



GreenDwell

Hotel Management

System

Group V

Team Members

Waduge HWSS	30307
Yapabandara YMGGDK	30566
Priyashan GSD	30213
Sewmini UD	30214
Bandara RGNT	29803
Tharusha NGS	30230
Gunathilaka HPK	29868
Tharaki KLSD	30277
Senadheera MVI	30290
Wedage KV	30509

Contents

Introduction	3
Problem Statement	3
Existing Problem	3
Solution Contribution.....	4
Requirements	5
Who is the application aimed at?.....	5
Included Features	5
Design	9
System Architecture	9
Process Interaction.....	11
Data and Code Structure.....	12
Diagrams	13
Functional Requirements	16
Non-Functional Requirements	17
Personal Reflection	18
What worked well	18
Challenges Faced	19
Lessons Learned.....	19
Technology Leveraged	20
Version controller.....	20
Future Work (Continued)	21
Application Development.....	21
Product Sustainability	22
Conclusion	23

Introduction

GreenDwell is a comprehensive hotel management system designed to revolutionize the way hotels interact with their guests and manage their operations. The system aims to provide a seamless and personalized experience for guests while streamlining the day-to-day tasks of hotel staff.

Problem Statement

The hospitality industry relies heavily on efficient management systems to ensure smooth operations and excellent guest experiences. However, existing hotel management systems often fall short in terms of usability and functionality. The GreenDwell Hotel Management System aims to address these shortcomings by providing a user-friendly interface and comprehensive features tailored to the needs of hotel staff and management.

Existing Problem

Complex Interfaces

Many hotel management systems have cluttered and confusing interfaces, making it difficult for staff to perform their tasks efficiently. This complexity leads to frustration and errors in day-to-day operations.

Lack of Features

Some systems lack essential features required for effective hotel management, such as room assignment optimization, guest management, and reporting tools. This deficiency limits the system's ability to meet the diverse needs of hotel operations.

Poor Usability

Cumbersome workflows and unintuitive design make it challenging for staff to navigate through the system and perform tasks accurately. This results in inefficiencies and delays in service delivery, ultimately impacting guest satisfaction.

Solution Contribution

The GreenDwell Hotel Management System will contribute to solving these problems by:

- Providing a clean and intuitive user interface, reducing the learning curve for staff and improving overall usability.
- Incorporating essential features such as room assignment optimization, guest management, and reporting tools to streamline hotel operations and enhance efficiency.
- Offering a modular and scalable architecture that can adapt to the evolving needs of the hospitality industry, ensuring long-term sustainability and flexibility.

Requirements

Who is the application aimed at?

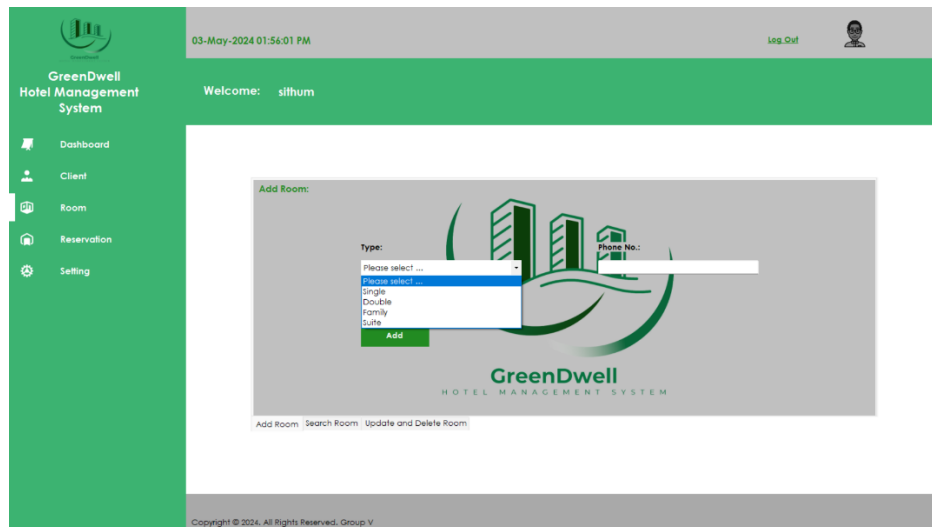
The application is targeted at hotel managers, receptionists, and staff responsible for day-to-day hotel operations.

Included Features

1.Room Management


Allows easy assignment, tracking, and maintenance of hotel rooms, optimizing occupancy rates and ensuring efficient use of resources.

