Hotel Management System Requirements Specification

Version 2.0

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Team members:

Fridi Shehaj
Kevin Çuedari
Bjorn Rexhepi
Gersjan Nano
Gled Muça
Elion Marku

Received by:

Dr. Igli Hakrama

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1. Executive Summary

1.1 Project Overview

The tourism industry in Albania has experienced rapid growth due to an ever increasing number of foreign tourists seeking to explore the cultural and archaeological heritage, as well as indulge in the numerous breathtaking landscapes. Our goal is to provide the albanian hotel industry with a flexible solution for their needs, hence we are keen on constructing a robust Hotel Management System capable of rising to the challenges of the market. Our project is principally focused on providing a management system for hotel managers and employees with the goal of facilitating the management of their daily operations. Additionally, possible clients can book rooms, and see reviews of previous clients. The problems that this management system will solve are:

- The management of the room reservations by the receptionist.
- The management of the restaurant and beach by the service staff manager.
- The possibility of managing all the systems of the hotel by the managers.
- A user-friendly webpage displaying hotel services and the bookings for the clients (in this case, the clients are the tourists).

1.2 Purpose and Scope of this Specification

The purpose of our web application is to facilitate the way a hotel works in Albania. Although we are in the Information Age, many records are being stored manually in papers, which makes the data unsafe, and very difficult to process. There is not an actual functional digital management system to help them manage the staff updates, bills and reservations. Since the number of tourists in the summer in Albania is significantly high, many foreign tourists face the problem of not being able to book a hotel room in advance, and they have to go hotel by hotel till they find an empty room.

2. Product/Service Description

Nowadays many hotels in our country face many difficulties in managing the booking, rooms, hotel and restaurant employees, restaurant inventory and watching the profit generated in a specific period of time. This is where HMS comes to help. This system provides the possibility of keeping track of the activities mentioned above. Another feature of this product is that it offers a web page where tourists can watch the hotel information, the rooms that the hotel offers with every necessary information about their prices and facilities, a gallery to watch the hotel photos, in order to create an idea of how it looks, they can contact the hotel about more information regarding to the booking of the rooms, they can check also the location of the hotel, there is also a recommendation from the hotel to visit the best attractions in the Albanian Riviera suggested by a tourist etc .

2.1 Product Context

This project will help in managing the important tasks of Greccia Hotel in Dhermi. It is not dependent on any other platform or system. This product will include the management system, which will be used by

the staff of the hotel and also the client system web, in which the clients may find every necessary information about the hotel and they also are going to be able to contact the hotel about their interests of booking, different kinds of information etc.

2.2 User Characteristics

There are four types of users that will use the management system - the hotel manager, the restaurant manager, the receptionist, and the waiter. Clients will use the client page - each with their own access level and privileges:

1. **Hotel Manager**

- Login
- Add, remove hotel employees, such as: receptionist, waiter including the restaurant manager
- Check, verify, and update employee information
- Access to hotel expenditures, profit, and financial balance
- Add/edit rooms and room types

2. **Restaurant Manager**

- Login
- Add, remove restaurant employees, such as: waiter
- Check, verify, and update restaurant employee information
- Access to hotel expenditures, profit, and financial balance
- Create and manage restaurant inventory

3. **Receptionist**

- Login
- Keep guest records
- Make clients' reservations
- Enter guests payment
- Check room availability status
- Check clients

4. **Waiters**

- Login
- Enter bill records in the management system
- Watch the available products
- Print bills

5. Client

- View the hotel webpage including details about the hotel, location, description
- View the menu of the restaurant
- View the room types that the hotel offers

2.3 Assumptions

- It is assumed that each user has Internet access in order to have access to the web application
- It is assumed that each hotel employee is equipped with a PC/Laptop capable of Internet connectivity and able to use the HMS.
- It is assumed that when an employee is fired it is immediately deleted from the system by the respective manager to prevent him/her from logging in the system.
- It is assumed that users`personal information is available only to the respective manager.
- Except the staff of the hotel, no other persons are assumed to login and have access in the system.

