

IT2143 Visual Computing

Group Project

Group N1

Hotel Customer Management System

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1. Introduction

The hospitality industry stands at the forefront of evolution, where seamless efficiency, exceptional service, and innovative technology converge to redefine guest experiences. In this era of digital transformation, the need for an advanced, user-friendly, and comprehensive Hotel Customer Management System (HCMS) has become indispensable. This RAD (Rapid Application Development) project report delineates the process, methodologies, and outcomes of developing a cutting-edge HCMS tailored to meet the diverse needs of modern hotels.

The objective of this project is to design, develop, and implement an intuitive, scalable, and feature-rich HCMS that streamlines operations, enhances customer satisfaction, and empowers hotel administrators with a robust platform to manage various facets of the establishment seamlessly. With an emphasis on agility and adaptability, the RAD approach was chosen to accelerate the development cycle, ensuring swift iterations and responsiveness to changing requirements.

This report encapsulates the comprehensive analysis conducted during the project's inception, detailing the initial requirements gathering, system design, development phases, testing procedures, and the final deployment of the HCMS. Leveraging RAD principles, the project aimed to prioritize collaboration between developers, stakeholders, and end-users to facilitate rapid prototyping, continuous feedback incorporation, and iterative enhancements throughout the development lifecycle.

The project scope encompasses essential modules such as reservation management, guest profiles, room allocations, billing and invoicing, inventory management, and reporting functionalities. Each module is meticulously designed to integrate seamlessly into the system, ensuring a cohesive and intuitive user experience for both hotel staff and guests.

Furthermore, the report highlights the technologies, tools, and methodologies employed in the development process, underscoring the rationale behind their selection and their contributions to the system's overall architecture and functionality. Embracing a user-

centric approach, the HMS prioritizes ease of use, scalability, security, and reliability to meet the demands of a dynamic hospitality landscape.

Throughout this report, the iterative nature of the RAD methodology will be evident, emphasizing the continuous evolution and refinement of the HMS based on stakeholder feedback and evolving industry trends. Moreover, the challenges encountered, lessons learned, and recommendations for future enhancements will be articulated to provide valuable insights into the development journey and opportunities for further optimization.

In summary, this RAD project report encapsulates the journey of conceptualizing, designing, and implementing a sophisticated Hotel Customer Management System, underscoring the significance of agility, innovation, and user-centricity in meeting the evolving needs of the hospitality industry.

2. Objectives

A Hotel Booking Management System aims to streamline operations, improve customer service, and enhance the overall efficiency of hotel booking processes. Here are some key objectives for such a system:

1. **Automated Booking Process:** Implement an efficient system that allows customers to make reservations easily online, reducing manual booking efforts and minimizing errors.
2. **Real-Time Availability:** Ensure accurate and updated information on room availability and types, enabling customers to view real-time inventory and make informed choices.
3. **User-Friendly Interface:** Design an intuitive and user-friendly interface for customers to browse through room options, select preferences, and complete bookings seamlessly.
4. **Centralized Database:** Create a centralized database to manage customer information, bookings, room details, and other relevant data, facilitating easy access and updates for authorized personnel.
5. **Integration with Channel Managers:** Integrate with channel managers and third-party booking platforms to synchronize booking information, avoiding overbooking and maintaining consistency across platforms.
6. **Reporting and Analytics:** Generate comprehensive reports and analytics on booking trends, occupancy rates, revenue, and other key metrics to aid in decision-making and strategy development.
7. **Inventory and Resource Management:** Efficiently manage hotel resources, including room allocation, housekeeping schedules, and maintenance tasks to optimize operations.
8. **Customer Relationship Management (CRM):** Implement CRM tools to track customer preferences, history, and interactions, enabling personalized services and targeted marketing efforts.
9. **Scalability and Upgradability:** Design the system to be scalable, allowing for easy expansion as the hotel grows, and ensure it can accommodate future technological advancements or updates.

