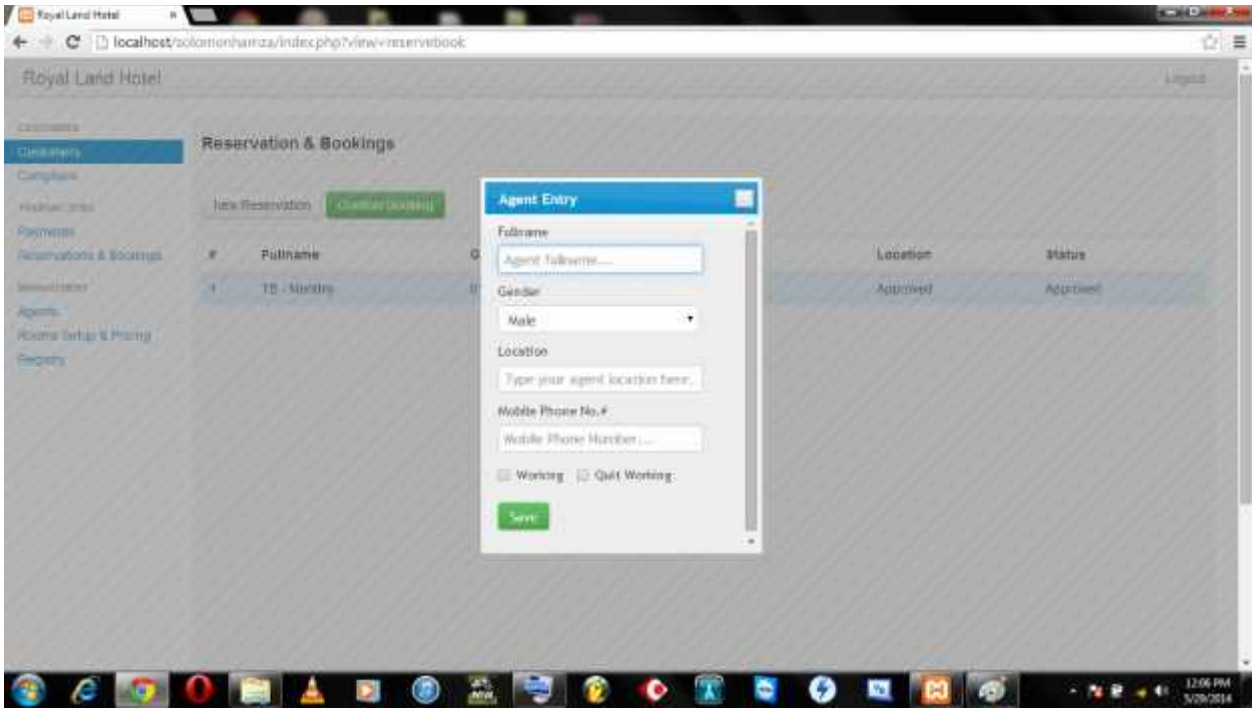
5. Client_CPanel _Sign_in



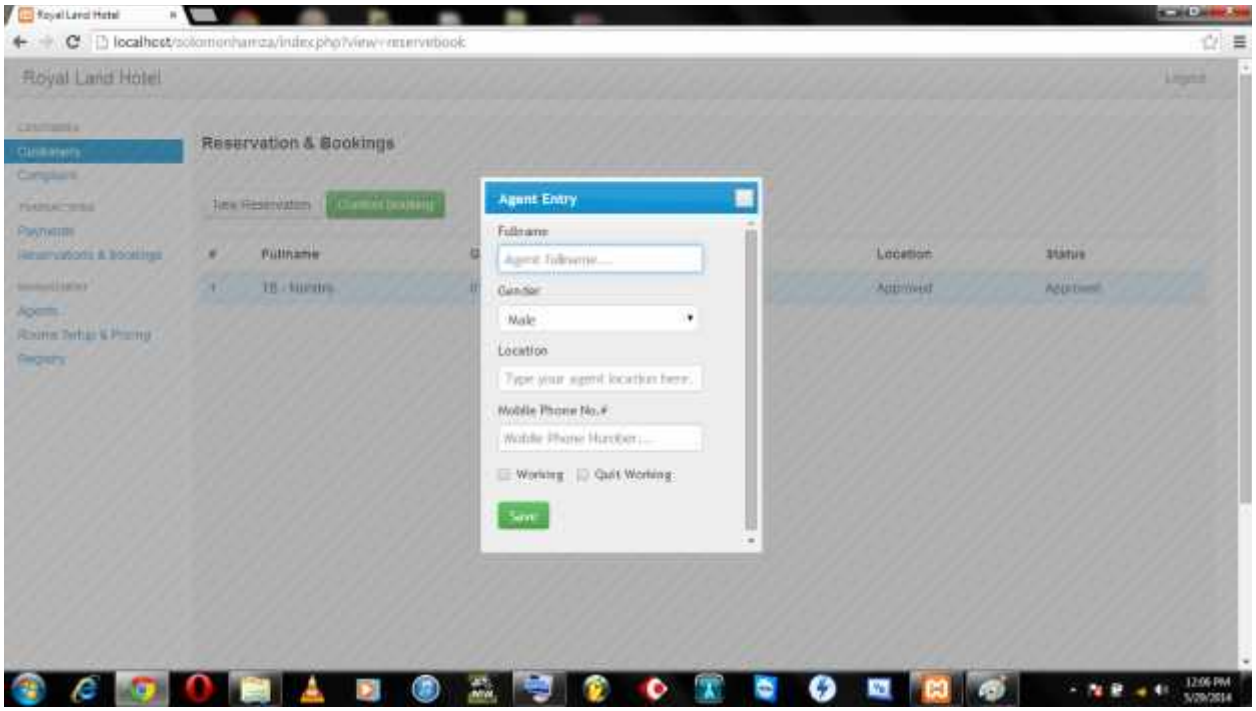
6. Payment_html



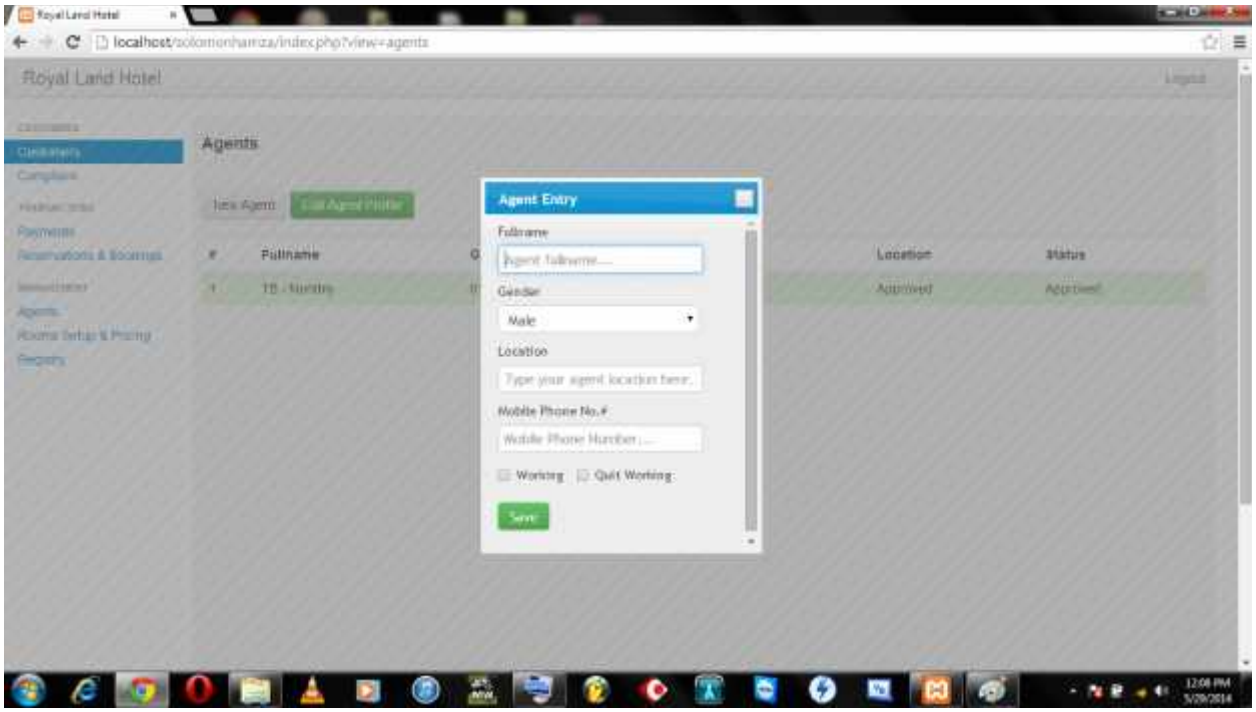
7. Booking_my_html



8. New_reservation_html



9. New_agent_html



4.2.6 SECURITY AND PAYMENT CONTROL

This project ensures systems security on payment during booking or reservation. A special database has been development to enforced credit card security and also third parties like e-transact system are given the payment transaction to be taken care of.