Add Rooms



The screenshot shows the 'Add Room' form within the GreenDwell Hotel Management System. The interface includes a green sidebar with navigation links: Dashboard, Client, Room, Reservation, and Setting. The main content area has a header with the date '03-May-2024 01:56:01 PM', a 'log Out' button, and a user profile icon. Below the header, a green bar displays 'Welcome: sithum'. The 'Add Room' form itself contains a 'Type' dropdown menu with options: 'Please select ...', 'Single', 'Double', 'Family', and 'Suite'. There is an 'Add' button below the dropdown. The form also features a 'Phone No.' input field and a 'Room No.' input field. At the bottom of the form, there are links: 'Add Room', 'Search Room', 'Update and Delete Room'. The footer of the page states 'Copyright © 2024, All Rights Reserved. Group V'.

Update and Delete Rooms




GreenDwell
Hotel Management
System

- Dashboard
- Client
- Room
- Reservation
- Setting

03-May-2024 01:56:10 PM

Log Out



Welcome: silthum

Update and Delete Room:

Type:


Please select ...

Free:

☐ Yes
 ☐ No

Update

Delete



GreenDwell
HOTEL MANAGEMENT SYSTEM


Add Room Search Room Update and Delete Room

Copyright © 2024. All Rights Reserved. Group V

2.Client Management

Facilitates seamless guest check-in/out processes, manages guest preferences, and records guest interactions for personalized service delivery and improved guest satisfaction.

Add Clients




GreenDwell
Hotel Management
System

- Dashboard
- Client
- Room
- Reservation
- Setting

03-May-2024 02:10:33 PM

Log Out



Welcome: silthum

Add Client:


First Name:

Last Name:

Phone No.:

Address:

Add

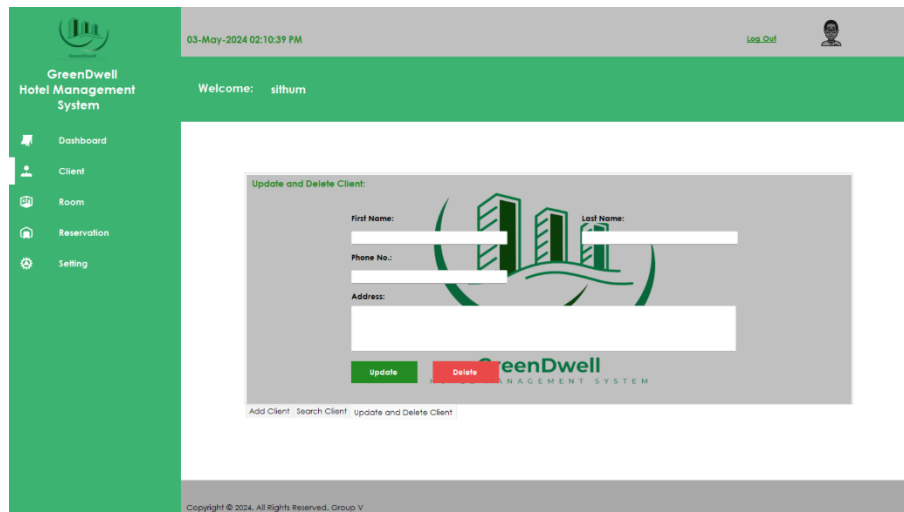


GreenDwell
HOTEL MANAGEMENT SYSTEM

Add Client Search Client Update and Delete Client

Copyright © 2024. All Rights Reserved. Group V

Update and Delete Clients

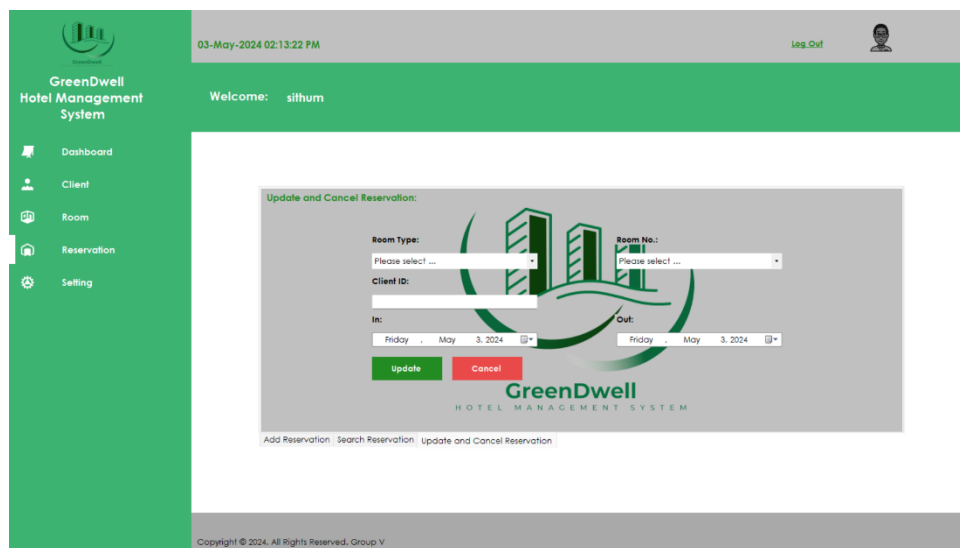


The screenshot shows the 'Update and Delete Client' form within the GreenDwell Hotel Management System. The interface includes a sidebar with navigation options: Dashboard, Client, Room, Reservation, and Setting. The main content area displays the form with fields for First Name, Last Name, Phone No., and Address. Below the form are 'Update' and 'Delete' buttons. The footer indicates the copyright is © 2024, All Rights Reserved, Group V.