2.4 Constraints

- Every hotel employee that is a user of the system must have a phone or a computer that can be connected to the Internet.
- Every user needs to have a fast internet connection.
- Users must easily navigate and accomplish their tasks in the system.

2.5 Dependencies

- The hotel manager has the ability to add room type, or to edit them, in order to the requirements that they have.
- The receptionist books the room for the clients who are required to book the specific room if available. Then this room is busy for a specific date, so this information will be stored.
- The waiter will add the order, in order to store the order from the client and then will calculate the amount of money from the order.
- The clients will be provided with a web page to look at all the necessary information about the hotel and all the facilities that the hotel provides to the tourists.

3. Requirements

3.1 Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
BR_01	The system should have a web application in which hotel staff can interact	This will be a management system for the hotel staff, in order to be able to manage all the work that they have to do in the hotel. The purpose of the system is to simplify the work of the hotel staff.	2	19/04/2021	
BR_02	Each user will have a respective interface based upon their professional roles	When a user logs in, his respective dashboard will be displayed. Based on the role that the employees have, in the system will be displayed only the tasks that are necessary to be done by them, for example the waiter should declare the bill.	1		
BR_03	The system should have a client-side interface	This will provide tourists with the information about the hotel. They can also make reviews about the hotel, they can find information about the best attraction in the area of the hotel etc.	2	19/04/2021	
BR_04	The hotel manager, through usage of their specific dashboard, has the ability to exercise administrative authority on all employees pertaining to the system.	This means that the hotel manager has the authority to manage all employees including the restaurant manager. They have the ability to create new employees, release existing employees from their duties, promote and demote current employees.	1	19/04/2021	
BR_05	The restaurant manager, through usage of their respective dashboard, has the ability to exercise administrative authority on all employees pertaining to the restaurant-side of the system.	This means that the restaurant manager has the authority to manage all restaurant employees , including creating new employees, releasing existing employees from their duties, promoting and demoting current employees	1		

BR_06	The system should allow tourists to cancel the reservation.	A 20% penalty fee will be applied in this case	2	19/04/2021	
BR_07	The managers should be able to see the revenue generated in any given time.	This means that they will have the possibility to check their balance.	1	19/04/2021	
BR_08	The receptionist is able to manage any given room, from taking reservations to checking the availability of the rooms.	This will provide the hotel manager/receptionist to manage the rooms in the hotel, which means they can do in the system the reservation of the room, declaring the payment of the room etc.	2	19/04/2021	
BR_09	The waiters are responsible for generating bills related to a specific client`s order	This means that the waiters should declare their bills in the system according to the order.	2	19/04/2021	
BR_10	The restaurant manager is solely responsible for inventory management.	The restaurant manager manages the inventory, by supplying new products, determining the remaining quantity of each product etc.	2	19/04/2021	
BR_11	The restaurant manager is the only user capable of updating the inventory in case of supply delivery.	He is able to add restaurant products, such as: food, drinks etc.	1		
BR_12	The hotel manager will be notified when a product quantity reaches a specific lower bound.	This will prepare the manager of the hotel to supply the necessary products before these products are not available more yet, which means that they have finished.	2		
BR_13	The system should allow manager to assign user passwords	Each employee that is going to have access to the system needs to have a password to login.	1		
BR_14	The system shall bill the current room if payment is not made at time of service	This means that the receptionist should declare the booking of the room even without the payment at the beginning. This means that the client should pay for the room before the check-out of the room.	1		
BR_15	For the restaurant, the payment is done only at the moment of service	The restaurant doesn’t offer room service for the client, so the clients have to order and consume the food only in the restaurant and also the payment will be done	1		

