

Hotel and Boat Reservation System for Cabanas Beach Resort and Hotel in Dasol, Pangasinan

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ABSTRACT

The Hotel and Boat Reservation System for Cabanas addresses the challenges faced by guests and the management, focusing on enhancing reservation efficiency and improving the overall hotel accommodation services. Using the Rapid Application Development (RAD) methodology, this study aims to design and develop a strong system that integrates key features such as a web- and mobile-responsive platform, real-time availability tracking, automated confirmations and notifications, OTP verification, and digital payment integration. Through interviews, observations, and literature review, insights were gathered into the guest booking experience and the

operational challenges in managing hotel accommodations and boat reservations at Cabanas. A purposive sampling method was employed to select respondents, resulting in a total of 50 participants including guests, hotel staff, and front desk personnel. The system's acceptance level will be evaluated using a Likert Scale survey questionnaire, and statistical analysis will be conducted to validate usability and performance. By addressing the inefficiencies in hotel and boat reservations, this study contributes to the improvement of reservation management systems and enhances guest satisfaction in both hotel and boat services at Cabanas.

Keywords – Hotel Reservation System, Boat Reservation System, Online Booking Platform, Reservation Management, Guest Satisfaction, Real-Time Availability Tracking, Automated Notifications, OTP Verification, Digital Payment Integration, Web And Mobile Responsiveness, Hospitality Service Management.

INTRODUCTION

Throughout human history, hospitality has continuously evolved while maintaining its origins in the basic need for shelter and rest. In ancient times, travelers relied on communal inns and simple resting places along trade routes for food and safety. Before modern conveniences, reservations were unnecessary since accommodations were offered on a first-come, first-served basis. As seafaring and exploration expanded, boats became essential not only for transportation but also for early forms of tourism. The rise of organized inns and the first hotels introduced a more formal way of serving travelers, while early reservations were arranged through personal agreements or letters. With the growth of tourism in later centuries, both hotels and boats became central to travel experiences. Today, the demand for accuracy and efficiency in bookings has led to digital platforms. This study introduces a Hotel and Boat Reservation System designed to integrate these services into one accessible and efficient solution.

The hospitality and tourism industry depends heavily on reservation systems because they ensure efficient service for both guests and management. The system faces substantial challenges in organizing bookings, confirming reservations, and ensuring customer accessibility. The rare combination of managing both room accommodations and boat services makes these problems more complex, particularly at Cabanas Beach Resort Hotel in Dasol, Pangasinan, where reservations are still handled manually. Guests often travel long distances only to find the resort fully booked, resulting in dissatisfaction. The proposed Hotel and Boat Reservation System addresses these issues through modern technological approaches to provide enhanced convenience

in hospitality services. This study examines its development as it evaluates the system's ability to improve customer satisfaction and operational efficiency. Delays in booking confirmation and the lack of real-time updates often leave guests uncertain when securing reservations. Manual approaches to room and boat bookings are inefficient, leading to wasted trips and miscommunication. Studies show that automated systems reduce delays and improve guest satisfaction by providing accurate and timely confirmations. The proposed Hotel and Boat Reservation System integrates both room and boat reservations to minimize errors and delays. It updates availability in real time and customer requests while delivering instant confirmation to guests.

The key element of the Hotel and Boat Reservation System is its simple navigation, which enables guests to use the platform without difficulty. The system is web responsive with Progressive Web App (PWA) features, allowing access across devices with app-like functionality. Through the web application, guests can book rooms and boat trips while viewing real-time availability and receiving booking notifications. The developers designed the interface to accommodate a broad range of users with different levels of digital experience. With its integrated reservation process, the system improves guest convenience and collects booking data that supports better scheduling and resource management. Service delivery and satisfaction benefit from digital solutions consistent with modern hospitality practices.

The deployment of the Hotel and Boat Reservation System will bring wider benefits to the hospitality and tourism sector while supporting sustainable travel goals. The digital platform improves efficiency by reducing booking errors, minimizing unnecessary trips, and providing accurate availability updates. A well-designed reservation system is essential for resorts like Cabanas Beach Resort Hotel in Dasol, Pangasinan because it helps both management and guests achieve smoother transactions while promoting reliable and sustainable tourism practices.

