

Hotel Reservation System System Requirements Specification

Prepared by OO226 Consultants, Inc.

Prepared for Bay View B&B

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1.Introduction

1.1Purpose

The purpose of this document is to define the specific requirements for the Hotel Reservation System (henceforth, referred to as “the System”) and to detail the specifications for the features, capabilities, critical attributes, and major characteristics of the proposed system. It is intended to be read by management, marketing, IT development, and Quality Assurance personnel of Bay View B&B for the purposes of evaluating the benefits and feasibility of the proposed application as well as to provide a basis for the estimation of the time and effort necessary to construct, test, deploy, and maintain it. This document does not describe how, when, or where any of these activities will be performed or who will do them.

Please note that Bay View B&B is the name of the client company and does not refer to a specific lodging property.

1.2Scope

The Hotel Reservation System will be responsible for managing the reservations for multiple lodging properties, which include (but are not limited to) bed & breakfast (B&B) and business retreat properties. The system will also include a Web application that permits customers to view the properties and rooms, to view current and past reservations, and to make new reservations. The system must also coordinate small business conferences.

For more details on the scope of this project see the Scope document, approval on 11-July-2002.

1.3System Context

There are three main “touch points” of the Hotel Reservation System: the central DBMS for data storage, the external, credit card authorization system (Authorize.net), and the local movies-on-demand system that controls the movie feed to each rooms television set.

1.4Primary Stakeholders

The following is a list client stakeholders for different areas within the project. Each area can have many reference stakeholders who should be consulted for requirements information gathering. Each area also has one primary stakeholder who, among all reference stakeholders, resolves disagreement and has final approval for requirements in that area.

Area	Primary Stakeholder	Reference Stakeholders
Owners	Mary Jane Parker	Mary Jane Parker
		Peter Parker
Management		(Santa Cruz)
		(Sonoma)
		(Sierra Madre)
Receptionist (subsumes Booking Agent)	Medoca Sansumi	Medoca Sansumi (Santa Cruz)
		David Hammarstrom (Sonoma)
		Judith Brown (Sierra Madre)
Event Coordinator	Harold Harkening	Harold Harkening
B&B Customers	Peter Parker (as representative)	Mr. Parker will gather Web presence requirements through a hand-mailed survey.

1.5Acronyms and Abbreviations

<i>Acronym / Abbreviation</i>	<i>Expanded Term</i>
B&B	Bed and Breakfast (Hotel)
DBMS	Database Management System
ECO	Engineering Change Order
FR	Functional requirement
GUI	Graphical User Interface
JDBC	Java Database Connectivity
JVM	Java Virtual Machine
L&F	Look and Feel
LAN	Local-Area Network
NFR	Non-functional requirement
OS	Operating System
SRS	System Requirements Specification
WAN	Wide-Area Network
WUI	Web-based User Interface

1.6 How This Document is Organized

The following sections provide all known system requirements, including both functional and non-functional requirements. This document is complete except where noted with reference to an external source. It is helpful but not necessary to read the sections in a sequential order.

Section 2 describes the project constraints and assumptions. Section 3 describes the project risks and how these will be mitigated. Section 4 describes the functional requirements (FRs) of the System. Most functional requirements exist to directly support business process; some exist to support the correct operation of the system itself. All functional requirements are described in terms of use cases. Section 5 describes the non-functional requirements (NFRs) of the System. Section 6 provides a Project Glossary that includes project-related terms as well as software development-related terms.

1.7 Engineering Change Orders

The Parker's have decided to outsource the development of the System.

[This section describes whether this document will be updated according to agreed Engineering Change Orders either continuously during the project, at the end, or not at all will be up to each project to determine. In projects where time is too short to update the requirements, the ECOs could simply be appended to the requirements.]

1.8 References

- *Hotel Reservation System Scope* document, internal, Bay View B&B, 2002
- *The Unified Software Development Process*, Ivar Jacobson, Grady Booch, and James Rumaugh, Addison-Wesley, 1999
- *SunTone Architecture Methodology*, Sun Microsystems, Inc., 2002
http://www.sun.com/service/sunps/jdc/suntoneam_wp_5.24.pdf
- *Authorize.net Developer's Guide*, Authorize.net, 2002
http://www.authorize.net/support/online_documentation.pdf

- *Java Look and Feel Design Guidelines*, Sun Microsystems, Inc., Addison-Wesley, 1999

2.Constraints and Assumptions

The following sections provide additional detail on the matching sections in the Hotel Reservation System Scope document.

