Resort Management System for Luna Bay Resort

A System Application

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INTRODUCTION

To manage a resort, it must be able to operate different activities, such as booking reservations, scheduling, billing, and managing the resort's maintenance. In the past, these activities were done manually and heavily relied on manpower, which can be a problem due to inefficiencies, inconsistencies, errors, and challenges in tracking important operational data.

In the resort industry, adapting to new technological advancements can be challenging for some resorts. According to Behrisch (2023), staying current with technology is critical in the hospitality industry. In an era of rapid digital transformation, hotels and resorts that delay modernizing their technology risk falling behind competitors and impacting the guest experience. Outdated systems can significantly hinder service quality, and in an industry where customer satisfaction is paramount, keeping up with technological developments is essential. Behrisch also noted that investing in modern technology directly contributes to customer satisfaction and enhances profitability over time. In today's competitive hospitality landscape, embracing technology is key to staying relevant and delivering exceptional guest experiences.

One significant benefit of a centralized system is the improvement of operational efficiency. Tasks such as inventory management, financial monitoring, and booking are optimized, reducing redundancies and delays. This creates a smoother workflow, enhancing employee productivity and elevating the guest experience. Resorts with efficient management are more likely to retain loyal customers and receive positive reviews, which are essential in the competitive hospitality sector.

Furthermore, modern systems provide scalability and adaptability, enabling resorts to keep pace with shifting market trends or future business growth. Features like role-based access and mobile functionality ensure that operations remain efficient and resilient as the resort expands. Investing in a robust resort management system is more than an operational improvement as a strategic investment in profitability and sustainable growth.

Background of the Problem

Investing in advanced technology plays an important role in the hospitality industry. However, many small to medium-sized resorts continue to rely on manual processes due to the lack of integrated systems. These manual methods, which include separate systems for scheduling, financial tracking, and point-of-sale transactions, create inefficiencies that hinder operational effectiveness

Luna Bay Resort, a medium-sized resort, operates without an advanced integrated management system, relying on separate processes for scheduling, financial tracking, and point-of-sale transactions. This outdated approach often results in inefficiencies, making it difficult for managers to track resources, monitor booking schedules, and manage finances effectively. Implementing an all-in-one management system could help the resort streamline operations by simplifying transactions, reducing redundancy, and providing easy access to essential information for daily operations.

In this study, the developers suggest developing the Luna Bay Resort System, a resort management system that integrates essential functions into a single system, to tackle these challenges. Financial tracking, booking management, scheduling, and a point-of-sale (POS) system for food services, rentals, and swimming equipment are some of the features that will be included in the system. The system will increase time management, reduce the risk of errors, and improve Luna Bay Resort's operational efficiency and customer satisfaction by combining multiple tasks and features into a single interface.

Through this proposed system, daily tasks can free up staff time for higher-value activities like facility maintenance and customer assistance, which will improve the overall guest experience. By incorporating all of these tasks and functions into a single system, the system seeks to reduce errors and improve Luna Bay Resort's operational effectiveness and customer experience. This all-in-one system will give resort workers and employees the resources they need to handle inventory, track financial transactions, and manage scheduling. This proposed system not only addresses the resort’s current operational challenges but also positions Luna Bay Resort to adapt to modern business demands, ensuring sustained growth and customer satisfaction in a competitive industry.

Overview of the Current State of Technology

In managing resorts, advanced technology provides a more organized and seamless experience, which customers increasingly prefer. Modern hotels and resorts are transitioning from manual operations to digital systems to remain competitive and relevant in a fast-evolving technological landscape.

However, many small to medium-sized resorts face challenges in fully adopting advanced technology due to limited resources. Resorts like Luna Bay Resort rely on manual process for scheduling, financial tracking, and POS transactions, increasing the risk of errors and complicating daily operations.

In today's current technology, most businesses like resort uses advanced technology such as Property Management Systems (PMS). According to Adaramola (2021), PMS is a flexible system that is widely used in many different businesses, particularly in the hospitality industry. A PMS is a centralized online platform that simplifies everyday tasks like scheduling, organizing, and managing accounts and bookings. Therefore, it is a great option for companies seeking to improve productivity and automate processes. A PMS is crucial for professional management of properties since it enables companies to optimize functionality by centralizing these tasks.

However, these advanced technologies can be expensive and difficult to implement, especially for smaller resorts that may lack the necessary funding or technical infrastructure. This leads to difficulties and limited data accessibility as smaller businesses often resort to manual tracking.

To address these challenges, the proposed Resort Management System for Luna Bay Resort is designed to function similarly to a PMS but tailored for small to medium-sized resorts. It integrates financial tracking, scheduling, POS, and booking management into a single platform. By integrating these processes, the system reduces operating costs, minimizes errors, improves productivity, and allows staff to focus on enhancing the guest experience.

Objectives of the study

General Objective:

To develop an Integrated Resort Management System for Luna Bay Resort that will increase business' productivity and guest satisfaction.

By implementing an Integrated Resort Management System for Luna Bay Resort, the resort can ensure accurate records and deliver a seamless guest experience. Transitioning from manual processes to a unified digital system for booking, scheduling, financial tracking, and POS transactions will reduce errors, enhance operational efficiency, and streamline service delivery. This will optimize scheduling, day-to-day operations, and financial management, enhancing productivity and operational efficiency within the hospitality industry.