These objectives collectively aim to enhance the overall efficiency, customer experience, and management capabilities of a Hotel Booking Management System.

3. Methodology

I. Requirement Gathering

Documentation Review: Analyzed existing hotel booking system documentation to comprehend industry standards and common features.

User Persona Creation: Constructed user personas to represent different types of potential users, aiding in understanding diverse needs.

Prototyping and User Feedback: Created prototypes at various stages to gather feedback from stakeholders and potential users, refining the system iteratively.

Competitive Analysis: Conducted an in-depth analysis of competitor booking systems, identifying best practices and areas for innovation.

Focus Groups: Organized focus group discussions to delve deeper into specific user preferences and pain points, refining the requirements accordingly.

II. Tools and Technologies

Development Platform: Utilized Visual Studio with C# for coding and design.

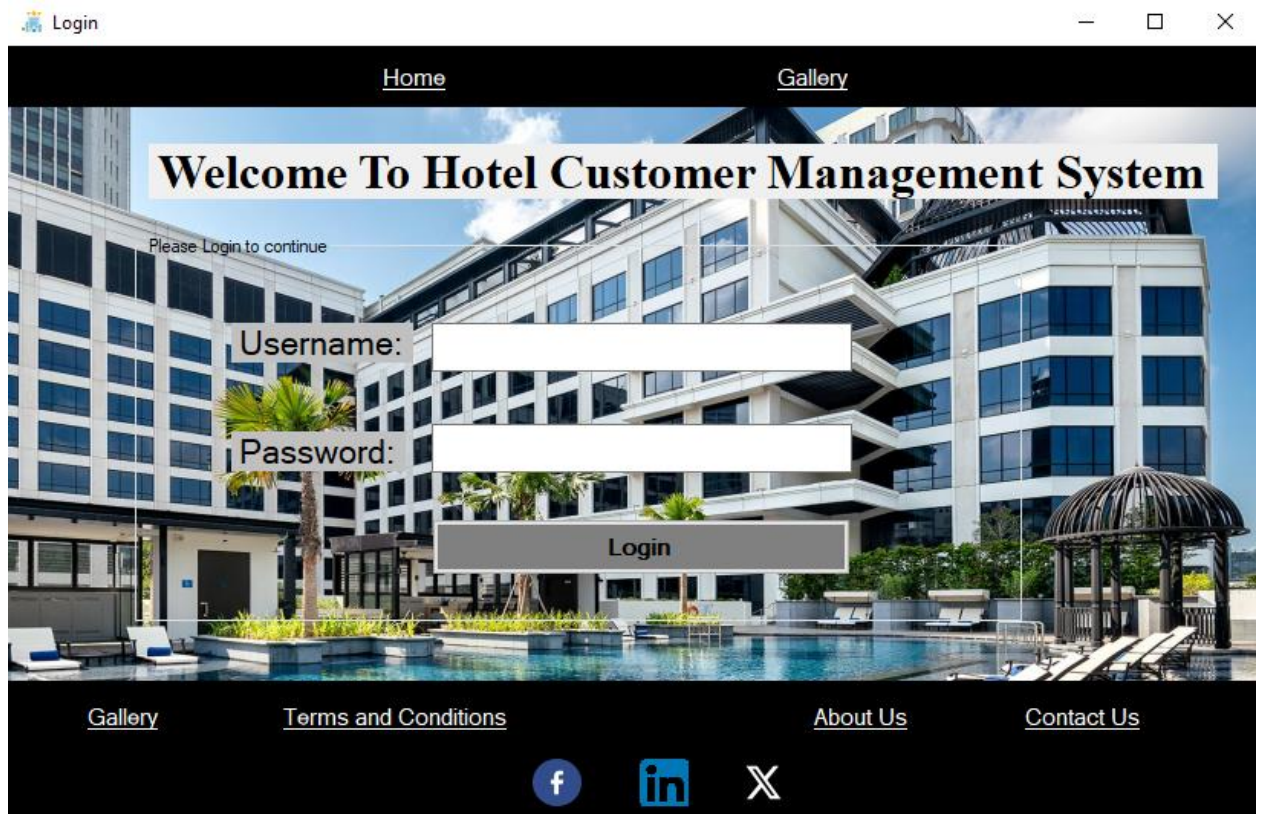
Database: Used Local Database file (.mdf). Visual Studio often uses SQL Server Express LocalDB as the default database engine for local development.