2.1Development Process and Team Constraints

The Parker's have decided to outsource the development of the Hotel Reservation System, due to the time-to-market constraints. The acquisition of the Sierra Madre property (scheduled for closing in August)

2.2Environmental and Technology Constraints

2.2.1Software Constraints

The OO226CI team has decided to construct the System using Java technologies (J2SE v1.4) for reasons of portability and flexibility to choose a variety of vendor products.

- Java – <http://java.sun.com/j2se/>

The Web server will be Apache (v1.3) and Web (servlet) container will be Tomcat (v4.0.x). The business logic will be developed using Java classes rather than Enterprise JavaBeans as the problem does not require a high degree of transaction control. The DBMS will be PostgreSQL, an Open Source relational database management server. The Operating System of the Web server will be Linux.

- Apache – <http://www.apache.org/>
- Tomcat – <http://jakarta.apache.org/tomcat/>
- PostgreSQL – <http://www.postgresql.org/>

The Reservation App. GUI will be developed in Swing (built into J2SE) with a MS Windows L&F. The Operating System of the workstations for the hotel staff will be some variety of Windows OS.

- Swing/JFC – <http://java.sun.com/products/fjc/>

The customer (of Bay View B&B) will have a Web browser, either Netscape (v4.x) or Internet Explorer (v4.x) or better. The customer's machine may have any Operating System as long as it supports the appropriate Web browser.

2.2.2Hardware Constraints

The Web server will be an AMD Athlon (1G Hz or greater) workstation with at least 512MB RAM and 40GB harddrive. The RDBMS will also reside on another Athlon workstation with 1G RAM and at least 20GB ATA/133 harddrive (w/ at least 10,000 RPM).

The customer (of Bay View B&B) will have any hardware that supports the appropriate Web browser (see above).

2.3Delivery and Deployment Constraints

The System must interoperate with the Movies-R-Us movies-on-demand software system and the Authorize.net credit card authorization services. The movies-on-demand software only runs on Windows (98, XP, or 2000). PostgreSQL runs on WinNT and a variety of UNIX platforms; Linux is the platform of choice.

The System software will be written in Java to make it platform-independent (both hardware and OS). The Web software will be written to the Servlet v2.3 and JSP v1.2 specifications to make it vendor-independent.

There is a need to convert the legacy data (in the form of Excel spreadsheets) into the database. This need only be done once before the System is deployed. However, the task of writing the conversion program should be handled as early as possible.

3.Risk Mitigation

3.1Technological Risks

The main risk is data conversion from the existing spreadsheets and database at the Sierra Madre property to an integrated database. The main risk is that this task will not be addressed soon enough. The project schedule should handle this task early in the Elaboration phase.

The connector technology between Apache and Tomcat is still in flux. To mitigate this risk, the development team will build a simple prototype Web site that exercises the appropriate connector and configuration. This will happen in the Elaboration phase.

3.2Skills and Resources Risks

The Parkers have decided to outsource the development of the System to OO226 Consultants, Inc.. This decision eliminates the outsourcing risk from the Scope document.

The OO226 Consultants, Inc. development team, while fluent in the Java programming language, does not have any experience developing Java-based Web applications. To mitigate this risk, the development team will build a prototype Web application (in conjunction with the Apache/Tomcat integration prototype, see above). This will happen in the Elaboration phase.

3.3Requirements Risks

There are no requirements risks for this project.

3.4Political Risks

There are no political risks for this project.

4.Functional Requirements

This section defines the actors who use this system while supporting the targeted business processes, as well as the use cases this system provides to those actors.

4.1Primary Functional Requirements

In this section, we classify the primary features of the Hotel Reservation System across three categories. This list is an updated version of the same list from the Scope document. Some FRs have changed priority and a few new ones have been added.

Essential features cannot be done without. *High-value features* can be done without, although it may be very undesirable to do so. *Follow-on features* are those for which it is not clear they should be included in the first release. In all cases, the lists are not exhaustive but include the most important features from a business perspective.