3.Reservation System


Enables online booking, reservation management, and integration with external booking platforms, enhancing booking convenience and optimizing room utilization.

Add Reservation



The screenshot shows the 'Update and Cancel Reservation' form within the GreenDwell Hotel Management System. The interface includes a sidebar with navigation options: Dashboard, Client, Room, Reservation, and Setting. The main content area displays the form with fields for Room Type, Room No., Client ID, In, and Out. Below the form are 'Update' and 'Cancel' buttons. The footer indicates the copyright is © 2024, All Rights Reserved, Group V.


Update and Delete Reservation



GreenDwell
Hotel Management
System

- Dashboard
- Client
- Room
- Reservation
- Setting

03-May-2024 02:13:12 PM

[Log Out](#)


Welcome: sithum

Add Reservation:

Room Type:

Please select ...

Room No.:

1/201

Client ID:

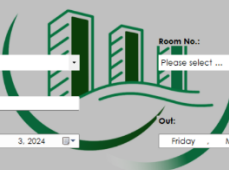
In:

Friday May 3, 2024

Out:

Friday May 3, 2024

Add



GreenDwell
HOTEL MANAGEMENT SYSTEM


[Add Reservation](#)
[Search Reservation](#)
[Update and Cancel Reservation](#)

Copyright © 2024. All Rights Reserved. Group V

4.User Management

Allows hotel administrators to manage user accounts, permissions, and roles, ensuring secure access and appropriate levels of authorization for staff members.


Add Users



GreenDwell
Hotel Management
System

- Dashboard
- Client
- Room
- Reservation
- Setting

03-May-2024 03:00:49 PM

[Log Out](#)


Welcome: Sithum


Update and Delete User:

Username:

Password:

Update

Delete

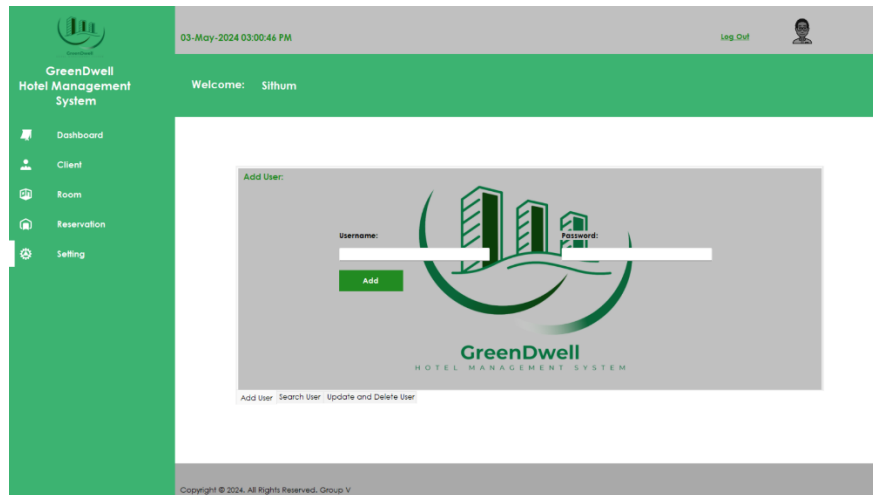


GreenDwell
HOTEL MANAGEMENT SYSTEM

[Add User](#)
[Search User](#)
[Update and Delete User](#)