4.2.7 SYSTEM ARCHITECTURE

1. Client sends HTML form inputs over network
2. Internet Information Server (IIS) receives HTML form inputs
3. IIS Web Server
    a. Processes inputs
    b. If requires, queries to the database and retrieved data
4. IIS Web server sends back processed output as a web page over network
5. Client receives the output as a web page

4.2.9 REQUIREMENTS SPECIFICATION

Main Requirements

1. Based on 3-tier architecture.
2. Use of PHP, MySQL, APACHE web server in developing the system.
3. The final product will be run on Internet Information Server (IIS).
4. Internet Explorer will be used as a main browser.

4.2.9.1 EXTERNAL INTERFACES REQUIREMENTS

All user interfaces will consist of web pages. The user can search a room, make reservation, confirm and cancel existing reservation from home page of the HRS. A web page will be displayed according to the user choice. The manager can update hotel and

travel agent information on web site of the HRS. A web page will be displayed according to the manager's choice.

4.2.9.2 PERFORMANCE REQUIREMENTS

The application will be used client side validation for user inputs to reduce load of the web server. The application will use PHP, MySQL AND APACHE web server to validate user inputs.

Assumptions

- The users have internet connection when ever he/she is using the HRS.

Constraints

- Since developing web applications on PHP, APACHE SERVER frame work is platform dependent, which is Windows, the final product will be deployed on IIS web server.

Environment

- The HRS will be written in HTML and PHP codes.
- Macromedia dream weaver 8 will be the development environment.
- The HRS will be tested on Windows XP platform

4.3.0 SYSTEM DEVELOPMENT AND IMPLEMENTATION

This diagram describes the steps used in developing OHRS.