4.1.1Essential Features

- unified Web presence / multiple languages / pictures of rooms/properties
- integrated reservation system across all properties
- system shall support customer check in/out
- on-line customer reservations
- system shall generate a set of business reports (to be specified in the SRS)

4.1.2High-Value Features

- system shall support discounts and promotions
- system shall allow conference bookings
- add movies-on-demand to current B&Bs

4.1.3Follow-on Features

- Mary Jane wants to pull Business reports from Web
- system shall to send surveys to customers
- provide a kiosk about local activities at properties
- system shall support the management of new properties and room information
- system shall manage food inventory, recipes, and catering (at Resort)
- system shall schedule room cleanings and grounds maintenance

4.2Actors

These are the roles of persons and systems that interact with the System.

<i>Actor Name</i>	<i>Description</i>
BookingAgent	This person manages reservations over the phone for customers.
Receptionist	This person can perform all of the duties of a BookingAgent, in addition to checking a customer in and out.
Manager	This person can perform all of the duties of a Receptionist, in addition to managing the promotions and discounts.
Owner	This person can perform all of the duties of a Manager, in addition to generating business reports.
EventCoordinator	This person manages conference events.
Customer	This person is a client of Bay View B&B and will interact with the System through the Internet to view properties and rooms and book reservations.
Time	This “time actor” triggers the generation of reports and sending surveys.
MoviesOnDemandSystem	This external system is invoked by the Hotel Reservation System when a customer requests access to movies.
CreditCardAuthorizationSystem	This external system is invoked by the Hotel Reservation System when a customer checks in and out.

4.2.1Actor: BookingAgent

This person manages reservations over the phone for customers; as such, they are usually the customer's first point of contact with Bay View B&B. This person is directly employed by Bay View B&B.

This person is not required to have an advanced degree (but high-school equivalency is assumed), but is required to be familiar with operating within the Window OS environment and will have some touch-typing skills. This person will be trained on the properties owned by Bay View B&B. This person will be trained on the System. Training will be handled by Bay View B&B.

This job role works in two eight hour shifts (6am to 2pm and 2pm to 10pm PST) and will be using the System the whole time. There is significant turnover in this job role (on average one person quits every six months). It is not suspected that this person is prone to circumvent the system, but this might occur due to inexperience. Therefore, extra attention to the flow of the UI for this actor is necessary.

4.2.2Actor: Receptionist

This person can perform all of the duties of a Booking Agent, in addition to checking a customer in and out; as such, they are usually the customer's first "face" to the Bay View B&B. This person is directly employed by Bay View B&B.

This person is not required to have an advanced degree (but high-school equivalency is assumed), but is required to be familiar with operating within the Window OS environment and will have some touch-typing skills. This person will be trained on the properties owned by Bay View B&B. This person will be trained on the System. Training will be handled by Bay View B&B.

This job role works in three eight hour shifts (6am to 2pm, 2pm to 10pm, and 10pm to 6am) and will be using the System the whole time. There is significant turnover in this job role (on average one person quits every six months). It is not suspected that this person is prone to circumvent the system, but this might occur due to inexperience. Therefore, extra attention to the flow of the UI for this actor is necessary. Also, because the System will be exposed in a public location, the System shall facilitate an auto-locking mechanism with password protection after 10 minutes of inactivity.

4.2.3Actor: Manager

This person can perform all of the duties of a Receptionist, in addition to managing the promotions and discounts. This person is directly employed by Bay View B&B.

This person is not required to have an advanced degree (but high-school equivalency is assumed), but is required to have previous management experience. This person is required to be familiar with operating within the Window OS environment and will have some touch-typing skills. This person will be trained on the properties owned by Bay View B&B. This person will be trained on the System. Training will be handled by Bay View B&B.

This job role works in a single eight hour shifts (9am to 6pm, with an hour lunch break) but will be on-call 7 by 24. They will not be using the System the whole time, but might assist the receptionist from time-to-time and create promotions occasionally (maybe several times a month). This job role tends to be very stable with a turnover rate of less than five years. It is not suspected that this person is prone to circumvent the system. This job role has an office; therefore, System security is less important, but useful.

4.2.4Actor: Owner

This person can perform all of the duties of a Manager, in addition to generating business reports. This person is directly employed by Bay View B&B.

This person is likely to have an advanced degree (usually an MBA), and is required to have previous hotel management experience. This person is required to be familiar with operating within the Window OS environment and will have some touch-typing skills. This person will be trained on the properties owned by Bay View B&B. This person will be trained on the System. Training will be handled by Bay View B&B.