Copyright © 2024. All Rights Reserved. Group V

Update and Delete Users

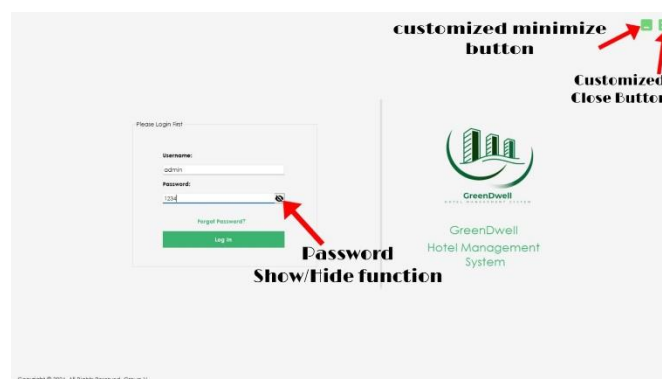


Design

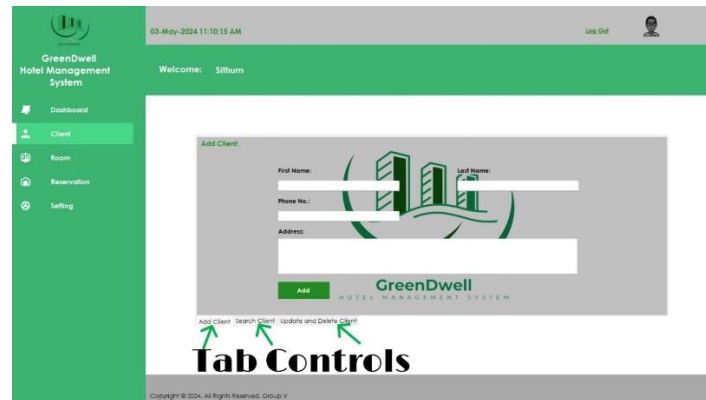
System Architecture

The GreenDwell Hotel Management System is developed as a C# Windows Forms application. It follows a layered architecture, with separate layers for presentation, business logic, and data access.

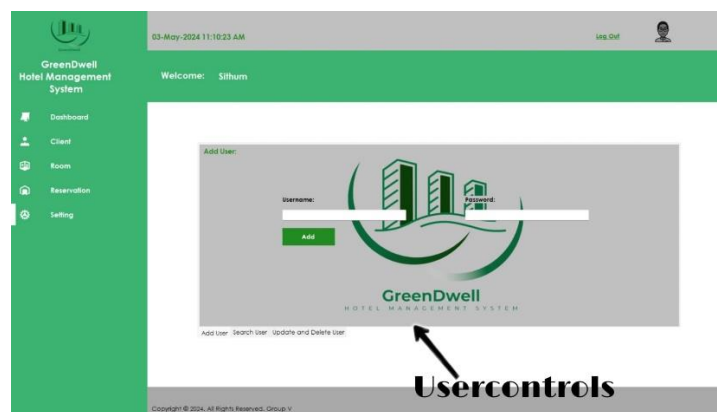
Login Page



Dashboard



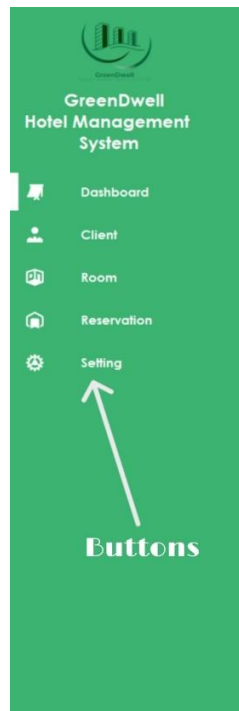
UserControls



Dashboard Features



Additional Features



Process Interaction

1.User Interaction

Users interact with the system through the Windows Forms user interface, accessing various functionalities based on their roles and permissions. The user interface provides feedback to users through notifications and alerts, ensuring a responsive and engaging user experience.

2.Data Processing

User requests are processed by the business logic layer, which interacts with the database through the data access layer to retrieve and update information. The system employs robust data validation and error handling mechanisms to ensure data integrity and reliability.

3.Feedback Mechanism

The system collects user feedback and usage data to continuously improve its features and usability. Regular updates and enhancements are rolled out based on user feedback and industry best practices.