The shift toward digital booking platforms instead of manual processes reduces travel burdens and minimizes wasted time for guests. This study evaluates both the technical features of the Hotel and Boat Reservation System and examines its potential benefits for improving resort operations, guest convenience, and sustainable tourism practices.

The Cabanas Beach Resort Hotel in Dasol, Pangasinan stands to benefit from the proposed Hotel and Boat Reservation System, which modernizes booking and scheduling processes. The integrated platform for room and boat reservations enhances guest convenience while ensuring reliable service.

This study examines the system's development from implementation to potential benefits, contributing to hospitality and tourism research. Findings aim to guide future innovations in resort management systems that prioritize efficiency, guest satisfaction, and sustainable tourism.

The general purpose of this project is to design and develop an innovative system for a hotel and boat reservation at the Cabanas Beach Resort and Hotel in Tambobong, Dasol, Pangasinan, which will streamline the booking process, enhance customer convenience, and improve operational efficiency:

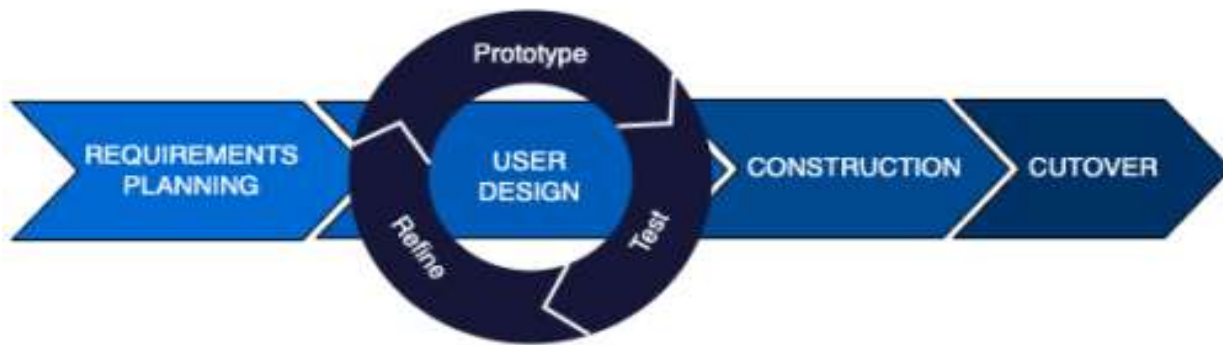
Specifically, the study aims to identify the existing processes involved in hotel, resort, and boat reservations, determine the difficulties and challenges encountered in the reservation process, identify the features to be integrated in the development of the proposed system, and determine the acceptability level of the developed system.

METHODOLOGY

The proposed system utilizes Rapid Application Development (RAD) to combine descriptive and Design phase pairs clients together with developers with flow charts for data evaluation. The Construction phase involves using PHP in Visual Studio Code to develop a prototype until all essential requirements become satisfied. During the Cutover phase testing occurs to transition the system and convert data while performing user training which leads to system activation for feedback and additional surveys that measure the system's adequacy and functional suitability. The development method of the mobile application follows an adapted

RAD model as shown in Fig. 1.

Fig. 1 Rad Methodology



Research activities took place at Cabanas Beach Resort and Hotel in Dasol, Pangasinan, where researchers studied the challenges faced by both staff and guests in managing reservations for rooms and boats. Primary data was gathered by interviewing manager Lyn Balasbas and team leader of staff Maria Teresa Bermudez which provided important insights into operational difficulties such as double bookings, lack of confirmation, and limited accessibility for guests. Observational data collection was also conducted during site visits to document how manual booking processes were carried out, how guests experienced walk-in reservations, and how staff managed room and boat availability. Secondary data regarding hospitality reservation practices was obtained from academic studies, industry articles, and literature reviews on hotel and resort booking systems, which helped the researchers contextualize their findings and propose improvements. Convenient sampling was applied by engaging available staff and selected guests at Cabanas Beach Resort and Hotel to quickly obtain meaningful feedback about their experiences. Table I presents a list of the participants who took part in the research investigation.