This job role is not constrained by any specific work schedule; however, the owner is typically accessible to the managers as needed via cell phone. They will not be using the System very often, usually monthly to pull business reports. This job role is very stable. It is not suspected that this person is prone to circumvent the system. This job role works from home; therefore, System security is less important, but useful.

4.2.5Actor: EventCoordinator

This person manages conference events. This person is directly employed by Bay View B&B.

This person is required to have a college degree in hotel management. This person is required to be familiar with operating within the Window OS environment and will have some touch-typing skills. This person will be trained on the properties owned by Bay View B&B. This person will be trained on the System. Training will be handled by Bay View B&B.

This job role works in a single eight hour shifts (9am to 6pm, with an hour lunch break) but will be on-call 7 by 24. They will not be using the System the whole time; they might have to “touch” the System about five times per day. This job role tends to be very stable with a turnover rate of less than five years . It is not suspected that this person is prone to circumvent the system. This job role has an office; therefore, System security is less important, but useful .

4.2.6Actor: Customer

This person is a client of Bay View B&B and will interact with the System through the Internet to view properties and rooms and book reservations. This person is *not* employed by Bay View B&B. This person might also not be a client, but anyone that has access to the Internet.

It is not known what level of education this person will have. What can be assumed is that this person can access the Internet using a Web browser; however, nothing else can be assumed. The Web presence of the System must be as easy to navigate as possible.

This actor will be accessing the System 24 by 7 by 365. Because Bay View B&B has international clients, the System cannot assume a specific peak-time.

4.2.7Actor: MoviesOnDemandSystem

This external system is invoked by the Hotel Reservation System when a customer requests access to movies. This system has a DLL interface.

4.2.8Actor: CreditCardAuthorizationSystem

This external system is invoked by the Hotel Reservation System when a customer checks in and out. This system has an HTTP interface. The specific interface to be used is called ???. Please read the Authorize.net Developer's Guide for more details.

4.3Use Cases

<i>Use Case Name</i>	<i>Priority</i>	<i>Number</i>	<i>Description</i>
Manage Reservation	E	1	
Check in Customer	E	2	
Check out Customer	E	3	
View Properties on-line	E	4	
Manage Reservation on-line	E	5	
Generate Reports	E	6	
Create Promotions	H	7	
Manage Events	H	8	
Manage Properties	F	9	
Manage Catering	F	10	
Schedule Room Maintenance	F	11	

<i>Use Case Name</i>	<i>Priority</i>	<i>Number</i>	<i>Description</i>
Send Survey	F	12	
View Local Info from Kiosk	F	13	

4.4 Applications

<i>Application Name</i>	<i>Description</i>
	<i>Use Cases</i>
HotelApp	This standalone application automates the main functions of managing a hotel and small event center.
	Supports UCs: E1, E2, E3, H7, F9, E6, H8, F10, F11, and F12
WebPresenceApp	This Web site/application allows a Customer to view hotel properties and book a reservation.
	Supports UCs: E4 and E5
KioskApp	This standalone application resides in a Web-like kiosk in the lobbies of each property.
	Supports UCs: F13

4.5 Use Case Detailed Requirements

4.5.1 HotelApp Requirements

This section lists all of the detailed requirements for the HotelApp.

<i>Req. Code</i>	<i>Requirement Description</i>
E1-1	The System shall permit a BookingAgent to create, retrieve, update, and delete a reservation.
E1-2	A reservation holds one or more rooms for a single time period.
E1-3	A reservation is associated with only one customer. The System shall permit a BookingAgent to create, retrieve, update, but not delete a customer. The System must collect the following information about a customer: first and last name (as separate fields), address, home phone, a major credit card number, and ???. The System can collect (but is optional) the following information about a customer: work phone, business address, email address, and ???.
E1-4	A reservation might have at most one promotion attached to it. The System shall permit the BookingAgent to attach a promotion to a reservation at any before the customer has checked in.
E1-5	A reservation begins in the “held” state. A reservation can be held for 48 hours prior to the check-in date. A reservation can be “confirmed” by verifying that the customer's credit card has enough reserves for the base charges of the reservation. The base charges are the price of the room(s) (plus taxes) times the length of stay. A reservation that is “held” but not “confirmed” can be removed (usually for another customer) within the 48 hour period prior to check-in.