		after they finish their stay at the restaurant.			
BR_16	The rooms are divided into types, where each type determines the price of the room.	There are different room types, such as: deluxe, family, suite, apartment. For each type of room there is a specific price.	1		
BR_17	The system shall record the expected checkout date and time	This will keep the information about when the room becomes available if it is not booked from the next client, so it is information recorded to the receptionist and he may notify the client about the check-out date and time.	2		
BR_18	The hotel manager is the user who has the ability to change room prices based upon their types	Hotel manager must be the only user who can change the price of the room, based on the time or period that he wants to increase the prices and also to make discounts for the rooms.	1		
BR_19	The system shall record all relevant information pertaining to the client	It must record only the client's name, ID and the period that he will stay in the hotel.	2		
BR_20	The system shall record all relevant information pertaining to the user	It must record its name, surname, email , phone number address and the password assigned by the manager needed to login in the system	2		
BR_21	The hotel manager can edit the room information, including price and facilities that it provides.	This means that the hotel manager can change the facilities of a room type. He might remove the inclusion of the breakfast, or he may add the dinner, he may add a bed to a specific room and so on.	3		
BR_22	The client can view all the room types of the hotel	This means that the client may watch a general information about the room, their main facilities and the price and he has a button to enter to read more detailed information about the rooms.	3		

BR_23	The client can read all the necessary information about the rooms of the hotel.	Based on the type that he wants to read for, the client can view the photos of the room, all the necessary information about the room, which are check-in and check-out clock, facilities like breakfast included, wifi etc.	2		
BR_24	The clients can view the photos of the hotel in the Gallery.	It will provide a gallery to the client in order to create an idea of the hotel, the environment of the hotel, rooms, bar & restaurant and so on. He can also click the photo to look at a zoomed view of the photo, to scroll the photo left or right and so on.	3		
BR_25	The client can contact the hotel for booking and more information.	This means that the client can write a message by leaving his name and email to the hotel, which means that the message will be received to the receptionist or hotel manager in order to get more information about the hotel and the hotel will respond to the client via email.			
BR_26	The client can also view the menu of the hotel.	The bar & restaurant hotel menu will be provided to the client page of the hotel, in order to look at the products and their prices to know about what the hotel offers to the tourists.			

3.2 Non-Functional Requirements

3.2.1 User Interface Requirements

Screen Name	**Description**
Log in	It will be used by only the staff of the hotel: waiter, receptionist, hotel manager, restaurant manager and not by the client.
Hotel Manager's dashboard	Main page of the hotel manager where he has information about users, inventory, revenues in any

	interval of time, room prices .
Restaurant Manager's dashboard	Main page of the restaurant manager where he has information about the restaurant revenues. He adds products in the inventory and manages the restaurant users such as waiters.
Receptionist's dashboard	Receptionist has options about booking a room, checking the availability, and checking in customers.
Waiter's dashboard	Main page of the waiter, he can add bills
Finances dashboard	Finances can view and make analysis of general income and expenses of the hotel; employees and restaurant on a daily/weekly up to a yearly basis. Moreover he'll be able to-view a detailed list of all the transactions.
Manage employees interface	Add, edit new employees by also providing a username and password to the users who have access to the system. When the manager adds users, he/she also specifies the role of the employee and it would be also employees which are not going to use the system, such as the restaurant chef, cleaner etc.
Employees information interface	Here is going to be provided all the information of the employees in the hotel in a table. This includes their personal data, such as name, email, salary.
Booking page	The receptionist can check the availability of the rooms, can confirm the reservation of the room for the clients, can cancel the reservation of the room, specify the check-in and check-out date (if available) etc.
Room's information	It will provide the information of the rooms, such as the availability of them, the clients with their personal info which have booked the rooms, the type, the price etc.

3.2.2 Usability

- The web application is user friendly. It can be understood easily by the users.
- A PDF manual for the usage of this web application will be provided, explaining each feature of it step by step.
- Specific error messages will be displayed, by also identifying the specific action that caused the error.
- The application is specified for certain users, thus the system will know when a certain action is not allowed.
- To prevent operations such as unintended deletions, users will be asked for confirmation.