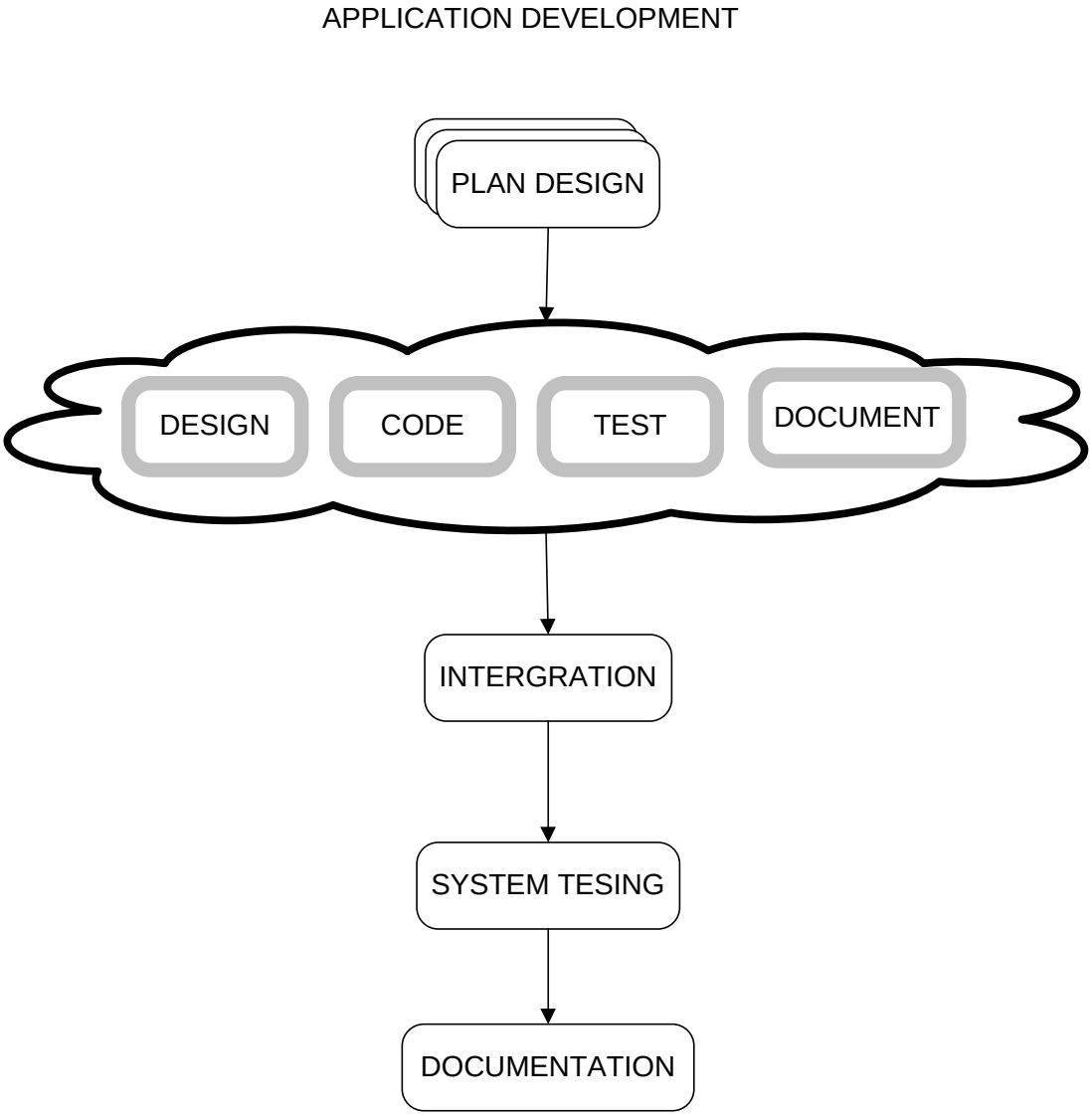


figure 2.4

PROGRAM DESIGN

STRUCTURE CHART
(MODULES)