<i>Req. Code</i>	<i>Requirement Description</i>
E1-6	A reservation can be retrieved by three search techniques: by customer (all reservations for that customer), by date and property (all reservations for that property that span the given date), and reservation ID.
E1-7	A reservation can be cancelled 48 hours prior to the check-in date without penalty. A reservation can be cancelled within the 48 hour period, but the customer will be charged 50% of the base charges for the reservation.
E1-8	A reservation's check-in and check-out dates also include a time, which defaults to 11am for check-out and 4pm for check-in. These times can be changed by the BookingAgent.
E2-1	The System shall permit the Receptionist to “check in a customer”. This means that the reservation is marked as “checked in”.
E2-2	The System shall permit the Receptionist to turn on movies-on-demand for any room in the reservation.
E2-3	A reservation must be “confirmed” before it is marked as “checked in”. If the reservation has not already been confirmed with a credit card, then the Receptionist will use the System to verify that the customer's credit card has sufficient funds to cover the base charges for that reservation. The System shall use the external actor CreditCardAuthorizationSystem to perform this verification.
E3-1	The System shall permit the Receptionist to “check out a customer”. This means that the reservation is marked as “complete”.
E3-2	The System will automatically turn off the movies-on-demand for all rooms in the reservation.
E3-3	The System shall generate a receipt of all of the charges (line items) accumulated on the reservation. Charges include: price of the room(s) for each night, taxes on the room charges, price of the movies watched, room service (usually food) charges, and telephone charges. The System shall support a “generic charge” that permits the Manager to enter other types of charges to a reservation. The reservation receipt must be printed by the System for the customer's records.
E3-4	The System shall require payment from the customer before the reservation is marked as “complete”. A reservation can be paid by only one payment method. The System shall support the following payment methods: credit card (at least, VISA, Master Card, and American Express), business purchase order, and cash. The System might be enhanced to include additional payment methods. Personal checks are not permitted at this time.
E6-1	The System shall support the following business reports: a customer receipt, monthly income and tax reports, weekly room maintenance reports, event reports, and xyz reports.
E6-2	The “customer receipt” report shall generate a complete and detailed list of charges for a single reservation. It will also include the following information about the reservation: name of customer, name and contact information of the specific property, the summation of charges, the summation of taxes, and the payment information.

<i>Req. Code</i>	<i>Requirement Description</i>
E6-3	The “monthly income” report shall generate a complete list of reservations for a given property within a date range (defaulted to the current month). A reservation is included in this list if the payment date (usually the check-out date) falls within the date range. The report will provide a summation of the income from these reservations as well as a summation of the taxes.
E6-4	The “room maintenance” report shall generate a complete list of rooms that need cleaning. Bay View has the policy of cleaning a room only before a customer checks in; they do not clean the rooms everyday to save money and to reduce being a nuisance to the customer. The report will be organized by day of the week. Each day section will include a list of rooms that will need maintenance sorted by the check-in time (in ascending order).
E6-5	The “event” report shall generate a complete list of event rooms that need configuring during the specified week. The report will be organized by day of the week. Each day section will include a list of events, the rooms reserved, and the configuration information for each room.
H7-1	The System shall allow the Manager to create a promotion. A promotion provides a customer with a discount if they match a certain criteria. The criteria for applying a promotion to a reservation will be verified by the BookingAgent and not by the System. This means that any (but only one) promotion can be attached to a reservation (see E1-4).
H7-2	A promotion describes a discount on specific charges for a reservation. For example, a promotion might provide a 10% discount on the room price.
H8-1	The System shall permit the EventCoordinator to modify a reservation to include additional event rooms. [Note: The reservation must already exist, which is usually created by a BookingAgent.]
H8-2	The event rooms can be booked on any day within the period of the reservation. A time period must be associated with that booking. [Note: it is possible to have several, different bookings for a single event room on a single day, but there must be at least an hour gap between bookings to support reconfiguring the room.]
H8-2	The System shall permit the EventCoordinator to attach textual information to each event room in the reservation to describe the configuration of the room. For example, how many tables and chairs are needed and in what configuration; if a projector system is needed; if food is needed for the event and when; and so on. The System is <i>not</i> required to process this textual information in any way.
F9-1	The System shall permit the Owner to create, retrieve, update, and delete hotel properties. Each property has a name, address, and one or more text descriptions for directions to the property.
F9-2	Each property has one or more rooms. A room belongs to a single property. There are two categories of rooms: lodging and event rooms.