Specific Objectives:

1. **To Develop an Integrated System for Effectively Managing Resort Operations**

   By designing and implementing a system that combines essential functions such as booking, scheduling, and financial tracking into a single platform, the resort can simplify operations, eliminate redundant manual tasks, and ensure seamless communication between departments.

2. **To Transition Manual Processes into a Digitized and Simplified Process**

   By replacing traditional manual methods with a simplified digital system, the resort can handle daily activities like booking, scheduling, billing, and financial monitoring more efficiently. This transition will enhance accuracy, improve task execution speed, and enable more effective resource allocation.

3. **To Enhance Financial Oversight and Operational Strategy**

   By incorporating operational and financial management tools that provide accurate and real-time tracking of revenues and overall financial performance, the resort can make data-driven decisions, improve budget management, and ensure cost-effectiveness.

Scope and limitations of the study

Scope of the Study

The study primarily focuses on the development and implementation of the Resort Management System for Luna Bay Resort tailored for resort managers and employees. The system provides efficient solutions to key resort management tasks, aiming to streamline operations and improve service quality. Its focus areas include:

1. **Dashboard**

   It gives users an overview of the resort's operations. It helps managers and employees make well-informed decisions quickly by summarizing important indicators including financial reports, booking status, inventory levels, and maintenance notifications. The dashboard guarantees smooth monitoring of the resort's operations and encourages efficiency in daily operations by bringing every relevant information together in one location.

2. **Login and User Credentials Module**

   It is responsible for managing user access to the system. It includes features such as setting up role-based limitations, logging in, and creating user accounts. In order to ensure that only authorized individuals may access sensitive data and essential functionalities, different user roles such as administrator, manager, cashier, and front desk staff are given particular access. The following describes the role-based access permissions for each user type in the system:

   - **Admin:** Has full system access to all modules and features.
   - **Manager:** Has access to modules for booking, amenities, maintenance, user logs, inventory, and purchase order module.
   - **Cashier:** Has access to the Amenities (POS) module.
   - **Front Desk:** Has access to the Booking module.

   Additionally, when creating a user account, the system incorporates a notice informing users about copyright protection and compliance with government laws concerning data privacy and information gathering. This ensures transparency and adherence to legal standards.

3. Booking Module

This module aims to simplify the front desk operations, ensuring that customer data is handled efficiently. It also minimizes errors during booking transactions by providing a structured workflow for reservation management, improving the guest experience and operational efficiency. The following key functionalities include:

- **Add Reservation:** It allows staff to create new reservations for customers.
- **Search Reservation:** It provides search functionality to locate reservation information and details quickly.
- **View Guest:** It shows details of all reservations, including upcoming reservations, checked-in, and checked-out guests.
- **Check-In:** It is used to book and input customer and reservation details and its payment information and generates reservation receipt.
- **Check-Out:** It handles customer departure, calculates final bills, and generates check-out receipt.

4. Amenities (POS) Module

This module enables efficient management of resort services, such as food and other amenities for a seamless transaction experience. POS (Point of Sale) systems allow resorts to streamline their operations, ensuring smooth, real-time transactions for customers while integrating various services within the resort.

5. Maintenance Module:

The maintenance module assists the resort in tracking and managing maintenance tasks. It enables managers to track available rooms and schedule room repairs and cleaning. This module ensures that the resort remains in optimal condition by addressing facility concerns promptly, thereby enhancing the overall customer experience and operational reliability.

The maintenance module includes three following functionalities:

- **Available:** This feature tracks which rooms are available for guests, ensuring that maintenance schedules do not interfere with guest bookings.

- **Cleaning:** It tracks cleaning tasks for rooms, ensuring they meet the resort's standards of cleanliness before guests check in.
- **Repair:** This feature helps log and track any room or facility repairs needed, from minor fixes to major issues.

6. **Financial Report Module**

   This module provides an overview of daily, weekly, and monthly revenues. It offers quick insights for resort managers to monitor financial trends and assess performance, supporting effective decision-making.

7. **User Logs Module**

   The User Logs Module is a crucial feature for ensuring the security and accountability of system users. It records and tracks the actions taken by all users within the resort management system, providing an audit trail for administrative oversight. This module is essential for tracking user interactions, identifying any potential security breaches, and ensuring transparency.

8. **Inventory Module**

   The Inventory Module is designed to track the resort's stock levels, manage supplies, and ensure that the necessary products and materials are always available for both guest use and internal operations. It helps streamline inventory management, preventing both overstocking and shortages. Key functionality of the Inventory Module includes:

   - **Stock Adjustment:** This feature allows users to modify prices in the product or food menu and add new items to the offerings.

9. **Purchase Order Module**

   This module allows the resort to request goods or services from suppliers. This feature helps manage the ordering of new inventory items or materials needed for operations. The module includes:

   - **Stock In:** It is responsible for recording the receipt of goods or materials into the resort's inventory system. It is used to update the inventory levels in the system.

Limitation of the Study

Despite its wide range of features, the Resort Management System for Luna Bay Resort has certain limitations. It does not include expense tracking functionality or offline capabilities, which could hinder operations during internet outages. Additionally, the system lacks guest-facing features, such as an online booking portal or self-service kiosks, which are increasingly essential for enhancing guest convenience and streamlining administrative tasks.