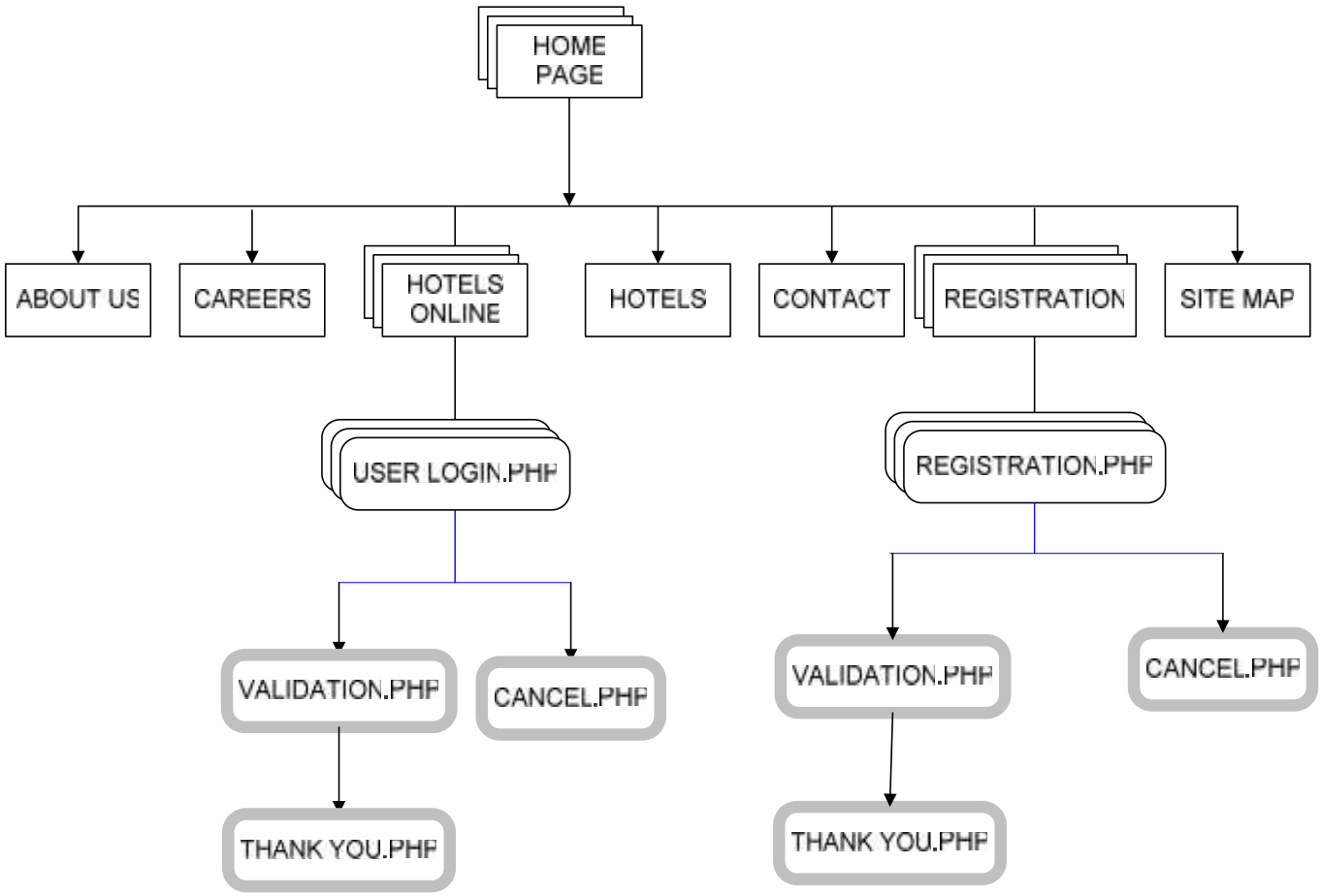


Figure3.4

4.3.1 HOME PAGE AND OTHER HTML PAGES

The home page and the other pages code can be viewed at the back of each page since they are client's side pages. The full code of the whole project will be packaged with the software. The php codes are displayed above in this section because it they cannot be viewed when the software is installed or upload

4.3.2 PROGRAMMING ENVIRONMENT

As stated before in the design section, this project used these tools for the development of OHRS

1. Dreamweaver Studio 8
2. Php editor for php form
3. MySQL for the database definition
4. Fireworks for the graphic effects
5. CorelDraw for some of the button

4.3.3 SYSTEM TESTING

This system will be given to managers and users to test for a period as initial prototype so as to deal with the security weakness.

CHAPTER FIVE

Critical Discussion

5.0 Introduction

This section heightens on the objectives of the system, the project objectives in other words and the reasons why certain functionalities could not be attained. It also gives the summary of the systems functionalities (OHRS).

5.1 Project's objectives

The OHRS as stated before envisaged to achieve two main things;

1. Client's exploration availability of hotels and possible booking through the same system.
2. It must also be able to help management to reserve hotels for advertisement and business transactions in the industry of hotels. The system in the same vein should be able to accept the subscriber's information online so as to publish it by the reservation system. Apparently, these are the main goals of this project.

5.2 Functionality of the system

This section talks about the functionalities of Hotel Online Reservation System.

5.3 Subscriber's Registration functionality

A section of this system is provided to collect the information about the customer of OHRS which is basically to know the brief information about the subscriber. Now from the information which was provided by the customer, the Hotel Name and Number are connected to the database of the system for login authentication.

5.4 Automotive Response

Here information has to be sent to the customer's email domain, it happens by inserting a code to the registration email field on the form which has a very strong check on input data to make sure the data input is a proper email address. This information automatically forwarded to the customer indicates that the system is active and real time.

5.5 Login functionality

As has been stated earlier on, the hotel's name and number which were submitted by the customer are required by the login engine to allow the registered member to upload the detail files which can be in any format so that the news announcement and advertisement can be done by the OHRS.

However, the upload can be only done when the customer may have paid for the charges.

5.6 Upload functionality

This mechanism allows the registered member after having logged in to upload the web documents to the administrator of the OHRS to be published. This web documents can be retrieved through the database.

5.7 Booking mechanism

The booking section is where the hotels presentation are made in a form or video or image. The section according to the project's objectives, contains two concepts

1. if the customer has a website, then the picture shots would have to be linked to the site so that the hotel's clients can browse through the reservation system.
2. if the customer does not have a web site, then there should be a negotiation whether OHRS create a booking system or engine for a fee or just sustain the advertisement which is just displaying the direction and availability of rooms and other facilities.

5.8 Future functionalities

This portion of the project's discussion reveals the future aspects of the system that can be integrated. The project envisages adding to the system mobile phones online payment with OHRS.

Moreover, it also considers the portion of the system in the future where online rental of facilities embed in OHRS.

The project's objectives have been successfully achieved. This leaves rooms for any other software developer to improve upon this system either based on the user's report or his own creativity.

CHAPTER SIX
CONCLUSION

The future development of online booking in Ghana will depend on how well the above problems and issues are tackled, and how long the process will take. It will definitely take Ghana a very long time to have its online booking systems and Internet adoption level developed to the current stage in Africa. How long it will take is dependent on several stakeholders: companies, consumers, government and even the social culture. The transformation of ways of doing business and consumption habits and attitudes will take a rather long period of time. Furthermore, given the unique government intervention, economic development pattern, the role of reservation systems and other related government authorities play will also determine the direction and speed of Ghana's online reservation systems development. Still, taking the huge potential market of Ghana, it is reasonable to be optimistic for its online booking systems development in the future.

The situation has changed already and at a growing speed. The growing IT awareness and market demand will lead Ghana's tourism into an IT intensive era, and ultimately the e-Business era.

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