3.2.3 Performance

3.2.3.1 Capacity

- The size of the application is dependent on the number of tables in the database, which will be moderate in complexity and will have a maximum size of 500 megabytes.
- Maximum number of users that can be supported at the same time: 25 users

3.2.3.2 Availability

- The application is going to run in 24/7
- The client page and the system is going to cover all areas which have access to the Internet.

3.2.3.3 Latency

Latency of this web application depends on:

1. Internet bandwidth
2. The database size
3. The number of users accessing the system in the same time

The time for each operation should not exceed 100ms.

3.2.4 Manageability/Maintainability

3.2.4.1 Monitoring

Each user has its own information after he logs in, and therefore, does not have access to other interfaces

3.2.4.2 Maintenance

The web application database will be designed and maintained on MySql and the server in Apache. If the system crashes, the application is going to restart and redirect to the user dashboard, where he left. Then it is going to ask the user if he wants to save the unconfirmed changes.

3.2.4.3 Operations

Some of the operations that users are required to do are:

- Manage employees
- Make or cancel reservations
- View finances in a specific period of time
- Check the availability of rooms
- Check reservations
- Manage the inventory
- CRUD functionalities on rooms, employees and products
- Add orders in a bill
- Print bills

3.2.5 System Interface/Integration

3.2.5.1 Network and Hardware Interfaces

HMS will come as a web application, thus it will be stored in a web server.

3.2.5.2 Systems Interfaces

Example systems interface requirements:

A. System1-to-System2 Interface

The <external party> will create and send a fixed length text file as an email attachment to System2mail@u.washington.edu to be imported into the System2 system for payroll calculation. This file must be received on EDIT day by 4:00 PM in order to be processed in the EDIT night run. The requirements below document the file specifications, data transfer process, and specific schedule. This file is referred to as "FileName" in this document.

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3.2.6 Security

Our web application ensures that:

- its users are logged in and verified before accessing the system
- each user have access only to the data he is authorized for
- sensitive information, such as user passwords are encrypted
-

3.2.6.1 Protection

- Our system uses the HTTPS connection protocol.
- Sensitive data, such as passwords are secured with AES-256 encryption, practically unbroken by bruteforce.

3.2.6.2 Authorization and Authentication

Every user will login only after its email and password validation.

3.2.6 Data Management

Entities that the database of this web app will contain are:

- User
- Inventory
- Bills
- Room

- Invoice
- Inventory
- Client

3.2.7 Standards Compliance

The application will respect the rules and regulations determined by the Ministry of Finance.

3.2.8 Portability

- The web application can be accessed in any browser. It can work on any operating system which is connected to the Internet.

3.2.9 Other Non-Functional Requirements

Please provide all necessary non-functional requirements, similar to the requirements explained in the lesson slides or in the textbook.

3.3 Domain Requirements

Everything related to the domain that might be needed in the project shall be mentioned here. Sometimes the domain Requirements might be thought as part of either functional or non-functional requirements.

4. User Scenarios/Use Cases

Scenario	Description

All user of the web application

Scenario 1: Login successful

Flow of events:

1. The user is asked to enter his credentials: username and password
2. If the credentials are valid and correct, he is logged in.
3. He will be redirected to the interface of his dashboard.

Scenario 2: Login unsuccessful

Flow of events:

1. The user is asked to enter his credentials: username and password
2. Credentials are checked in the users' database
3. If the credentials are incorrect, he can not login and he is prompted to re enter the credentials.

Scenario 3: Manager (hotel or restaurant) registers an employee

Flow of events:

1. Manager logs in the system
2. In his dashboard he clicks on Add Employee.
3. He completes the form with the information about an employee and specifies his role.
4. He clicks on the add employee button.
5. Employee data is stored in the database.
6. Employee is added to the system and a confirmation message appears on the screen.
7. Employees can now login on the system.

Scenario 4: Manager (hotel or restaurant) edits an employee

Flow of events:

1. Manager logs in the system
2. In his dashboard he clicks on the button View Employees.
3. He clicks on Edit Employee button
4. Employee data is updated in the database and in the list of employees.