1. **Tracking of Expenses**

   While the system tracks revenues, it does not include functionality for monitoring expenses. Without this feature, the resort cannot analyze its overall financial performance, such as profit and loss calculations, directly within the system, requiring the use of separate tools for expense management.

2. **Offline Capability:**

   The system relies on a stable internet connection, and it cannot function offline. This limitation could disrupt operations during internet outages, preventing access to critical features like financial reports, booking management, and maintenance updates when offline access is required.

3. **Booking Control on Customer Side**

   The system does not include guest-facing functionalities, such as an online booking portal or self-service kiosks for modifying reservations, including cancellations. These features are becoming increasingly common in resort management systems, as they enhance guest convenience and reduce administrative workload.

4. **Fixed Schedule & No Extension Capability**

   The system does not allow for extensions to be added when a reservation is nearing its due date, as it operates on a fixed schedule. This lack of flexibility can impact on the ability to accommodate last-minute changes or guest requests.

Review of related literature/studies/systems

Integrated management systems have been growing in popularity in the hospitality sector in recent years as a way to improve service delivery and streamline operations. With research and studies demonstrating that these solutions are useful in addressing common operational difficulties, the usage of technology to manage reservations, scheduling, billing, and resource tracking has increased. In order to develop an integrated management system, like the Luna Bay Resort System this review examines a number of studies, theories, and technology developments.

Digitization of Manual Processes: Advancements in Booking and Scheduling Systems

In the modern era, technology has made a big impact on how businesses operate, including the hospitality industry. Resorts used to rely on manual processes for booking and scheduling, which were often slow and prone to mistakes. These tasks are now easier to manage, faster, and more precise with the development of technological advances. Resorts can now manage reservations and schedules more effectively because of automated technologies, which reduces valuable time and enhances client satisfaction.

According to Kamenchuk (2024), online booking systems have significantly enhanced business operations by centralizing routine administrative tasks and integrating seamlessly with booking systems, marketing platforms, and payment gateways. These advancements streamline workflows, reduce staff workload, and improve overall efficiency. The integration of advanced technologies such as IoT further personalizes and optimizes booking processes, positioning these platforms as essential tools for modern business success.

The ability to integrate scheduling, maintenance, and offer comprehensive financial analytics into a single system ensures that resorts can make informed decisions, optimize resources, and cater to the evolving expectations of modern guests and travelers. As the hospitality industry continues to grow, embracing these innovative solutions will be essential for resorts to maintain competitiveness, enhance guest satisfaction, and drive sustainable success.

The Role of Integrated Management Systems in Optimizing Resort Operations

Integrated management resort system is an essential strategy for improving operational efficiency, guest satisfaction, and profitability in the hospitality industry. By connecting various software systems and platforms, resorts can streamline their operations and reduce manual tasks. The goal is to create a seamless flow of data across all departments, ensuring that staff have accurate, real-time information to enhance decision-making and service delivery.

According to PMC School (2024), resort system integration is crucial for improving operational efficiency and guest satisfaction. The enhancement of operational efficiency is one of the main advantages of resort system integration. Staff members must manually enter data into several platforms when systems are separated, this increases the possibility of errors and wasting time. By integrating systems, such as PMS and CRM, guest information is automatically shared across departments, allowing for faster and more accurate service. Better communication within the resort is also made possible by this integration, guaranteeing that divisions like maintenance, cashier, and front desk are coordinated and able to promptly attend to the demands of visitors.

PMC School also stated that integration greatly enhances the guest experience by allowing hotels to offer personalized services. For example, guest preferences stored in the CRM can be automatically retrieved for future stays, ensuring a more tailored experience. Integrated systems also enable more effective communication with guests through automated messages, such as pre-arrival confirmations and post-stay surveys, which foster guest loyalty. Furthermore, system integration helps reduce operational costs by automating routine tasks and improving inventory management, leading to more efficient use of resources and increased profitability.

Resort system integration is a strategic approach that significantly improves both operational efficiency and guest satisfaction while boosting profitability. Through this, it can automate processes, reduce errors, and provide a more personalized experience for guests. As the hospitality industry continues to evolve, integrating systems is crucial for staying competitive and adapting to new technologies, ensuring that hotels can offer exceptional service while managing costs effectively.

Improved Integrated Systems for Enhanced Financial Insights and Resort Management

Financial insights are essential for ensuring long-term success. There is increasing demand for hotels and resorts to maintain high levels of customer satisfaction while streamlining operations, increasing profitability, and optimizing processes. Financial system integration is one of the best strategies to accomplish these objectives. Resorts may increase data accuracy, streamline repetitive activities, and offer real-time financial insights by integrating financial tools with operational systems. Resort finance teams are able to make better decisions, decrease human errors, and eventually increase operational productivity and profit as a result. This integration is about maintaining competitiveness in a data-driven market where efficiency and adaptability are critical to success, not just about implementing new technology for convenience.

According to Wilder (2024), a significant benefit of integrated systems is the real-time financial insights they provide. With financial data seamlessly flowing between departments, resorts managers and finance teams can access key performance indicators (KPIs) and financial metrics instantly. This access enables faster decision-making, better budget management, and more proactive financial strategies. Monitoring revenue, expenses, and overall profitability in real time allows resorts to quickly adapt their strategies and optimize performance.