Version Control: Utilized Git for version control and collaboration, ensuring efficient teamwork and code management.

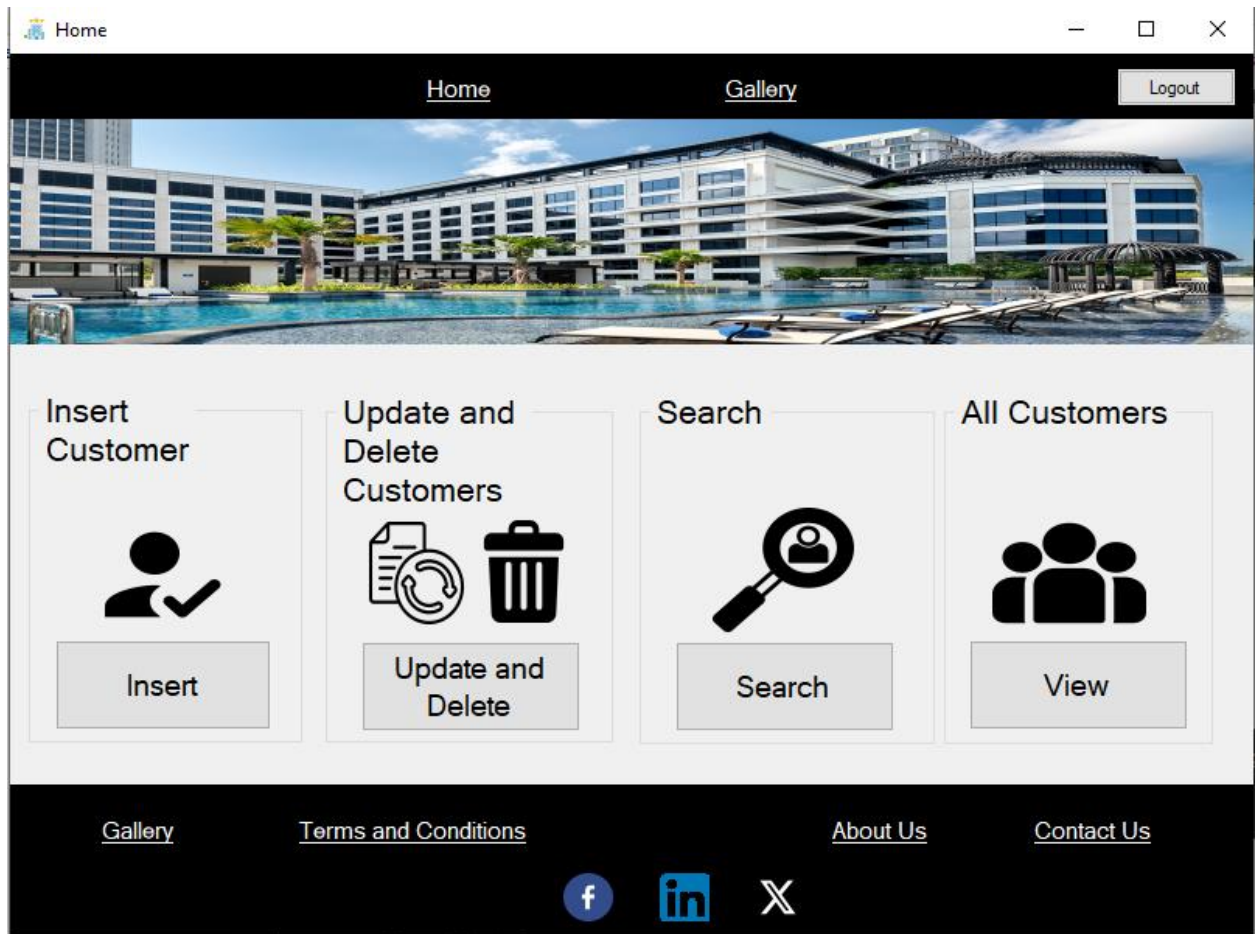
4. Implementation

I. Interface Design

As we run the system first displayed page is the login page.



