



Easy Hotel Management System Requirements Specification
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1. Executive Summary

1.1 Project Overview

Hotels nowadays are focusing on maximizing their revenues as all other businesses do and the main reason for that is the ever-increasing competition. The online world has made it difficult for hotels and resorts to compete by providing guests a plenty of choices including Homestay, Hostel with bunk beds or even a modular option. Therefore there is an increasing demand for best hotel management system in order to facilitate the management of hotel operations and functions.

Operating a successful hotel business today is a challenge in itself. A hotelier has to manage various of proposals such as operations, staff and maintenance, meanwhile keeping costs under control and balances as it is one of the most important and critical issues for a hotel business to increase their revenues and to compete with other hotels. To improve the efficiency of this process, a good hotel management system which uses the modernizing techniques must be provided.

The key to reaping the benefits of an effective hotel management software system is to select the right one for your property. It's critical that you know exactly what this hotel management technology is, and why it is important for you to implement it at your hotel. These days every person can find different options of the hotel reservation software free on the internet, however one has to judge the solution with the quantum of features and quality that it is providing. There should be a complete functionality as a hotel management system can be both basic and advanced based on the pricing options that are available as well. Also we can say that the developers are making such software as per the pocket of the business and this is one of the main reasons why we have so many different options in the online world.

Hotel management is a key element for a very important branch of economy, which is tourism. Knowing this, two members of our group were familiar with different types of management software and they had analyzed the deficiencies that they have and decided to make this project based on the improvement of these deficiencies.

Our software aims to have all the features that a hotel needs in order to adapt to the management structure of the business, and by making practical and effective use of these features every hotelier's work life will be much easier than they have ever imagined by using this product.

1.2 Purpose and Scope of this Specification

This Software Project which will be a *Hotel Management System*, is going to be adapted to the management structure of *Hotel Elera* and will operate the major functionalities of the hotel.

Our Software Application will focus on automating functions such as guests booking, inquires, storing records of the guests, pre-booking and booking functions, managing inventories across the sales channel and keeping them always in sync so that a real-time update inventory is subjected to the online world, having a quick control of the rates across the channels and a easy to update control. The most important goal is to run the hotel properly while giving the current importance to each aspect of the business.

The System should also ensure that accurate and precise information is consistently shared with the guest about the inclusions and amenities to him/her so there will be no room for misunderstanding by providing a complete transparency and this should be as much as possible human independent. Happy guests pay long term dividends.

Apart from all these functionalities our Software will also ensure that the front office manager will not fumble with his day to day operations, his operations will be automated to the maximum so that there will be no possibility for human errors. The software will also have a feature of room allocation and monitoring so that the room allocation will be done right from the time the booking is picked up and occupied into the system, but at the same time there will be a feature which will let these room allocations to be interchanged if required by giving an option of interchanging or updating the category and room.

Overall, in order to lower the costs and to grow the productivity of the business we see that businesses are oriented mostly on the usage of software. For this purpose we structured a software which aims to accomplish exactly this.

2. Product/Service Description

Hotels nowadays differ in size, culture and management structure. So, the perfect Software provided, needs to be adapted to specific business which will implement and use it.

Easy Hotel Management System is a web application which aims to facilitate the management system of a *Hotel Endera*. It will keep track of hotel reservations, inventory management, rooms to be cleaned and so much more.

Moreover, a mobile application version is added in order to provide better, easier and faster communication. Mobile version will let the user keep the Hotel Management system in its pocket. It is designed to be near to the guests anywhere and anytime.

2.1 Product Context

Easy Hotel Management System (EHMS) software is technology that allows hotel operators and owners to streamline their administrative tasks while also increasing their bookings in both the short- and long-term.

EHMS is not only important for day-to-day operations, but it's a vital part of the overall guest experience. From the beginning of guests' online booking journey until the completion of their stay and their feedback once they return home, it is necessary for the hotel management technology to enhance customer experience with the brand.

This product aims to bring together all possible stakeholders of Jona's Hotel, giving flexibility and facilitating the management process. The product main focus is to be robust in operation and user friendly in usage.