<i>Req. Code</i>	<i>Requirement Description</i>
F9-3	There are three types of lodging rooms: single bed, double bed, and executive suite. Each room type has a default price, but can be altered for specific rooms. A room is either designated as smoking or non-smoking. For B&B properties, a room will also have a name. All rooms will have a unique ID (usually a combination of a property code and a number).
F9-4	Event rooms must include textual information about the facilities of that room, including (but not limited to) the seating capacity of the room
F10-1	The System shall permit the EventCoordinator to associate a food order to a given event for any event room. The food order is a set of items (plus quantities for each item). The items are selected from the current menu.
F10-2	The System shall permit the EventCoordinator to create food menus. A menu is a list of food items organized by categories: appetizer, salad, sandwich, entre, and dessert. This list of categories is static.
F10-3	The System shall permit the EventCoordinator to add text-based recipes for each food item on a menu.
F10-4	The “event” report (see E6-5) will also include food orders for each day organized by the time that the food is needed by the event.
F11-1	The System shall permit the Manager to schedule maintenance on any room for any date. This will effectively block that room from being reserved for that date. A room cannot be scheduled for maintenance if it is currently being held under a reservation.
F11-2	The Manager can associate a free-text description of the maintenance needed for a given room/date.
F12-1	The System shall automatically send a “customer survey” to every first-time customer two weeks after the check-out date through email. If the customer does not supply an email address, then no survey will be sent. The email message contains explanatory text (about the survey and its purpose) in addition to a URL link to the Web page form for that survey. This URL link shall include the customer's ID.
F12-2	A survey consists of a set of questions in a Web page form. There are three types of questions: single-selection multiple choice, multiple-selection multiple choice, and a free-text question. The multiple choice questions will also contain a comment box.
F12-3	The System shall permit the Owner to construct new surveys. Each survey will be associated with a list of properties and be valid for a specific date range. The specific customer survey sent out is selected by the property in which the customer stay and the date the survey is sent out.
F12-4	Initially, the System will provide surveys in English only. Future versions of the System might support language-specific versions of each survey.
F12-5	The System shall allow the Owner to send a specific survey to a specific customer manually.

<i>Req. Code</i>	<i>Requirement Description</i>
F12-6	The System shall allow the Owner to request a “survey” report. This report shall generate statistics on the survey responses for a given date range or for the complete “life” of the survey. For each multiple choice question, the report will show the number of selections for each choice option followed by the list of comments. For each free-text question, the report will list the entered text. The report will also provide the number of surveys sent (during the date range) and the percentage of “returned” surveys.

4.5.2WebPresenceApp Requirements

This section lists all of the detailed requirements for the WebPresenceApp. This application satisfies the following Use Cases: E4 (View Properties on-line) and E5 (Manage Reservation on-line).

<i>Req. Code</i>	<i>Requirement Description</i>
E4-1	The System shall provide the customer with views of each property, plus views of each individual room in the Bed&Breakfast properties. These views will be accessible through the World-Wide-Web on the Internet.
E4-2	The property views shall include: pictures of the property, directions to the property, pictures of local scenic views, additional facilities of the property (such as pools, spas, exercise rooms, gardens, and so on), and information about the number and types of rooms available.
E4-3	For B&B properties, the room views shall include: pictures of the room interior, name of the room, “history” of the room, the price of the room, and the maximum accomodation (number of occupants).
E5-1	The System shall allow the customer to create a reservation. This functionality will be available on the WWW through a Web application.
E5-2	This Web application will allow a customer to have a unique login and password. The customer must login to the System before creating a reservation.
E5-3	New customer will be allowed to create a new login/password. The System shall collect all mandatory information about the customer (see E1-3). The System will allow the customer to enter optional information as well.
E5-4	The reservation form will allow the customer to select the property, the start and end dates, and the room type. For B&B properties, the customer can select a specific room. The System shall support a link from the “room view” to the “reservation page” which automatically populates the room selection.
E5-5	This Web application shall allow the customer to view existing reservations.
E5-6	This Web application shall allow the customer to cancel an existing reservation 48 hours prior to the check-in date. [Note: If a customer wishes to cancel the reservation within the 48 hour period, then she must call a BookingAgent to cancel. See E1-7]

4.5.3KioskApp Requirements

This section lists all of the detailed requirements for the KioskApp. This application satisfies the following Use Cases: F13 (View Local Information from Kiosk).