If the user entered correct details system will navigate them to the home page.



By clicking the insert button user can register the customer details.

Customer Register

Home

Gallery

Customer Details

Customer Name:

Customer Phone No:

Customer Email:

Customer Identity No:

Insert

Gallery

Terms and Conditions

About Us

Contact Us

f

in

X

By clicking update and delete user can delete and update customers.

Update

Home

Gallery

Update Information

Customer Identify No:

Delete

Customer Name:

Customer Phone No:

Customer Email:

Update

Gallery

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X

By clicking search they can search customers by idNo, name and phone no.

Search

Home

Gallery

Search Customers

Search Customers by ID , Name or Phone Number :

☐ By Identity No

☐ By Name

☐ By Phone No

Search

Gallery

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in

X

All Customers

Home

Gallery

	customerName	phoneNo	email	idNo
▶	Amal	894561148	amal@gmail.com	1234567896
	Kamal	777004451	kamal@123.com	200283800132
	Nimali	762394447	nimali@gmail.com	200983800132
*				

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Home

Gallery

Previous



Next

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Terms and Conditions



Reservation Confirmation:

All bookings are subject to availability and confirmation by the hotel.
A valid credit/debit card is required to secure and confirm a reservation.

Cancellation Policy:

Cancellations must be made within the specified time frame to avoid charges.
Late cancellations or no-shows may result in charges equivalent to the first night's stay.

Check-In/Check-Out:

Check-in time is 7a.m., and check-out time is 10p.m..
Early check-in and late check-out are subject to availability and may incur additional charges.

Payment:

Payment is due upon arrival, unless otherwise specified during the booking process.
Additional charges for services or amenities may apply and will be settled at check-out.

Guest Responsibility:

Guests are responsible for any damage to hotel property during their stay.
The hotel reserves the right to charge the guest for any such damages.

Pets and Smoking:

Check with the hotel for its policy on pets and smoking, as these may vary.

Privacy Policy:

Personal information provided during the booking process will be handled in accordance with the hotel's privacy policy.

Force Majeure:

The hotel is not responsible for circumstances beyond its control, such as natural disasters, acts of terrorism, or other unforeseen events.

Discretionary Policies:

The hotel reserves the right to refuse service to anyone for any reason.
Any disputes or discrepancies will be resolved at the discretion of the hotel management.

By completing a booking, guests acknowledge and agree to these terms and conditions. The hotel reserves the right to modify these terms without prior notice.

OK

Act

About Us



Welcome to Our Hotel, your premier destination for seamless and delightful travel experiences. At Our Hotel, we understand that a comfortable and memorable stay begins with the booking process, and that's where we excel.

With a passion for simplifying travel planning, our platform offers a user-friendly interface that allows you to effortlessly browse, select, and book accommodations tailored to your preferences. Whether you seek a luxurious getaway or a cozy retreat, we provide a diverse range of options to suit every traveler's needs.

Why Choose Our Hotel?

1. Extensive Selection:

Explore a curated collection of hotels, resorts, and guesthouses worldwide, ensuring you find the perfect place for your stay.

2. Ease of Booking:

Our intuitive booking system makes the reservation process quick and hassle-free, putting you in control of your travel plans.

3. Best Price Guarantee:

Enjoy peace of mind knowing that you're getting the best value for your money. Our system ensures competitive prices and exclusive deals.

4. Secure and Reliable:

Trust in a secure booking platform that prioritizes the confidentiality of your personal information and guarantees the reliability of your reservations.