Furthermore, integration ensures greater accuracy and consistency across different departments. When systems are disconnected, the risk of data discrepancies increases due to the need for manual transfer between platforms. With a unified system, all departments finance and operations work from the same updated data, ensuring consistency in decision-making and alignment across the resort.

In conclusion, integrating financial systems plays a vital role in optimizing resort operations and improving profitability. By linking financial tools with operational systems, resorts can streamline repetitive tasks, enhance the accuracy of financial reporting, and gain real-time access to important performance data. This integration simplifies the management of day-to-day financial transactions while empowering resorts managers to make better, data-driven decisions.

METHODOLOGY

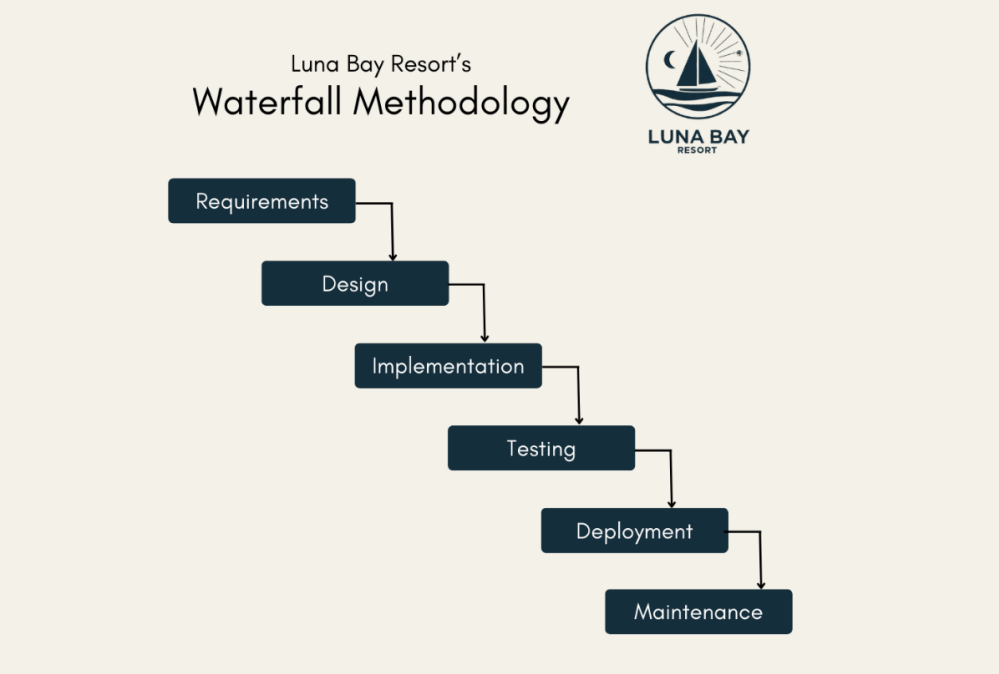

Figure 1 – Luna Bay Resort's Waterfall Model

The development of the Resort Management System for Luna Bay Resort follows the Waterfall Model, an established and structured software development approach. This approach is suitable for the project as it guarantees that every stage is finished before it moves on to the next and establishes specific time frames and objectives. The stages of the methodology are the following:

1. **Requirements:** The development process began with an in-depth analysis of related literature on integrated management systems in the resort industry. This research provided insights into industry standards, best practices, and common challenges faced by resorts in managing operations. The findings helped shape the system's focus on work optimization, error reduction, and enhancing the customer experience.
2. **Design:** Guided by the requirements, the design phase centered on creating a cohesive system that integrates key management functions into a single platform. The team developed initial sketches and mockups of the user interface, focusing on

usability and accessibility for employees. using Business Process Model and Notation (BPMN). BPMN diagrams were created to represent workflows for core functionalities such as scheduling, booking, financial tracking, and maintenance management.

3. **Implementation:** The implementation phase began with modular coding of the system, ensuring each feature was developed, tested, and refined individually before integrating into the complete system. The system was built using C# and SQL, leveraging Visual Studio WinForms for a desktop-based interface and SQL Server for robust data management. The developers used Figma to design the user interface.
4. **Testing:** Once the system was fully implemented, in-depth testing was conducted to identify bugs and ensure each module operated as intended. Functional testing was performed to evaluate the system's performance, usability, and security.
5. **Deployment:** After successful testing, the system was deployed at Luna Bay Resort. Staff members underwent hands-on training to familiarize themselves with the system, particularly in scheduling, billing, booking, and POS functionalities. The system was gradually integrated into daily operations, allowing time for employees to adapt.
6. **Maintenance:** Post-deployment, the system entered a maintenance phase to ensure continuous functionality and performance. Regular updates are planned to address bugs, improve features, and adapt to changing operational needs. Employee and management feedback will play a central role in identifying areas for enhancement, ensuring the system evolves alongside the resort's requirements.

System Design Specification

This section represents the overall system specifications and functional requirements, providing a detailed breakdown of the components, including hardware and software elements. System processes are visually represented through Business Process Management Notation (BPMN) diagrams to illustrate different aspects of the system's functionality and component interrelations.