Scenario 5: Hotel Manager registers a room.

Flow of events:

1. Manager logs in the system
2. In his dashboard he clicks on Add Room.
3. He completes the form with the information about the room and specifies the room type.
4. Room number is checked if it exists.
5. Room data is stored in the database..
6. A confirmation message appears on the screen

Scenario 6: Receptionist Registers Client

Flow of events:

1. Customer books a room to the Receptionist
2. Receptionist logins in the system as described in scenario 1 and 2.
3. He checks available rooms from the Dashboard
4. He marks Room as booked or not, taking into account the customer's preferences
5. Database entries are updated accordingly, a timer and a fee is placed based on the services selected
6. Then the room is marked as available when the timer ends

Scenario 7: Restaurant Manager Checks Products

Flow of events:

1. Log in phase.
2. Manager checks inventory
3. He/she can select/add and remove items from a wishlist
4. The items will be added/ removed as database entities

Scenario 8: Hotel Manager checks the revenue made in a day

Flow of events:

1. The Hotel Manager logs in the system.
2. The Hotel Manager navigates the particular interface pertaining to the role.

3. The Hotel Manager clicks on View Finances.
4. The Hotel Manager selects the time interval for which he/she wants to view the finances.
5. Database is queried with the specified time interval.
6. New page pops up the finances from the hotel and the manager.

Scenario 9: Hotel Manager adds Room Type.

Flow of events:

1. The Hotel Manager logs in the system
2. In his dashboard he clicks on Add Room Type.
3. The Hotel Manager completes the form with the information about the room type.
4. Room type number is checked if it exists.
5. Room type data is stored in the database.
6. A confirmation message appears on the screen.

Scenario 10: Hotel Manager edits Room Price

Flow of events:

1. The Hotel Manager logs in the system.
2. The Hotel Manager navigates the specific interface pertaining to the role.
3. The Hotel Manager selects the particular room he/she wants to edit.
4. The Hotel Manager edits the contents of the room.
5. Changes are saved in the database.

Restaurant Manager

Scenario 11: Restaurant Manager adds product to inventory

Flow of events:

1. The Hotel Manager logs in the system.
2. The Hotel Manager navigates the specific interface pertaining to the role.
3. Restaurant Manager clicks on the Add Product button.
4. New form shows up with the details of the product to be entered.
5. The product is added in the database along with the specific requirements.

Scenario 12: Restaurant Manager checks the finances

Flow of events:

1. The Hotel Manager logs in the system.
2. The Hotel Manager navigates the particular interface pertaining to the role.
3. The Hotel Manager clicks on View Finances.
4. The Hotel Manager selects the time interval for which he/she wants to view the finances of the restaurant.
5. Database is queried with the specified time interval.
6. New page pops up the finances from the hotel and the manager.

Receptionist

Scenario 13: Receptionist Checks the Client

Flow of events:

1. Receptionist logs in the system.
2. Receptionist navigates the particular interface pertaining to the role.
3. Receptionist navigates to the specific client.
4. Receptionist finds the client.
5. Database is queried with the client information.
6. Client information is presented to the receptionist.
7. New page pops up the finances from the hotel and the manager.

Scenario 14: Receptionist Checks Available rooms

Flow of events:

1. Receptionist logs in the system.
2. Receptionist navigates the particular interface pertaining to the role.
3. Receptionist clicks on Check Rooms.
4. Database is queried with information about available rooms.
5. The information is presented to the receptionist.

Scenario 15: Receptionist Cancels Booking

Flow of events:

1. Receptionist logs in the system.
2. Receptionist navigates the particular interface pertaining to the role.
3. The database is queried to return the booked room/rooms that the client has demanded the booking to be canceled.
4. Receptionist cancels the booking/bookings.
5. The database is updated to show the new status of the room/rooms, i.e. the rooms will be saved in the database as unoccupied.