5. 24/7 Customer Support:

Our dedicated support team is available around the clock to assist you with any queries or concerns, ensuring a smooth and enjoyable travel experience.

At Our Hotel, we are committed to transforming your travel dreams into reality. Join us on a journey of convenience, reliability, and exceptional hospitality. Book with confidence, and let us be the bridge to your next remarkable getaway.

OK

Contact Us



For inquiries, assistance, or to make a reservation, please feel free to contact our dedicated team:

Phone: +94 123456789

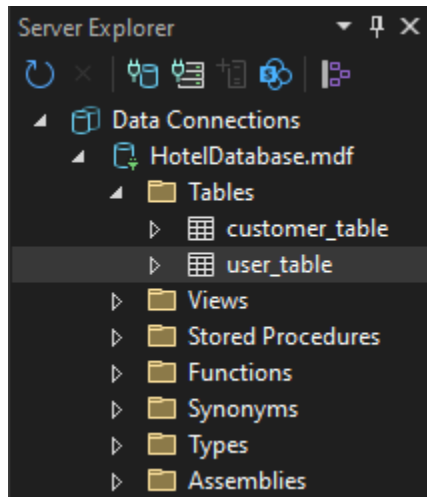
Email: hotel@gmail.com

Address: No:20,
Abc Road,
Colombo.

Our team is available from 7 a.m. to 9 p.m. to ensure your queries are promptly addressed. We look forward to welcoming you to our hotel and making your stay memorable.

OK

II. Database



	Name	Data Type	Allow Nulls	Default
	customerName	varchar(20)	<input checked="" type="checkbox"/>	
	phoneNo	int	<input checked="" type="checkbox"/>	
	email	varchar(20)	<input checked="" type="checkbox"/>	
PK	idNo	varchar(20)	<input type="checkbox"/>	
			<input type="checkbox"/>	

Design	T-SQL
<pre>1 CREATE TABLE [dbo].[customer_table] (2 [customerName] VARCHAR (20) NULL, 3 [phoneNo] INT NULL, 4 [email] VARCHAR (20) NULL, 5 [idNo] VARCHAR (20) NOT NULL 6 PRIMARY KEY CLUSTERED ([idNo] ASC) 7); 8</pre>	

	Name	Data Type	Allow Nulls	Default
1	user_id	int	<input type="checkbox"/>	
2	username	varchar(20)	<input checked="" type="checkbox"/>	
3	password	varchar(20)	<input checked="" type="checkbox"/>	
4	user_role	int	<input checked="" type="checkbox"/>	
5			<input type="checkbox"/>	

Design

T-SQL

```

1 CREATE TABLE [dbo].[user_table] (
2     [user_id] INT IDENTITY (1, 1) NOT NULL,
3     [username] VARCHAR (20) NULL,
4     [password] VARCHAR (20) NULL,
5     [user_role] INT NULL,
6     PRIMARY KEY CLUSTERED ([user_id] ASC)
7 );
8

```

III. Output

Table 4.1: Login Database

user_id	username	password	user_role
2	admin	12345	1

Customer Register

[Home](#)
[Gallery](#)

Customer Details

Customer Name:

Customer Phone No:

Customer Email:

Customer Identity No:

Insert

[Gallery](#)
[Terms and Conditions](#)
[Contact Us](#)

Successfully Inserted!

OK

Table 4.2: Customer Database

customerName	phoneNo	email	idNo
Amal	894561148	amal@gmail.com	1234567896
Customer	123456789	customer@gmail.com	20007778899
Kamal	777004451	kamal@123.com	200283800132
Nimali	762394447	nimali@gmail.com	200983800132

Update

[Home](#)
[Gallery](#)

Update Information

Customer Identify No:

Delete

Customer Name:

Customer Phone No:

Customer Email:

Update

Successfull Updated!