System Overview

The Resort Management System for Luna Bay Resort is an integrated platform designed to streamline resort operations and improve efficiency. It combines essential nine modules to support key resort management functions:

1. **Dashboard:** The dashboard offers a real-time summary of resort operations, displaying key metrics such as financial performance, bookings, and maintenance status.
2. **Login and User Credentials:** This module manages user authentication and access permissions, ensuring secure system usage. Role-based access controls limit functionality for each user type, such as Admin, Manager, Cashier, and Front Desk staff.
3. **Booking Module:** The booking module simplifies the reservation process by enabling staff to add, search, view, and manage reservations.
4. **Amenities (POS) Module:** The POS module handles all guest transactions for food and swimming equipment from purchases to service charges.
5. **Maintenance Module:** This module tracks room availability and schedules maintenance tasks such as cleaning and repairs.
6. **Financial Report Module:** The financial report module provides daily, weekly, and monthly revenue insights, comparing current performance to past periods.
7. **User Logs Module:** This module logs every user's action within the system for accountability and security. It ensures transparency and can be used to audit and track system access and changes.
8. **Inventory Module:** The inventory module helps manage stock levels and supply usage within the resort. It includes a stock adjustment feature to edit prices in the product or food menu and add new items.
9. **Purchase Order Module:** This module enables the ordering of goods and services from suppliers, helping ensure that the resort is always stocked with necessary items.

This system helps improve operational efficiency, resource management, and decision-making, contributing to the overall success of Luna Bay Resort.

Functional and Non-Functional Requirements

1. Functional Requirements

1.1 Manage Bookings

REQ001: The system shall allow the front desk and managers to create new bookings.

REQ002: The system shall allow managers to set booking parameters (e.g., check-in/check-out dates, room selection, and service options).

REQ003: The system shall allow authorized staff to update bookings when necessary.

REQ004: The system shall track and display booking status changes.

1.2 Manage Room Status and Maintenance

REQ005: The system shall allow only the Maintenance Manager to update room statuses (e.g., "Under Maintenance," "Available").

REQ006: The system shall allow maintenance staff to report issues for review by the Maintenance Manager.

REQ007: The system shall automatically set a room's status to "Under Maintenance" upon guest checkout.

1.3 Amenities (POS) System

REQ008: The system shall allow authorized staff to manage and process orders for food and swimming equipment.

REQ009: The system shall display information to the manager and administrators of low stock levels.

REQ010: The system shall support cash and online payment options.

REQ011: The system shall display menu options with categories at the time of day (e.g., breakfast, lunch, dinner).

1.4 Financial Tracking

REQ012: The system shall allow administrators to display financial reports with summarizations based on the day, week, month, and year services.

REQ013: The system shall allow managers to view weekly and monthly booking summaries and revenue reports.

REQ014: The system shall track, and display employee or account actions via the user logs.

1.5 Employee Management

REQ015: The system shall allow administrators to manage employee roles, including adding, or deleting roles.

REQ016: The system shall record daily attendance, showing time-in and time-out logs for each employee.

1.6 Calendar and Notifications

REQ017: The system shall allow users to view bookings and transactions by selecting specific dates.

REQ018: The system shall provide information for key events, such as guest checkout, low inventory, or successful payment processing.

1.7 User Activity Log

REQ019: The system shall track user actions for sensitive functions, such as financial report access and role updates.

REQ020: The system shall store activity logs securely for auditing purposes.

1.8 Authentication

REQ021: The system shall authenticate users through a login using unique employee credentials.

REQ021: The system shall support password resetting which can be performed with only administrator accounts.

1.2 Non-Functional Requirements

1.2.1 Operational Requirements

REQ023: The system shall connect wirelessly to a central or local database for storing and retrieving data.

1.2.2 Performance Requirements

REQ024: The system shall load the dashboard and main forms in less than 2 seconds.

REQ025: The system shall process and record transactions in real-time.

1.2.3 Security Requirements

REQ026: The system shall use an encrypted connection to the database for sensitive data, including financial records, booking details, and employee data.

1.2.4 Cultural and Language Requirements

REQ027: The system shall support English as the default language for all users.

Software and Applications

In developing the Resort Management System for Luna Bay Resort, the developers utilized specific software applications and programming languages to ensure a robust, user-friendly, and cost-effective solution.

Programming Languages

1. **C#:** The developers used C# as the primary language for the Resort Management System for Luna Bay Resort due to its object-oriented features, which are essential for organizing and managing complex functions like scheduling, financial tracking, and POS.
2. **SQL:** SQL was employed to handle the system's data storage and retrieval needs, providing a secure structure for managing and storing data required by the resort's operations.

Software Technologies

1. **SQL Server Management Studio (SSMS):** SQL Server Management Studio was utilized to manage and maintain the resort's SQL database efficiently. SSMS allowed the development team to structure data accurately.
2. **Visual Studio WinForms:** The developers utilized Visual Studio WinForms to create the system's user interface, which features a responsive and usage-friendly approach for resort management and employees.
3. **Figma:** Figma was used for prototyping the user interface of the system. It allowed the design team to create, iterate, and test interface concepts collaboratively in real time, ensuring a seamless and intuitive user experience.
4. **Git:** The developers used Git for version control, enabling the development team to efficiently manage code changes and collaborate on updates.

5. **GitHub:** GitHub was used to provide a secure and structured environment for maintaining project progress and tracking versions. The project repository is available at: https://github.com/DragunWF/Luna-Bay-Resort.