<i>Req. Code</i>	<i>Requirement Description</i>
F13-1	The System shall permit a Customer to view information about activities local to the property. This information can include (but is not limited to) local sites, events, restaurants, shops, and any other relevant information
F13-2	The System will not support the creation of this information; rather, these pages will be hand-crafted by a Web designer.

5.Non-Functional Requirements

Note: non-functional requirements are distinguished from FRs by starting each requirement number above 100. Therefore, the first NFR for Use Case #E1 would be given the code E1-101.

5.1Performance

5.1.1Current Release

This System will not require significant demands on the hardware.

<i>Req. Code</i>	<i>Requirement Description</i>
E1-101	Based on historical evidence, there are approximately 150 reservations per month per B&B property and about 1,000 reservations per month in the resort property. Therefore, a maximum of 1,300 reservation records per month could be entered into the System.
E1-102	The GUI interface to the HotelApp must have a response-time of no more than 5 seconds for any user input.
E1-103	The HotelApp must support at least five users, simultaneously, at each property.
E1-104	The HotelApp must start up within one minute.
E4-101	The HTTP response time for static pages must be no more than 5 seconds <i>at the network connector of the Web host</i> . [Note: we cannot measure performance at the (hypothetical) user machine due to uncertain network latency of the Internet.]
E5-101	The HTTP response time for Web application must be no more than 10 second <i>at the network connector of the Web host</i> .
E5-102	The process for creating a complete reservation on-line, must take the average user no more than 10 minutes to finish.
E5-103	The WebPresenceApp must support at least 25 users, simultaneously. However, the Web application is only required to handle five simultaneous users (meaning five active database connections).

5.1.2Future Releases

No additional performance requirements for future releases.

5.2 Scalability

Within five years, the Parker's plan to acquire two additional B&B properties and (possibly) one additional resort property. Also, they have seen a growth in clientele of about 15% per year. The following requirements are based on these projections for five years.

5.2.1 Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-105	The capacity of reservation records could grow to 2,600 per month.
E5-104	The WebPresenceApp must support at least 50 simultaneous users. The Web application should scale to 10 simultaneous users (10 DBMS connections).

5.2.2 Future Releases

No additional scalability requirements for future releases.

5.3 Availability

5.3.1 Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-106	The System must be available “7 by 24 by 365”. However, the DBMS and the individual applications can be shutdown for maintenance once a week for one hour. This maintenance should be scheduled during the graveyard shift (10pm to 6am) to avoid
E1-107	If a BookingAgent takes a call while the System is shutdown, then paper forms will be provided to allow the BookingAgent to collect all necessary information to book the reservation when the System starts up again. Bay View B&B will be responsible for creating these paper forms.
E5-105	When the DBMS is shutdown, the WebPresenceApp Web application must handle the situation properly (it must not crash). This could mean sending a message to the user to return to the Web app. at a later time.

5.3.2 Future Releases

No additional availability requirements for future releases.

5.4 Reliability

5.4.1 Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-108	Data Integrity rules: <ul style="list-style-type: none">• A Reservation <i>must not</i> exist without an associated Customer.• A Room <i>must not</i> exist without an associated Property.• A Conference Event <i>must not</i> exist without a Reservation.
E5-106	The flow of user input to create a reservation on-line, must be tightly controlled to prevent erroneous or double bookings. This means that the user will be forced to move through the Web application in a linear fashion and never allow the user to back-up to a previous Web screen.
E6-101	The numerical accuracy of all financial calculations (for reports, including the customer's receipt) shall follow a 2-significant-digit precision with standard rounding of intermediate results.

5.4.2 Future Releases

No additional reliability requirements for future releases.

5.5 Security

The Use Case actors represent security roles for the System. LDAP on the Linux server will be used to centrally manage user accounts. The Bay View B&B system administrator will be responsible for maintaining new user accounts; this will *not* be a Use Case of the System. The user information must also be duplicated in the DBMS.

5.5.1 Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-107	The HotelApp shall prompt the user to login at startup. The System shall use the LDAP server to authenticate the user and verify the user's role. The database connection used by this user will be authenticated by the same username and password.
E1-108	The user is automatically logged out when the application is shutdown.
E1-109	The HotelApp shall provide a feature to allow a new user to login; this replaces the current user.
E1-110	The HotelApp shall configure its menus to clarify which System features are accessible to the current user's role. This will be done by disabling GUI features (like menu items and buttons) that are not authorized for the current user's role.
E1-111	The System shall record auditing information (created-by, creation-date, and modified-by, modification-date fields) on the following entities: Reservation and Customer. This is not required for any other entity.