1. Platforms are available: web application and mobile application which is compatible with android operating system and further will be extended with the iOS.
2. Sign in option:
 - username & password
 - Gmail account

2.2 User Characteristics

Web Application:

The web version of the Software has multiple users with different functionalities such as:

1. Admin - the owner or manager of the business running this product
 - Is able to see booked rooms, can adjust room price, modify reservations
 - Is able to Add/Remove rooms or possible users of the system
 - Is able to observe Statistics
 - Inventory
2. Receptionist - the person who deals with guests checking-in & checking out of the hotel, answers calls
 - Is able to view Rooms to be cleaned and can print the receipt
 - Rooms available to customers
 - check-in , check-out dates
 - Make and view reservations
 - Have access to inventory & balance sheets
3. Guest - any user who is interested to the hotel and tend to make reservation
 - Can Make reservation, check rates
 - While is in its stay can view if the room is ready by the cleaner or not
 - Can modify his booking and edit his credentials
4. Cleaner - employer/s who take care of the cleaning part of the interior of the building.
 - Can see the rooms to be cleaned
 - Can make changes to the status of the room regarding cleaning services. (E.g. Room ready or not)

Mobile Application:

- Stay up to date to arrivals, departures, new bookings, cancellations
- Stay in touch with chat with the guests right from the app
- View reservation details and reservation calendar

2.3 Assumptions

We assume:

1. All users have basic knowledge in English language;
2. All users have basic knowledge in computer and smartphone usage;
3. Stakeholders of the hotel have basic knowledge on how to use the system due to previous experiences with other systems;
4. Hotel is equipped with PC/Laptop/Tablet, printer, mobile phone;
5. Hotel must have internet connection all the time;
6. It is assumed that the Hotel provides Credit Card payments.

2.4 Constraints

1. All users have to be logged in in order to use the product and to access the information
2. Phone memory of the users is another problem, prices and quality of android phones varies and so the memory, most of the workers are likely to have cheaper phones and that can be a problem for the application usage

2.5 Dependencies

- As it is a web based application it is always dependent on internet connection. A connection is required to send commands and receive answers, usually in the form of a result set.

3. Requirements

The following definitions are intended as a guideline to prioritize requirements.

- Priority 1 – The requirement is a “must have” as outlined by policy/law
 - Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
 - Priority 3 – The requirement is a “nice to have” which may include new functionality
- It may be helpful to phrase the requirement in terms of its priority, e.g., "The value of the employee status sent to DIS must be either A or I" or "It would be nice if the application warned the user that the expiration date was 3 business days away". Another approach would be to group requirements by priority category.

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	Different views for account types	There will be 4 account types: Admin, receptionist, client and cleaner each having its own view	1		
BR_02	Login constraint	All users have to be logged in in order to access the data	1		
BR_03	The system should provide the possibility to view booked rooms	Administrator, and receptionist can check if rooms are booked or not	1		
BR_04	Add, remove rooms	Only admin can add or remove rooms	1		
BR_05	The system should provide to admin possibility to adjust room prices	It will allow admin to change rates according to the season and its peaks	1		
BR_06	The system should provide to admin the possibility to add/remove employees	In case of staff shortage or an increase in the members' of the system	2		

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BR_07	The system should provide email notifications	The client will be notified with an email for each successful booking	3		
BR_08	Provide statistics	Based on statistics administrator can declare the top employee	3		
BR_09	Block dates for specific rooms	Some rooms may need to be renovated thus guests should not be able to book those rooms	1		
BR_10	Receptionist should be able to book rooms	The reservation may come from a phone call or the client can come directly to the hotel so the receptionist will be the one to book the requested room.	2		
BR_11	Print invoices	Administrator can print daily, monthly, yearly invoices	2		
BR_12	Manage inventory	Only administrator can manage the inventory	1		
BR_13	View rooms availability	Receptionist can see if rooms are available or not	1		
BR_14	View rooms available to customers	Receptionist and client can check if the room is available for a new customer	1		
BR_15	Make reservations	After being logged in the client can make a reservation for rooms	1		
BR_16	Check rates	The client can check the rates and reviews of the hotel	2		
BR_17	Check rooms to be cleaned	Cleaner can check room to be cleaned	2		

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BR_18	Check room's status	Cleaner can check if the room is cleaned or not	2		
BR_19	The system should assign to each cleaner the rooms to be cleaned for each day	Name of worker ="Transcript with Room numbers"	3		
BR_20	Book Multiple Rooms	The system should provide the possibility to book more than one room from a single client account	2		
BR_21	Guest note	The client may have extra requirements that are not listed on our software thus they can leave a note to specify their extra needs	3		
BR_22	The system will provide a mobile application for the administrator	The administrator of the hotel will have a mobile application from where he/she will have full access of all the features that we will offer	3		
BR_23	The system will provide a web application for all types of users	Every user can use the web application but according to the type of user that is logged in, <i>there will be different interfaces provided.</i>	1		
BR_24	The system should calculate VAT according to room price	According to Albanian legislation about hotels, 6% of room price goes for VAT. This will be calculated in the printed receipt.	2		