Data and Code Structure

1.Database Schema

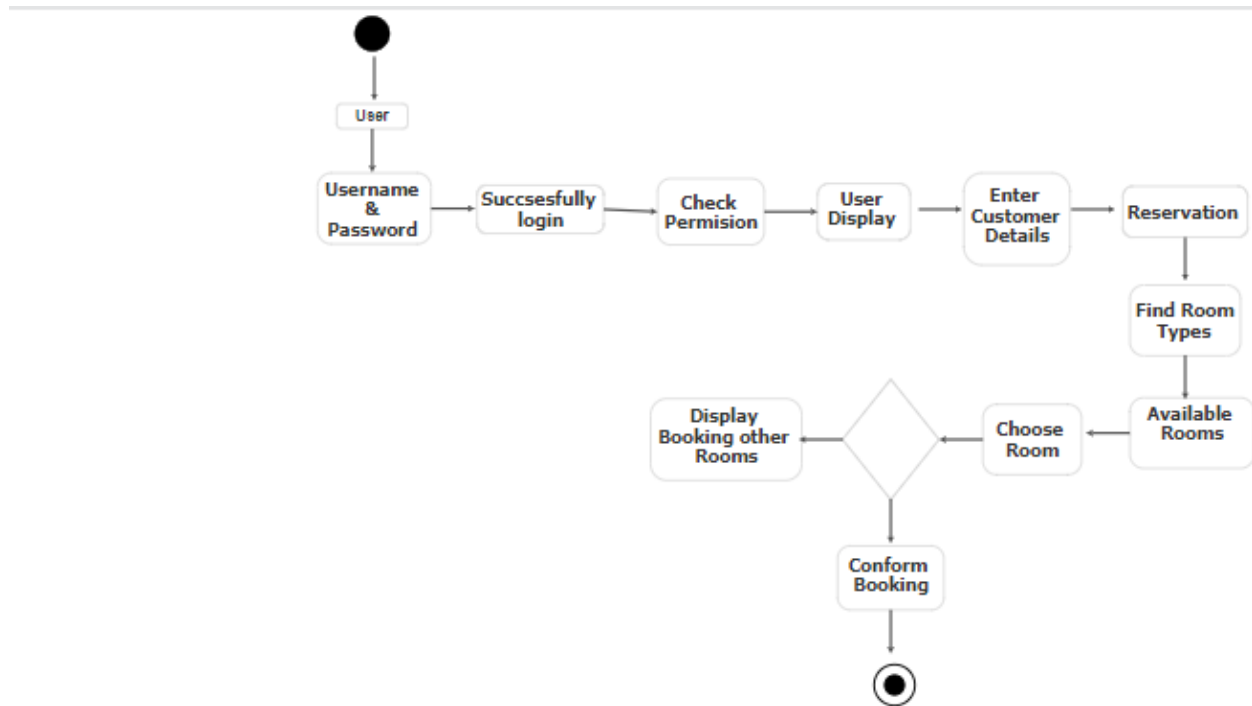
The system uses a relational database management system (RDBMS) to store hotel-related information, including rooms, guests, reservations, and transactions. The database schema is designed to optimize data storage and retrieval for efficient system performance.

2.Code Organization

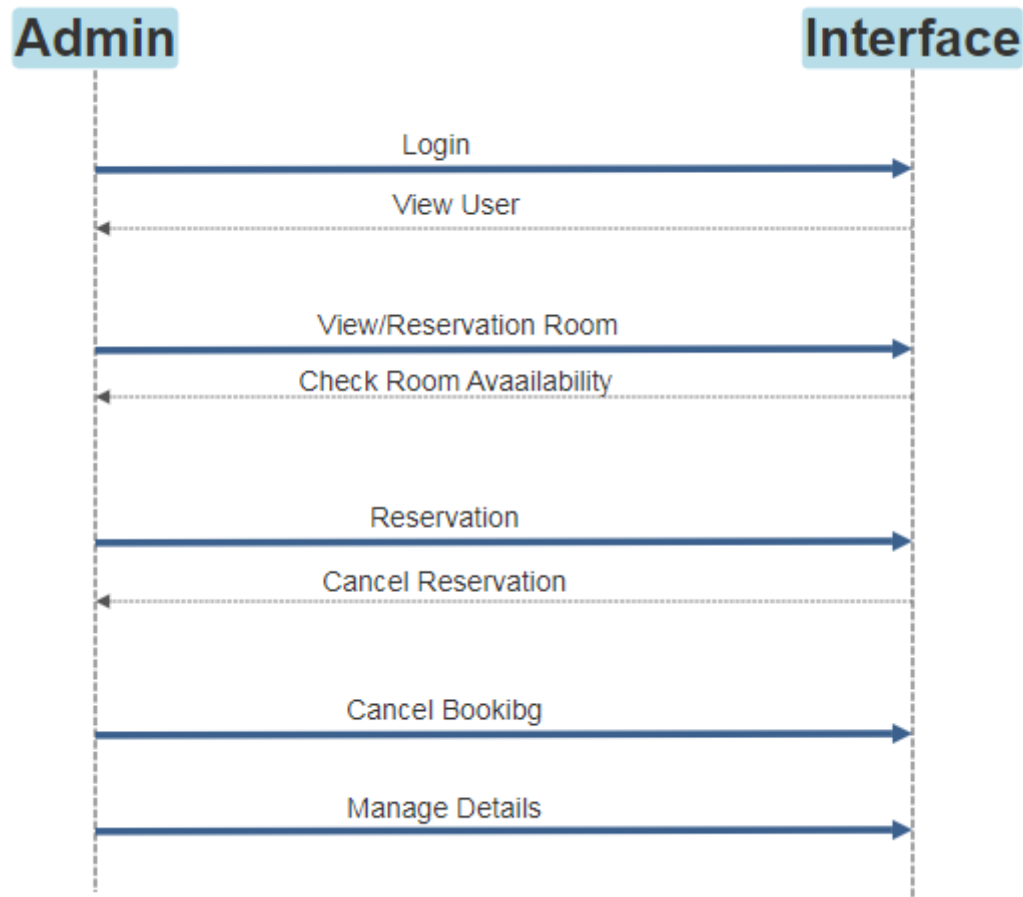
The application code follows a modular and object-oriented design, with separate classes for different functionalities such as room management, guest management, and billing. This modular structure promotes code reusability, maintainability, and scalability, facilitating future enhancements and modifications.