<i>Req. Code</i>	<i>Requirement Description</i>
E5-107	For a customer to use the WebPresenceApp Web application, they must login to the System. However, from the perspective of the System, all customers are recorded as “customer” with regard to auditing features (see E1-111).
E5-108	The WebPresenceApp shall provide a tool to create new Customer users.
E5-109	The WebPresenceApp shall allow the logged in Customer user to view reservations that are associated with them. All reservations created on-line shall be associated with the Customer user currently logged in.
E5-110	The WebPresenceApp shall use the HTTPS transport layer when critical customer information is being transmitted; this includes (but is not limited to) the customer's credit card information.

5.5.2Future Releases

No additional security requirements for future releases.

5.6Manageability

The HotelApp will be an application that is released internally.

5.6.1Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-112	The HotelApp will be released as a single JAR (Java archive) file.
E1-113	The HotelApp shall be launchable using a MS-DOS BAT script which executes the HotelApp JAR file. This script will be accessible on the each desktop and will launch the HotelApp when double-clicked.
E4-102	The WebPresenceApp will be released as a single TAR (UNIX tape archive) file, which will be used by the Apache server. The Web application portion of the WebPresenceApp will be released as a single WAR (Web application archive) file, which will be used by the Tomcat server.
F13-101	The KioskApp will be released as a single TAR (UNIX tape archive) file.

5.6.2Future Releases

No additional manageability requirements for future releases.

5.7Usability

5.7.1Current Release

<i>Req. Code</i>	<i>Requirement Description</i>
E1-114	The HotelApp shall have a MS Windows look-and-feel to the components of the GUI. The layout of the GUI shall follow the guidelines specified in the <i>Java Look and Feel Design Guidelines</i> .
E1-115	The HotelApp shall be written in English.

<i>Req. Code</i>	<i>Requirement Description</i>
E1-116	There are currently no requirements for the HotelApp to be handicap accessible.
E1-117	The HotelApp will have a splash screen. The graphics for this screen will be created by a contractor hired by Bay View B&B. The HotelApp will also have a “minimization icon” that will be designed by the same contractor.
E4-103	The WebPresenceApp shall be written primarily in English. However, this Web site will also be translated into three other languages: German, Spanish, and Japanese. This applies to Use Case E5 as well.

5.7.2Future Releases

<i>Req. Code</i>	<i>Requirement Description</i>
E1-118	The HotelApp could be could used by Spanish speaking personnel in the future.

5.8Maintainability

[Define the life expectancy of the application, and describe the requirements that will facilitate maintenance throughout its lifecycle, including use of specific languages, compilers, tools, libraries, coding conventions, or methodologies that will facilitate debugging and enhancement by those engineers who will be responsible for long-term maintenance. Define specific requirements for source code headers that might include module name, author's name, date of creation, purpose of module, placeholders for SCM, and revision history. There may also be specific requirements for file naming, directory organization, make files, development environment, and such that will facilitate maintenance.]

[Describe the different levels of application problems that your IT department tracks and the acceptable number of undetected and/or unresolved errors at first release. Discuss "bug inflation" and how bugs will be assigned a severity.]

Typical categories of system problems are listed below:

- Severity 1, **Fatal** - Entire system is affected and cannot be used at all.
- Severity 2, **Major** - Part of the system or critical functionality is affected and an acceptable workaround is not possible.
- Severity 3, **Medium** - A functional problem requires increased effort to avoid via a temporary workaround. The problem cannot be indefinitely deferred.
- Severity 4, **Minor** - Functioning of system is not significantly impaired and users can live with the problem for now.
- Severity 5, **Enhancement** - A change or addition to the requirements is desired to address an unanticipated deficiency.

5.9 Extensibility

<i>Req. Code</i>	<i>Requirement Description</i>
H7-101	Promotions currently require human intervention to determine if the customer may use a given promotion. For example, did the customer “attend a property in the past month”. Future versions of the system could have a rule-based component that automatically verifies promotion criteria.

6. Project Glossary

[Define all terms referenced in any of the scope or requirements documents. This can include both system-related terms and software development terms. For clarity you might choose to separate these two sets of terms into different lists. The Project Glossary can also be a separate document to reduce the size of the SRS.]

<i>Term</i>	<i>Definition</i>