Illustration of System Interactions

In this section, the developers utilize Business Process Modeling Notation (BPMN) to represent the key interactions and workflows within the system. BPMN diagrams improve comprehension of system functionality and flow by visualizing the order of tasks, roles, and system elements involved in each process.

Booking System

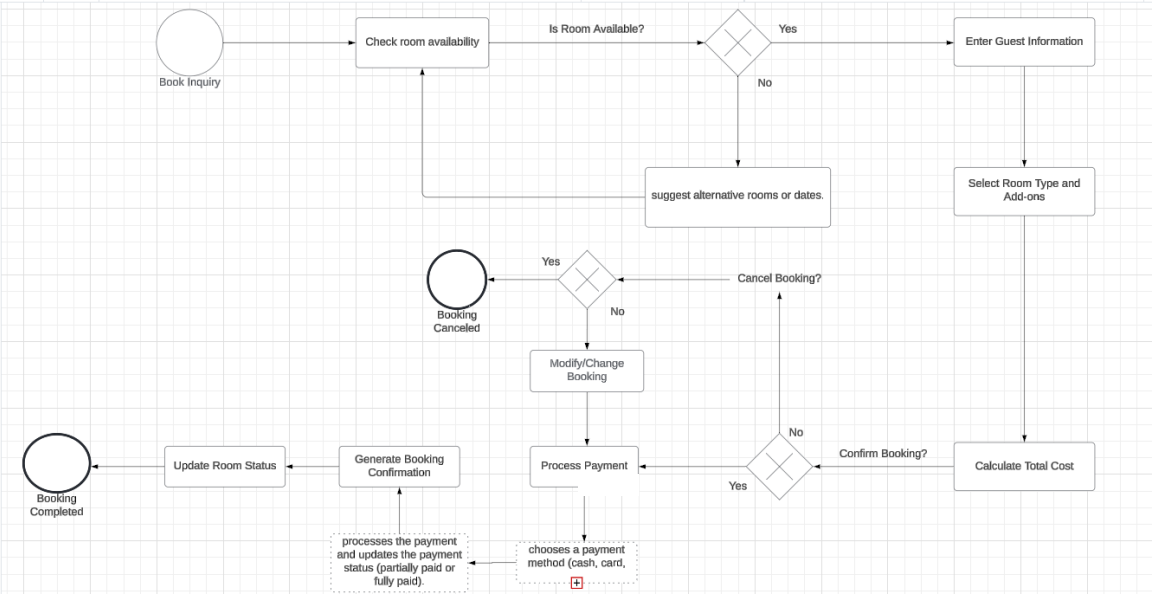

Figure 2 – Booking System's BPMN

This BPMN diagram represents the booking workflow for the Luna Bay Resort. The process begins with a booking inquiry, where room availability is verified. If a room is available, guest information is entered, followed by the selection of room type and add-

ons, and calculation of the total cost. The workflow then proceeds to a decision point where the guest can confirm or modify the booking. Upon confirmation, the system processes the payment, generates a booking confirmation, and updates the room status, completing the booking process. The diagram also accounts for scenarios where rooms are unavailable, offering alternative options, as well as options for modifying existing bookings.

Login System

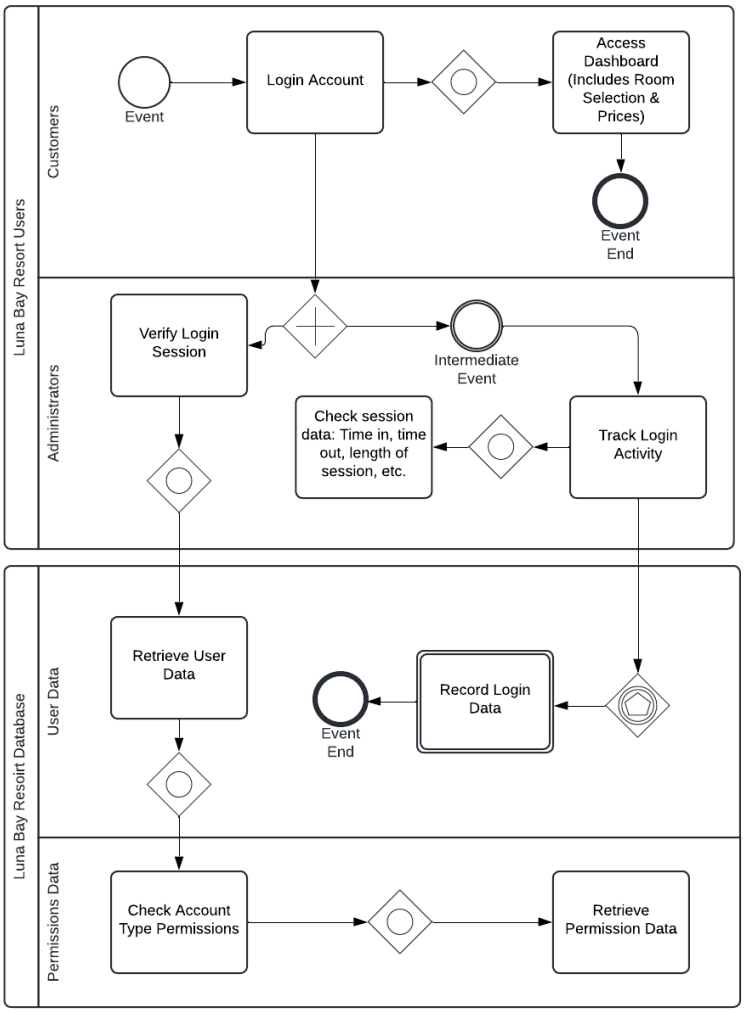

Figure 3 – Login System's BPMN

This BPMN diagram shows the login process for users accessing the resort's system. It begins with the customer logging into their account to access the dashboard,