OK

[Gallery](#)
[Terms and Conditions](#)
[About Us](#)
[Contact Us](#)

Table 4.3: Customer Database

customerName	phoneNo	email	idNo
Amal	894561148	amal@gmail.com	1234567896
Saman	777886699	saman@gmail.com	20007778899
Kamal	777004451	kamal@123.com	200283800132
Nimali	762394447	nimali@gmail.com	200983800132

Update

Home
Gallery

Update Information

Customer Identify No: 20007778899
Delete

Customer Name: Saman

Customer Phone No: 0777886699

Customer Email: saman@gmail.com

Update

Successfully Deleted!
OK

Gallery
Terms and Conditions
About Us
Contact Us

f in X

Table 4.4: Customer Database

customerName	phoneNo	email	idNo
Amal	894561148	amal@gmail.com	1234567896
Kamal	777004451	kamal@123.com	200283800132
Nimali	762394447	nimali@gmail.com	200983800132

Search Customers

Search Customers by ID , Name or Phone Number :

Nimali

☐ By Identity No

☒ By Name

☐ By Phone No

Search

	customerName	phoneNo	email	idNo
▶	Nimali	762394447	nimali@gmail.com	200983800132
*				
<				>

5. Conclusion

In conclusion, the implementation of the Hotel Customer Management System has proven to be a pivotal step towards enhancing efficiency, improving customer satisfaction, and streamlining operations within the hospitality industry. The system seamlessly integrates various modules, including reservation management, room allocation, billing, and reporting, providing a comprehensive solution for hotel administrators.

One of the notable advantages of the system is its ability to automate mundane tasks, freeing up valuable time for staff to focus on delivering personalized services to guests. This not only increases productivity but also contributes to a more positive and memorable guest experience.

Moreover, the real-time data tracking and reporting features empower hotel managers with valuable insights into occupancy rates, revenue streams, and customer preferences. This data-driven approach facilitates informed decision-making, allowing for strategic adjustments to pricing, marketing, and service offerings.

The online reservation system has extended the hotel's reach to a global audience, enabling seamless bookings and ensuring a higher occupancy rate. This, coupled with the user-friendly interface and accessibility, enhances the overall customer journey and fosters loyalty.

Security measures integrated into the system protect sensitive guest information, ensuring confidentiality and compliance with data protection regulations. The system's scalability and flexibility also make it adaptable to the evolving needs of the hotel, providing a future-proof solution.

In essence, the Hotel Customer Management System not only simplifies day-to-day operations but also positions the establishment competitively in the dynamic hospitality landscape. By leveraging technology to its fullest potential, hotels can elevate their services, meet customer expectations, and stay ahead in an ever-evolving industry.

6. References

1. Microsoft Documentation and Tutorials:

- Microsoft's official documentation and tutorials for Visual Studio, .NET Framework, ASP.NET, and other related technologies.
 - Microsoft Docs - Visual Studio
 - Microsoft .NET Documentation
 - ASP.NET Documentation

2. YouTube Tutorials and Video Courses:

- https://youtube.com/playlist?list=PLIpx_-TTcRJBjqw0xZQi-4eIX78b-hG-R&si=nnfHS0qNME-9ZO9y
- <https://www.youtube.com/watch?v=aer8S1fFbNc>

3. Online Courses and Learning Platforms:

- Udemy - Visual Studio Courses
- Coursera - ASP.NET Courses
- Pluralsight - .NET Development Courses

4. Books and eBooks:

- "Beginning Visual C# 2019" by Benjamin Perkins, Jacob Vibe Hammer, and Jon D. Reid
- "Programming ASP.NET Core" by Dino Esposito
- "Pro ASP.NET Core MVC 2" by Adam Freeman

5. Community Forums and Blogs:

- Stack Overflow - ASP.NET
- ASP.NET Forums

6. Sample Projects and GitHub Repositories:

- GitHub - ASP.NET Samples
- GitHub - .NET Core Samples

7. GitHub Repository Link

https://github.com/Sathmi1234/GroupN1_HotelManagementSystem