Table I Respondents of the Study

Category	Number of Respondents
Hotel Staff	10
Guest	39
IT Expert	1
Total Respondents	50

developmental approaches as the research framework. Surveys and interviews will serve descriptive research to obtain user feedback for system effectiveness evaluations. The RAD methodology, chosen for its fast project turnaround and emphasis on user involvement, consists of four phases:

Requirements Planning, User Design, Construction, and Cutover. During Requirements Planning a combination of interviews and surveys collect data and concepts for system needs identification alongside potential issues discovery. User A survey questionnaire assessed system acceptance and enhancement levels through a measurement scale designed based on Stanley Stevens' work. Statistical evaluation of the collected responses confirmed the system's usability through analysis methods. The researchers assessed system assessment and improvement using a 5-point Likert Scale where Excellent received the highest rating of 5 while Poor had a lowest value of 1.

The weighted mean methodology allows more important data points to attain prominence in analyses. The set acceptance threshold for this system stood at 3.5 below which made the system excellent. The scale and

its statistical limits are illustrated in Table II below:

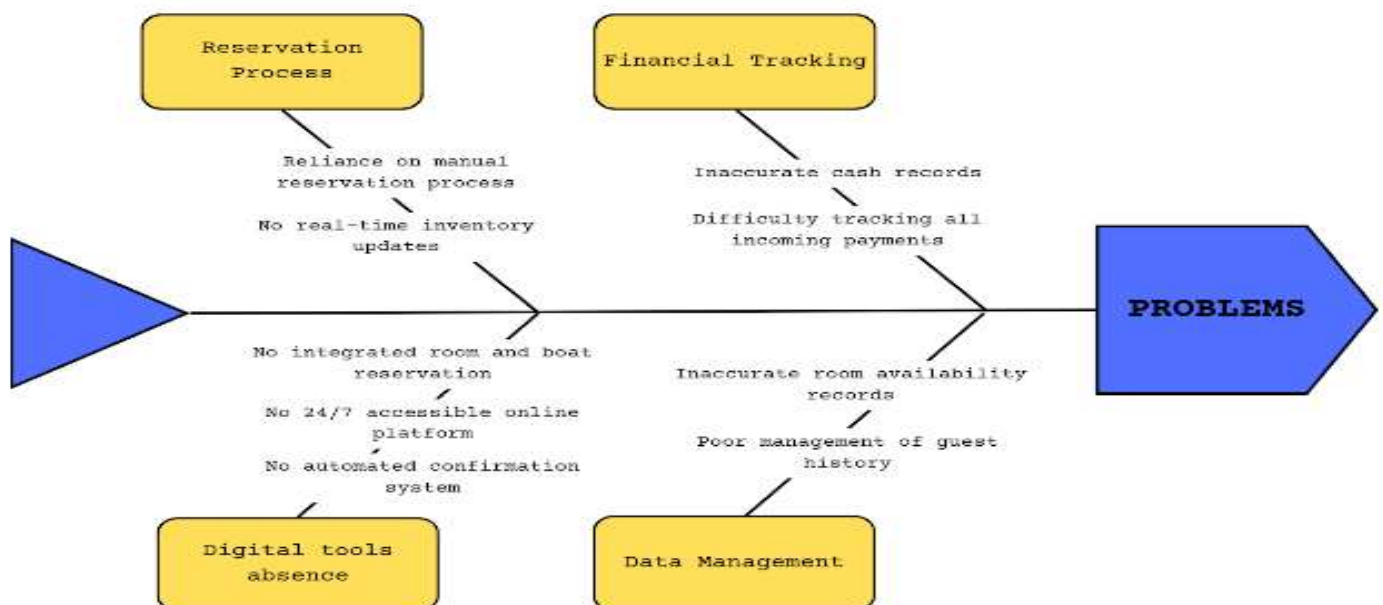
Table II The Scale of Measurement for Acceptance