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BR_25	The system should provide the Admin to add product to the inventory	Admin can add specific product to the inventory so it will be easier to keep track of the hotel's product.	2		
BR_26	The system should provide the Admin to assign and control tasks	Admin assigns different tasks related to the hotel issues to the staff.	3		
BR_27	The system should provide the admin with possibility to modify booked rooms	Admin can delete or modify the booked room according to guest needs. It can also extend the guest stay	1		
BR_28	The system should provide users the ability to edit information	Users can edit their information and change the profile picture	2		
BR_29	The system should provide the admin to leave notes to employees	Admin can send a message to other staff members of the system for a specific reason	2		
BR_30	The system should provide to the cleaner the information of the rooms to be cleaned	Cleaner can see in its page which room it is assigned to clean.	3		

3.2 Non-Functional Requirements

3.2.1 Product Requirements

3.2.1.1 User Interface Requirements

- A simple and responsive system in a short time
- Web app, consistent in all interfacing screens or devices
- Details of any user (Client, Admin, Receptionist) will be activated in the displayed mode and in the database real quick
- Flexible navigation to and from displayed panels or pages

3.2.1.2 Usability Requirements

This Web app will have an easy interaction with every user from each device connected to an internet service also from every browser or platform. We think we can conduct also a mobile application which can be downloaded only from Androids, but we aren't sure if we will achieve a complete version because of the time available. Every user will have its own type of interface, with the attributes and actions they can perform there. Admin interface records all the information for the overall management of the hotel. The most important commands for each type of interface will be visible at first view so the software can be easily accessed. It will be designed in a way that allows modifications to be made, as it has to be updated time after time to fulfill hotel's management requirements and to manage possible error occurrences.

3.2.1.3 Learnability

- Our product is user friendly – everyone can easily learn the commands following the guidelines provided by us;
- Even though the software is in English, it can be understood by someone with basic knowledge of English since every functionality will be graphically shown;
- A .pdf file with all specifics of the product will be provided to the user of the software, where every functionality will be graphically explain.

3.2.1.4 Accessibility

- The software will be able to perform 24/7.
- Probability that the users will accomplish a desired task (reservation) in the first time without errors is 99, 5%.
- Different levels of users will achieve different tasks in the same time as the system guarantees to perform multiple actions per minute.
- System data are automatically saved in the database and backed up daily.

3.2.1.5 Performance

The web and mobile application will be an online platform with multiple users. It uses multi-tier architecture which consists of; user client, middle tier, and application server.

Web application performance is dependent on:

1. Written Code - in order to make the performance of the software better we have insured that developers are using the optimal code practices, as well as automated tools such as profilers to check time complexity etc.
2. Responsive time - **Example:** Search results for room availability should be populated within an acceptable time limits.
3. Speed of internet connection
4. Specific HTML title tags - tags sum up the entire content of the website to major search engines such as Google. However, a lack of specificity in your domain name can lower its visibility.

3.2.1.6 Capacity

Web and mobile application are stored in a server which needs to have a minimum of 100MB of size. The database is not so large which means it will not occupy so much space. The applications run better and faster on stronger internet connection but it loads perfectly even with slow internet connection. It is fast ever with multiple users accessing the page at the same time. Android version of mobile application will be added to Google Play store.

3.2.2 Organizational Requirements

3.2.2.1 Availability

- The website will ensure to be available all the time, everyday 24/7. It will have a high availability to achieve the higher as possible the percentage of time the system is functioning.
- Even though it is in English language the system can be used wide world as it is a web application, the same for the android application
- Our product will have a downtime as minimal as possible as long as the software will be used with reliable web browsers
- While talking about the mobile application it will be available only in android phones

3.2.2.2 Latency

The software will be used in a strong internet connection and the website will be loaded within less than 2 seconds.

3.2.2.3 Monitoring

The software will be evaluated often. In case of errors the administrator will be able to follow specific validations because everything will be well documented in files.

3.2.2.4 Maintenance

System is maintainable and useable, it is made in the form that later on if required it can be improved by adding more functionalities. This software uses Doctrine which is focused on database storage and object mapping, Symfony for the back-end and React.js for the front-end. The system will be updated continuously with different features and extra features based on guests reviews and business requirements. Moreover, the software will be observed and maintained by the administrator of the system. In case there is any error in the system in the site will appear a message informing users to be patient while the system is being maintained.