Diagrams

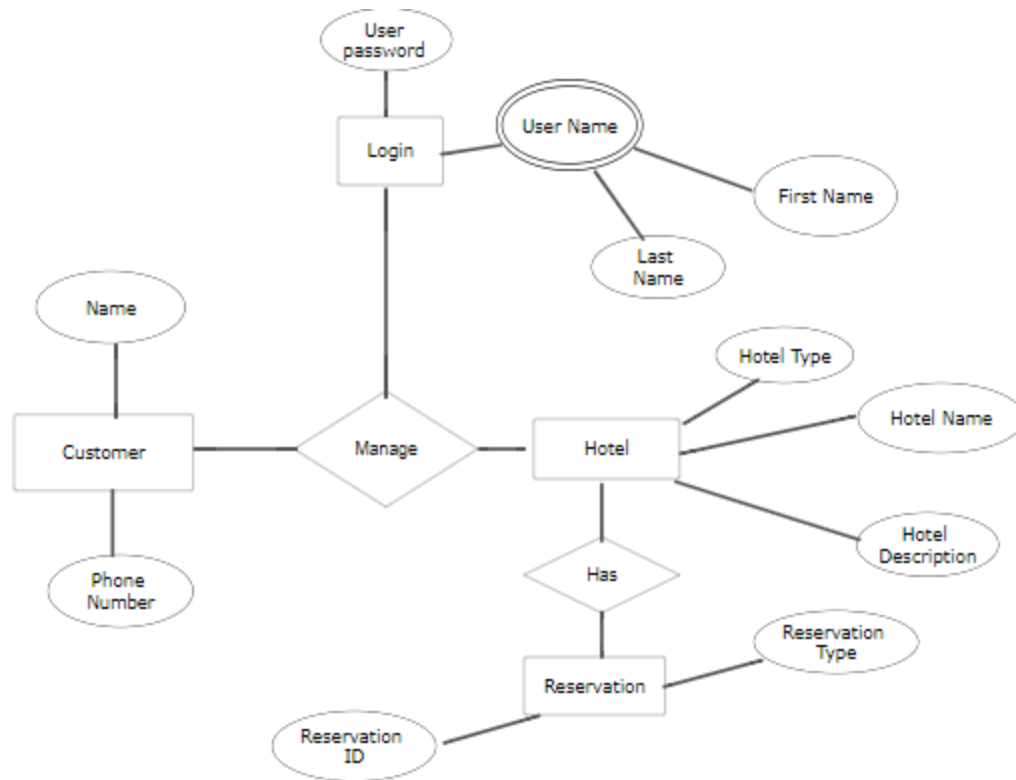
Activity Diagram



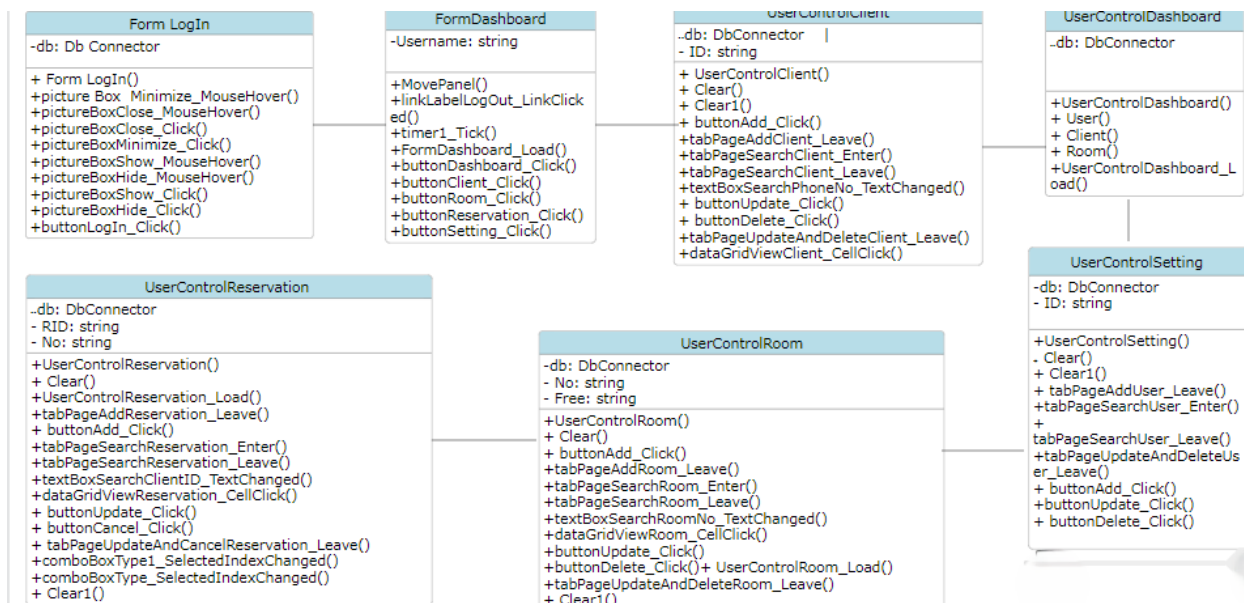
Sequential diagram



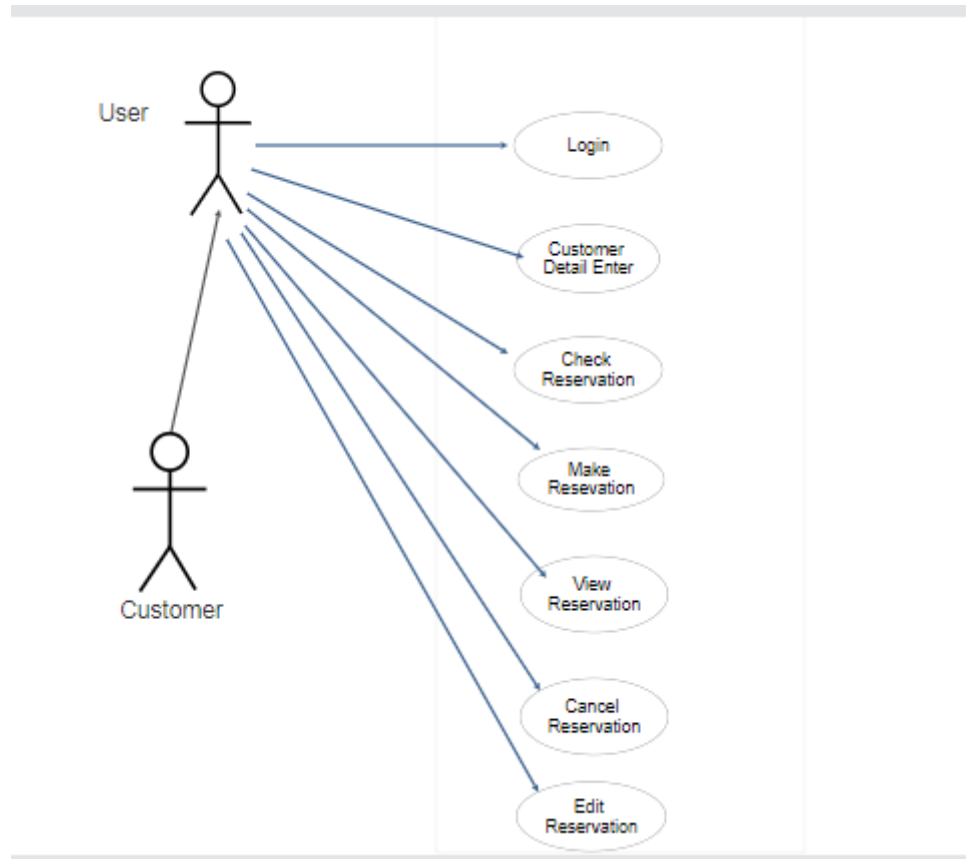
ER Diagram



Class Diagrams



UML Diagram



Functional Requirements

1.Room Management

Users should be able to add, edit, and delete room information, assign rooms to guests, and track room availability.

2.Guest Management

The system must support guest registration, check-in/out processes, and management of guest preferences and special requests.

3.Reservation System

Users should be able to make room reservations, view and modify existing reservations, and receive notifications for reservation updates.

4.Billing and Invoicing

The application should automate billing processes, generate invoices, and track payments for accurate financial management.

Non-Functional Requirements

1.Usability

The user interface should be intuitive and easy to navigate, with clear instructions and error messages to guide users.

2.Performance

The system should be responsive and capable of handling multiple concurrent users without significant latency or downtime.

3.Reliability

Data integrity and system availability are crucial, requiring robust error handling and backup mechanisms to prevent data loss and service interruptions.

4.Security

The application must implement user authentication and authorization mechanisms to protect sensitive data and prevent unauthorized access.