Scale	Statistical Limits	Rating Interpretation	Status
4	3.26–4.00	Excellent	Accepted
3	2.51–3.25	Very Good	Accepted
2	1.76–2.50	Good	Accepted
1	1.00–1.75	Poor	Not Accepted

Statistical methods processed data from the Likert Scale survey which enabled meaningful conclusion-drawing along with statistical significance discovery and broad population reinterpretation. Research on contemporary hotel accommodation and resort boat reservation systems, along with analyses of regional hospitality and tourism-related boat booking practices, informed the development of the reservation system for Cabanas Beach Resort and Hotel. The use of the Laravel PHP framework, together with Visual Studio Code as the development environment, enabled the development team to implement scheduling logic and real-time system updates while simplifying the processes of programming and testing. Guests were provided with convenient hotel and boat reservation functionalities through a web-based interface designed using Figma. Real-time data communication between the web-based reservation system and service administrators was implemented using cloud-based technologies to provide accurate and up-to-date booking information to users.

The analysis of factors affecting the functionality and efficiency of the hotel and boat reservation system employed a Fishbone Diagram (Ishikawa diagram) to identify underlying problems and operational barriers. The diagram categorized key issues into four major areas: Reservation Process, Financial Tracking, Digital Tools Absence, and Data Management. These categories highlighted challenges such as reliance on manual reservation procedures, lack of real-time room and boat availability updates, inaccurate financial records, absence of an integrated online reservation platform, and poor management of guest data. Through systematic cause-and-effect analysis, the Fishbone Diagram clarified critical areas requiring improvement to enhance operational efficiency, data accuracy, and overall user experience for both administrators and guests.

Fig. 2 Fishbone Diagram



Through the integration of these methodologies, tools, and technologies, the development of the hotel and boat reservation system for Cabanas Beach Resort and Hotel ensured a comprehensive, efficient, and user-centered solution for managing reservations. By addressing key challenges in room and boat availability, booking coordination, and record management, the system aims to improve operational efficiency and enhance guest satisfaction. The thoughtful design and well-structured development of the reservation platform ensure that it meets the needs of both guests and resort administrators, contributing to a more streamlined, reliable, and organized reservation experience at Cabanas Beach Resort and Hotel in Dasol, Pangasinan.

RESULTS AND DISCUSSION

The proposed Hotel and Boat Reservation System for Cabanas Beach Resort and Hotel in Dasol, Pangasinan was successfully implemented using a three-tier architecture, which demonstrated efficiency, scalability, and improved data management during system evaluation. This architectural approach separates the system into the presentation tier, application (service) tier, and data (backend) tier, allowing each layer to perform distinct roles while maintaining seamless communication across the system.

The presentation tier serves as the primary interface between end users and the system. Guests access the reservation platform through a web-based application, where they can view room and boat availability, submit reservation requests, and process payments. Resort administrators interact with the system through a secure web interface that enables reservation management and record maintenance.