Example: “We are performing site maintenance and will be back shortly! – Please be patient”

3.2.2.5 Operations

- The admin can log in and have access on all the software's features.
- The admin can view statistics for booked rooms, revenues, guest insight.
- CRUD functionalities for staff, rooms and reservations.
- Guest can book rooms online and modify it afterwards.
- The Guest can leave reviews after they finish their staying in the hotel.
- The receptionist can log in and access only information for the rooms and guests.
- The cleaner can log in and see which room he/she is assigned to clean.

3.2.2.6 Portability

Web application can be accessed in any platform and browser as far as they have internet connection, while the mobile application is accessible only to android users. In the near future the iOS version will be developed.

3.2.3 External Requirements

3.2.3.1 System Interface/Integration

Unauthorized parties aren't allowed to access the system.

Access in different subsystems with important recorded data will be protected by user log in with a username and an encrypted password. This will ensure different views and functions of user levels through the software. Customer Representatives will have access on Reservation and Personal Information subsystems. Receptionist will have access on the Reservation data of all customers. Only the admin user has the maximum privilege to access all the subsystems.

3.2.3.1.1 Network and Hardware Interfaces

This web application version of the Hotel Management System can run on any browser such as Internet Explorer, Firefox, Opera, Safari and Google Chrome. Clients should use latest version of these browsers to take advance all of newest features. In our working process, we use some software applications to create and design websites by Photoshop. This software uses Doctrine which is focused on database storage and object mapping, Symfony for the back-end and React.js for the front-end.

Mobile application is only supported by android user as for the moment.

3.2.3.2 Security

3.2.3.2.1 Protection

Symfony provides a complete security system for web development. It offers the facilities for authenticating using HTTP basic authentication, interactive form login and also allows the developers to implement their own authentication strategies. Moreover it provides ways to authorize authenticated users based on their roles.

The security component of symphony contains subcomponents which can be used separately to guarantee a secure application.

Symphony / security-core

- It provides all the common security features, from authentication to authorization and from encoding passwords to loading users.

Symphony / security-http

- It integrates the core sub-component with the HTTP protocol to handle HTTP requests and responses.

Symphony / security-csrf

- It provides protection against Cross-site Request Forgery attack.

3.2.3.2 Authorization and Authentication

Symfony comes in help for the Authorization and Authentication part. It uses Authentication Providers by implementing AuthenticationProviderInterface and it has a method supports() by which the AuthenticationProviderManager determines if it supports the given token or not. If the token is supported by the AuthenticationProviderManager, it will call the provider's method authenticate(). This method should return an authenticated token or throw an AuthenticationException (or any other exception extending it). The providers offers authentication as below.

- Authenticating Users by their Username and Password
- The Password Encoder Factory
- Creating a custom Password Encoder
- Using Password Encoders

For a successful Authorization Symfony uses the access listener and the Authorization Checker.

3.2.3.3 Data Management

Data management is a way of managing knowledge and information and make it accessible for specific purposes. In our case, data management involves using effectively the data and implementing the current policies of the business. It is a major task for the hotel, as the data entered on the system needs to integrate according to the demand and requirement of the guest with their preferences.

3.2.3.4 Standards Compliance

The software is designed to be able to endow the customer with the certain receipt for his purchase. This receipt will have added also the value of standards which are ensured by the release of our product as a liability for this project. In the receipt the customers can see that the VAT only adds 6% of the amount of the receipt, as it is the defined percentage for all the hotels.

3.2.3.5 Domain Requirements

Only admin can create, update and delete employees. If sign up option is clicked in the web application the user will be of type "Guest" of the hotel. Rooms to be cleaned are automatically assigned to the worker by the system, if the worker is absent in a specific day, its work will be distributed to its coworkers. The user interface will be standard for all types of users. System should take into account the exact time of check-out of the leaving guest and check-in of the new guest in order to avoid collisions between bookings. The system should also take into account that there will be different currencies for online payments.