where they can view room selections and prices. The system then verifies the login session, checking session details like time in, time out, and session length. Login activities are tracked, and user data is retrieved to confirm account permissions based on user type. The system records login data and grants access as per the user's permissions. This workflow ensures secure access to the system based on user roles and activity tracking.

Point-of-Sale (POS) System

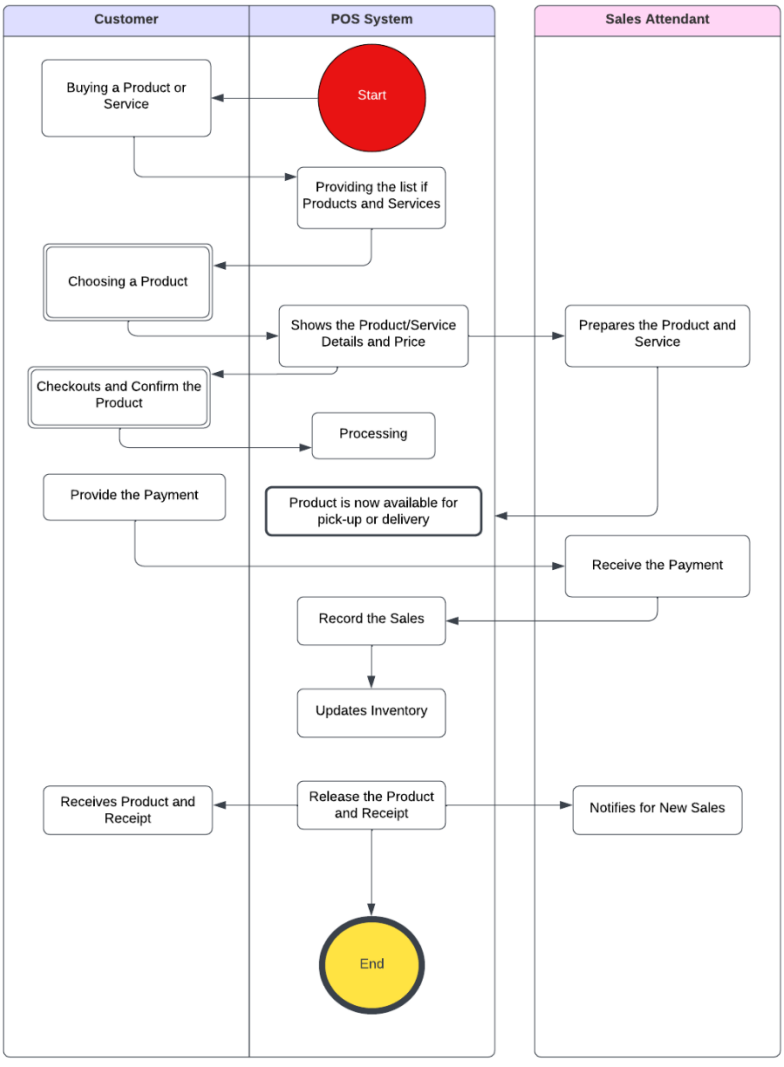

Figure 4 – POS System's BPMN

This BPMN diagram illustrates the Point of Sale (POS) workflow at Luna Bay Resort. The process starts with a customer initiating a purchase by choosing a product or food item. The POS system provides a list of available options, and after the customer selects a product, it displays the details and pricing. The sales attendant then prepares the product or service. After the customer confirms the selection and completes the payment, the system processes the order, records the sale, updates inventory, and makes the product available for pickup or delivery. Finally, the sales attendant releases the product and receipt to the customer, marking the end of the transaction.