5. Scalability

The system architecture should be scalable to accommodate future growth and changes in user demand without sacrificing performance or reliability.

Personal Reflection

In the development process of the GreenDwell Hotel Management System, several aspects worked well, while others presented challenges.

What worked well

Collaboration with the Team

Effective communication and collaboration within the development team facilitated the smooth progress of the project. Regular meetings, task assignments, and progress tracking ensured that everyone stayed aligned with project goals.

Technological Choice

Leveraging C# Windows Forms for application development proved to be a suitable choice, allowing us to build a robust and functional system within the project timeline. Additionally, integrating the AMR Connector framework for SQL Server management enhanced database operations and performance.

User-Centric Approach

Prioritizing user experience and usability throughout the design and development process led to the creation of an intuitive and user-friendly interface. Continuous feedback gathering from stakeholders helped in iterating and improving system features.

Challenges Faced

Learning Curve

Adapting to new technologies and frameworks presented a learning curve for the team, leading to initial delays in the development process.

Scope Management: Balancing project scope with time and resource constraints was challenging. It required careful prioritization of features and constant evaluation of project progress to ensure timely delivery.

Integration Complexity

Integrating the AMR Connector framework with the application required thorough testing and debugging to ensure compatibility and seamless operation.

Lessons Learned

Effective Communication

Clear and open communication is key to successful project execution. Regular updates, feedback sessions, and transparent communication channels fostered a collaborative work environment.

Adaptability

Being open to learning and adapting to new technologies and methodologies is essential for overcoming challenges and achieving project objectives.

User-Centric Design: Prioritizing user needs and feedback throughout the development lifecycle is crucial for delivering a product that meets user expectations and drives user satisfaction.

Technology Leveraged

We leveraged the AMR Connector framework for SQL Server management, providing a robust and efficient solution for connecting to and managing SQL Server databases. This framework streamlined database operations such as querying, data manipulation, and transaction management, enhancing the overall performance and reliability of our system. By incorporating this framework into our development process, we ensured efficient database management and optimized data retrieval, contributing to the scalability and effectiveness of the GreenDwell Hotel Management System.

Version controller

In our development process for the GreenDwell Hotel Management System, we opted for AnyDesk software as our primary collaboration tool due to its ease of use and accessibility for all team members. Unlike virtual machines and GitHub, AnyDesk provided a straightforward platform for remote access and real-time collaboration, allowing team members to share screens, transfer files, and communicate seamlessly. Its simplicity and user-friendly interface streamlined our workflow, enabling efficient collaboration and communication even when team members were geographically dispersed. With AnyDesk, team members could easily troubleshoot issues, review code together, and provide immediate feedback, facilitating a smooth and productive development process. Overall, AnyDesk proved to be an invaluable tool in fostering teamwork

and accelerating project progress, contributing to the successful development of the GreenDwell Hotel Management System.

Future Work (Continued)

Application Development

Enhanced Feature Set

Future iterations of the GreenDwell Hotel Management System could include additional features such as integration with external systems for inventory management, loyalty programs, and advanced analytics for predictive analysis and revenue optimization.

Mobile Accessibility

Developing mobile applications for iOS and Android platforms would extend the accessibility of the system, allowing users to manage hotel operations on-the-go.

Internationalization and Localization

Adding support for multiple languages and currencies would cater to the global hospitality market, making the system accessible to a broader audience.

Automation Email System

Implementing an automated email system to gather guest reviews and feedback post-stay would enhance the guest experience and provide valuable insights for improving service quality.

Automated emails can be sent to guests shortly after their departure, prompting them to provide feedback on their stay experience, service quality, and any suggestions for improvement.

Product Sustainability

Scalability

Adopting cloud-native architectures and microservices would enhance the scalability and flexibility of the system, allowing it to handle increasing user demands and adapt to changing business requirements.

Continuous Improvement

Implementing regular updates and maintenance cycles to address bugs, performance issues, and security vulnerabilities would ensure the long-term sustainability and reliability of the product.

Environmental Impact

Considering the environmental impact of the system's operations and incorporating sustainable practices such as energy-efficient computing and paperless workflows would contribute to making the product more environmentally friendly.

Conclusion

The GreenDwell Hotel Management System addresses key challenges in hospitality management with its user-friendly interface and comprehensive features. Leveraging a layered architecture and frameworks like the AMR Connector, it ensures scalability and reliability. Essential functionalities such as room and guest management, reservations, billing, and reporting tools are integrated. Activity, task, ER, and UML diagrams enhance understanding. Future improvements may include advanced analytics, mobile support, and cloud integration. Overall, GreenDwell promises to streamline operations and elevate guest experiences in the hospitality sector.