4. User Scenarios/Use Cases

Number	User Scenario	Description
1	Admin logs into the system	Admin user insert his/her own credentials (username/email and password) to login into the system
2	Admin fails to login into the system	Admin provides wrong username/email or password thus the login will fail
3	Admin changes his/her credentials	Admin changes his/her stored information on the system (email, username, password etc.)
4	Admin logs out of the system	Admin clicks the logout button to initiate logout process. Then the home page will be displayed
5	Admin views room details of the system	Admin can check all room details that exist on the system including their number, price, type etc.
6	Admin adds new room to the system	Admin can add new rooms on the system by providing room number, price, type and other specification
7	Admin modifies room properties	Admin can modify room specification if there is such a need
8	Admin deletes room from the system	Admin can delete room from the system. He will be demanded to confirm the removal process if he/she clicks the delete room button.
9	Admin views staff/employee details	Admin can view all the details defined on the system for the registered staff/employee
10	Admin adds new staff/employee to the system	Admin can add new employee on the system. She/he will enter her/his information and give the login credentials to the new registered staff for her/his account
11	Admin modifies staff/employee credentials	Admin can modify insights for the staff. Most of the time it will be the salary that the admin chooses to change.
12	Admin deletes staff/employee from the system	Admin removes an employee from the system after she/he leaves the job
13	Admin adds product to the inventory	Admin can add specific product to the inventory so it will be easier to keep track of the hotel's product.
14	Admin modifies product	Admin can modify the available products.
15	Admin deletes products	Admin can delete a specific product from the system's inventory.
16	Admin views product details	Admin can check details of the products that exists on the system.
17	Admin views financial report	Admin views the financial report of his/her hotel for a specific time that he/she can choose

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18	Admin views guest details	Admin views the details provided by the guests that has made a reservation at his/her hotel
19	Admin views rooms availability	Admin views rooms availability at a specific time for each room
20	Admin views booking details	Admin will be notified for every new booking, booking modification and booking cancellation that will be done.
21	Admin modifies booked rooms	Admin will be notified will an email or notification changes that have to be done for a reservation. This taking into the consideration that the guest and receptionist are not available to modify it.
22	Admin views guest reviews	Admin checks reviews done from the guest after their staying in the hotel and also can leave a reply to their comments if he wants to
23	Admin prints room cleanliness status	Admin can see which of the cleanser has to clean each specific room and have a printed receipt with these information
24	Admin leaves notes for the employees	Admin can send a message to other staff members of the system for a specific reason
25	Admin assigns and controls tasks	Admin can assign different tasks related to the hotel issues which have to be done and later approved by the staff member.
26	Receptionist logs in into the system	Receptionist user insert his/her own credentials (username/email and password) to login into the system
27	Receptionist fails to login into the system	Receptionist provides wrong username/email or password thus the login will fail
28	Receptionist changes his/her credentials	Receptionist can changes his/her stored information on the system (email, username, password etc.)
29	Receptionist logs out of the system	Receptionist clicks the logout button to initiate logout process.
30	Receptionist makes a reservation	Receptionist can make a reservation to the system by entering guests credentials and clicking 'Book' button
31	Receptionist replies to guest messages	Receptionist gets messages of the guests in the system and replies in the real time.
32	Receptionist can check who is Checking-in/ Checking-out of the hotel.	Receptionist can view check-in/check-out, in the dashboard of the system. So he can provide specific attention to the client
33	Receptionist is notified by the system for new bookings	Receptionist assures that the booking is done correctly, by being in touch with the client
34	Receptionist views booked rooms and	Receptionist looks at availability in case of reservations

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	availability	from phone call.
35	Receptionist clicks settings	Receptionist can edit its credentials and can also upload a profile picture
36	Guest logs in the system	Guest insert his/her own credentials (username/email and password) to login into the system
37	Guest fails to login into the system	Guest provides wrong username/email or password thus the login will fail
38	Guest logs out of the system	Guest clicks the logout button to initiate logout process. Then the web page of Hotel Enera will be displayed.
39	Guest opens Profile	Guest receives a welcoming message.
40	Guest enters check-in, check-out dates and clicks 'Check availability' button	Guest can see room types available in the dates entered in the system
41	Guest clicks Book Now	Guest will have to fill out its credentials to make the request valid
42	Guest clicks Send Message	Guest can Contact in real time with the receptionist or manager of the hotel
43	Guest clicks setting	Guest can modify its credentials and also it can upload a picture.
44	Cleaner logs in the system	Cleaner is asked to insert his/her own credentials (username/email and password) to login into the system
45	Cleaner logs out of the system	Cleaner clicks the logout button to initiate logout process. Then the home page will be displayed
46	Cleaner views Dashboard	The information with the rooms he is assigned to clean is shown
47	Cleaner clicks setting	Cleaner can modify its credentials and also it can upload a picture.
48	Cleaner clicks tick or cross button in the rooms to be cleaned section	Cleaner changes the state of the room as clean or unclean due to certain reasons.
49	Cleaner clicks print	If there is a printer connected Cleaner can get the receipt with the information.