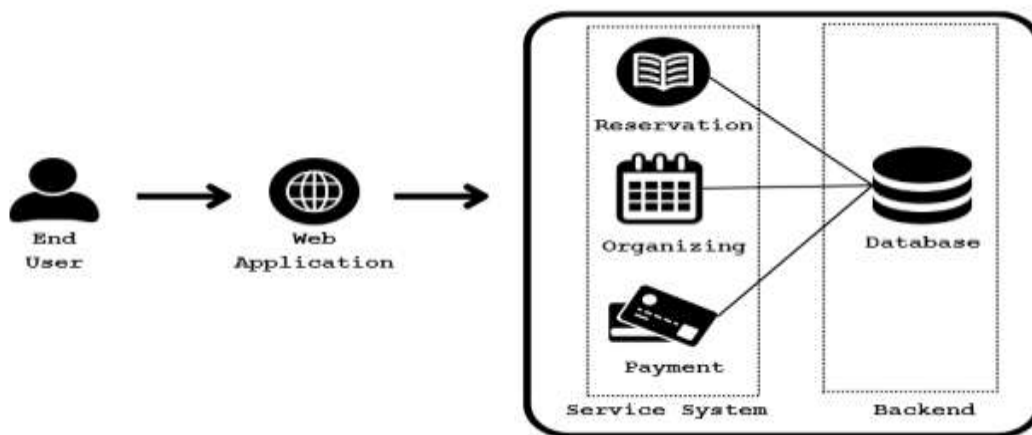


Fig. 3 Hotel and Boat Reservation System Three-Tier Architecture

The presentation tier serves as the primary interface between end users and the system. Guests access the reservation platform through a web-based application, where they can view room and boat availability, submit reservation requests, and process payments. Resort administrators interact with the system through a secure web interface that enables reservation monitoring, scheduling, and record management.

Results indicate that the web-based interface improved accessibility and usability compared to manual processes, and user acceptability surveys revealed high satisfaction levels with usability and accessibility, obtaining a mean rating of 3.53 (Excellent) for ease of use and 3.56 (Excellent) for accessibility. Guests were able to complete reservations efficiently, while administrators benefited from centralized control over booking and scheduling operations. This tier effectively facilitated user interaction and reduced errors commonly associated with manual reservation handling.

The application tier functions as the core processing layer of the system. It handles reservation logic, booking validation, scheduling coordination, and payment processing. Requests submitted through the web interface are processed in this tier, ensuring that room and boat availability are accurately verified before confirmation.

During system testing, this tier demonstrated reliable performance in processing multiple reservation requests while maintaining data consistency, and evaluation results showed that the system achieved a functionality

rating of 3.55 (Excellent) and an efficiency rating of 3.25 (Very Good), indicating that users found the system capable of processing reservations quickly and accurately. By managing transaction workflows and enforcing business rules, the application tier ensured smooth communication between the presentation tier and the database. This contributed to faster response times and improved operational efficiency for resort staff.

The data tier acts as the system's central repository, securely storing information related to guests, reservations, room availability, boat schedules, and payment records. The database supports real-time data updates, allowing both guests and administrators to access accurate and current reservation information.

Evaluation results showed that the data tier effectively maintained data integrity and supported efficient retrieval of reservation records, while user satisfaction results obtained a mean score of 3.45 (Excellent), confirming that users were satisfied with the reliability and accuracy of the system's stored reservation data. The centralized database structure enabled better tracking of booking history and availability, addressing previous challenges in record management and data accuracy.

The proposed three-tier architecture offers a scalable and efficient framework for the Hotel and Boat Reservation System. Overall system evaluation obtained a weighted mean of 3.44, interpreted as Excellent, indicating high user acceptability in terms of functionality, efficiency, usability, accessibility, and system design. Future enhancements focusing on web-based optimization and advanced functionality can further elevate the user experience and system performance. Continuous stakeholder engagement and iterative development will be crucial for ensuring the system's success and meeting evolving user needs.

CONCLUSIONS

The Hotel and Boat Reservation System for Cabanas Beach Resort and Hotel in Dasol, Pangasinan presents a promising solution to the reservation and operational challenges faced by the resort, offering significant improvements in efficiency and guest satisfaction. Through the integration of modern web-based technologies, including real-time availability updates and organized booking coordination, the system aims to minimize reservation conflicts and enhance the

overall guest experience. By providing guests with easy access to information and streamlined booking processes through a user-friendly web platform, the system addresses issues such as manual reservation handling and inaccurate availability records while promoting digital transformation and technological advancement.

The well-defined three-tier architecture ensures secure data management and system scalability, while user involvement in the Rapid Application Development (RAD) process guarantees that the system effectively meets the needs

of both guests and resort administrators. By improving reservation management for rooms and boat services, the system contributes to a more organized, efficient, and guest-centered service operation at Cabanas Beach Resort and Hotel. Based on the system evaluation conducted among guests, resort staff, and stakeholders, the developed system obtained an

overall weighted mean of 3.44, interpreted as Excellent, indicating a high level of user acceptability in terms of functionality, efficiency, usability, accessibility, and system design. Ultimately, the proposed reservation system sets a precedent for similar hospitality establishments, offering a comprehensive technological solution to improve service delivery, operational efficiency, and overall guest experience.

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