Maintenance System

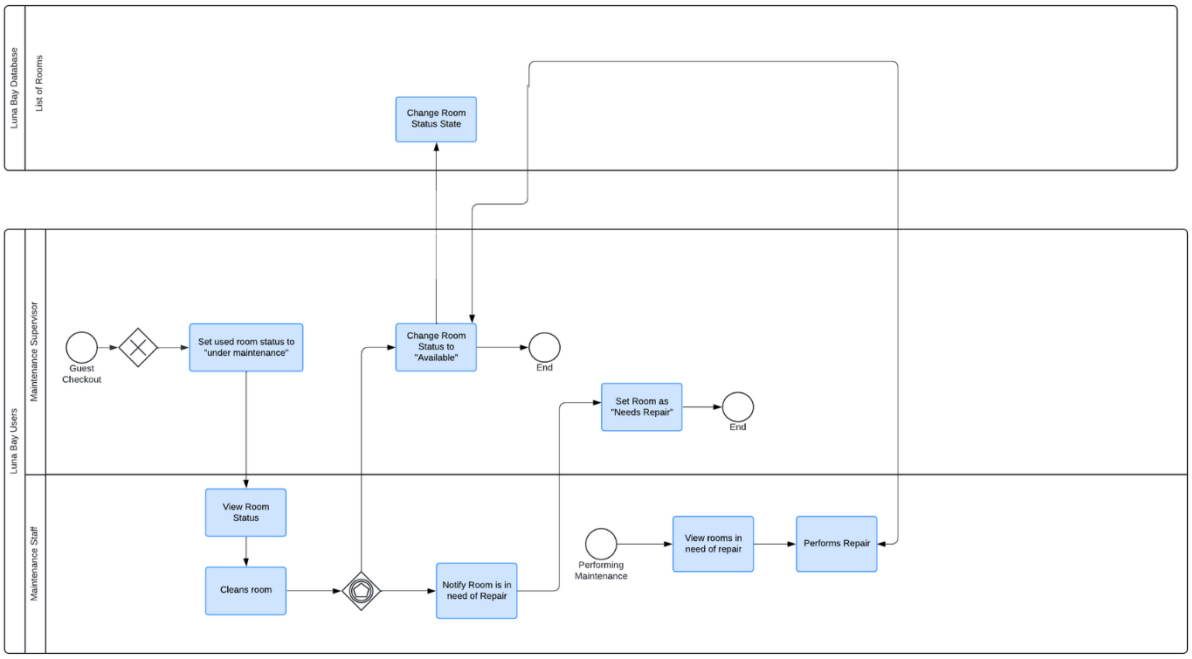

Figure 5 – Maintenance System's BPMN

This BPMN diagram depicts the room maintenance and status update process post-checkout. When a guest checks out, the maintenance supervisor sets the used room's status to "under maintenance." Maintenance staff view the room status and clean it. If repairs are needed, the room is marked as "needs repair" and the maintenance staff are notified. The maintenance team performs any necessary repairs, after which the room's status is updated

to "available," ready for the next guest. The workflow ensures that room availability and maintenance statuses are properly tracked and updated.

In conclusion, These BPMN diagrams provide an in-depth analysis of Luna Bay Resort's several workflows, including important operational procedures like reservations, login, point-of-sale, and maintenance. The diagrams improve comprehension of how the resort's systems interact with one another and facilitate effective service delivery by providing a detailed visual representation of each workflow. These diagrams serve as valuable tools for developers and stakeholders, clarifying system functionality, promoting efficient process management, and ensuring seamless guest experiences at the resort.

RESULTS AND DISCUSSION

The implementation of the Resort Management System for Luna Bay Resort directly addressed the objectives of the study, resulting in improved operational efficiency, streamlined processes, and enhanced guest satisfaction. The system was designed to integrate key functions such as booking management, scheduling, financial tracking, and point-of-sale (POS) transactions, which allowed the resort to optimize manual tasks and optimize daily operations.

The most significant outcome of the project was the successful development of an integrated system that effectively combines essential resort management tasks into one platform. The system integrated booking, scheduling, financial tracking, POS, maintenance, and inventory management, which enabled managers and staff to access real-time data across departments. This integration resulted in improved communication and coordination between teams, reducing the chances of errors and improving workflow efficiency. Resort managers were able to oversee all aspects of the resort’s operations from a centralized dashboard, which offered a comprehensive view of bookings, finances, inventory, and maintenance tasks. The ability to quickly monitor and respond to operational needs was a major factor in enhancing overall efficiency.

Furthermore, the shift from manual processes to a digital system achieved the goal of simplifying daily tasks, making them more efficient and accurate. Previously, tasks such as booking management, billing, inventory tracking, and scheduling were handled

manually, leading to higher chances of errors and delays. The integration of financial tools ensured greater accuracy and consistency across departments. The collected reports generated by the system allowed managers to identify trends, assess performance, and make adjustments to improve profitability. However, the system still lacked an expense tracking feature, which would have provided a more comprehensive financial view. This limitation suggests an area for future improvement.

Overall, the system has helped Luna Bay Resort achieve its goal of improving business productivity and guest satisfaction, positioning the resort for continued growth and success in a competitive market.

CONCLUSION

The study successfully developed and implemented a Resort Management System for Luna Bay Resort, addressing the challenges posed by outdated, manual processes and enhancing overall operational efficiency.

By integrating key resort management functions such as booking, scheduling, financial tracking, and POS transactions into a single platform, the system has streamlined day-to-day operations, reduced errors, and improved communication across departments. This transition from manual to digital processes has not only optimized resource allocation and time management but also contributed to better customer and guest experiences, positioning the resort for sustainable growth. Real-time financial tracking and reporting have enabled the resort to make data-driven decisions, improving budget management and cost-efficiency.

Despite these advancements, the study also found certain limitations such as the lack of offline capabilities and customer-facing features like online booking portals, which could further enhance convenience and operational flexibility. These limitations present opportunities for future system advancements to ensure that the resort can continue to meet evolving guest expectations and remain competitive in the dynamic hospitality market.

The development and implementation of the Resort Management System for Luna Bay Resort has proven to be a valuable investment to the company leading to more

effective and productive operations, improved financial oversight, and increased customer satisfaction.

As the resort continues to embrace technological advancements, the system positions it for sustained growth, greater profitability, and continued success in a highly competitive hospitality industry. Continuous system updates and enhancements will be key to maintaining its competitive edge and adapting to evolving guest needs.

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