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Bicol College Property Management System for Bachelor of Science in Hospitality Management Students: Mock Hotel Operation

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ABSTRACT

Bicol College Hospitality Management Department uses third-party software to assess students through the practical exam. Using third-party software makes it difficult for the Hospitality Management Department in terms of flexibility, availability, and scheduling. This study is for Bicol College Property Management System for Bachelor of Science in Hospitality Management Students: Mock Hotel Operation aimed to answer this problem. It has the ability to perform different automated processes of how a hotel is being managed, similar to the third-party software they are using. However, a lot more features have been added, like the technology of Radio Frequency Identification (RFID). The four phases of Rapid Application Development (RAD) helped the researchers to gather enough information to conduct this study successfully. The collection of data focused on three categories: Overall Design, Functionality, and User Friendliness. To test the developed system, the researchers conducted a demonstration, beta testing, and distributed questionnaires with the participants based on a quantitative method. The researchers received positive feedback from the participants. In conclusion, the researchers met and filled the gaps in this study. They had also proven that they successfully met their general and specific objectives.

Keywords **—** Science and Technology, property management system (PMS), mock hotel operation, hospitality management, quantitative, Philippines

INTRODUCTION

The history of the hotel industry goes back to ancient times; a hotel is an establishment that provides paid lodging on a short-term basis. The hotel industry is an important part of the broader service economy, as it caters to consumers that require overnight lodging. Although there are significant variances in scope, it is strongly related to the travel and hospitality industries(Hollander, 2022).

In Germany and Europe, GasthofzumRotenBärenis the oldest documented hotel. The hotel's foundations stretch back to 1120 when the House of Zähringen dukes founded the town of Freiburg. The hotel is Germany's oldest guesthouse in the beautiful area between the Schwabentor (Swabian gate) and the cathedral in Freiburg's old town(GasthofzumRotenBären,n.d.).

In Asia, NishiyamaOnsenKeiunkan is a Japanese hot spring hotel in Hayakawa, Yamanashi Prefecture. The hotel was originally founded in 705 AD by Fujiwara Mahito. In 2011, the hotel was named the world's oldest hotel by the Guinness Book Of world records. The Keiunkan is located at the base of the Akaishi Mountains in central Honshū, Japan. For over 1,300 years, it has been operated by fifty-two generations of the same family (HospitalityNet, 2016).

In the Philippines, The Manila Hotel is a historic five-star hotel with 550 rooms located along Manila Bay in Manila, Philippines. The hotel is the Country's oldest premier hotel, founded in 1909along with Malacañang Palace, the official residence of the President of the Philippines, and opened on July 4, 1912, to commemorate American Independence (The Manila Hotel Story, 2021).

Over the last decade, Computer technology has played a significant role in the tourism and hospitality industry. Technology has assisted in lowering costs, increasing operational efficiency, and improving services and customer experience. Improved communication, reservation, and guest service systems can benefit customers and businesses. The internet has had a significant impact on the tourism and hospitality industry. This includes looking at pictures and reading reviews from previous visitors. It is essential for a company to effectively use online advertising, social networking sites, blogs, and online purchasing to help its guests. The use of technology in the tourism and hospitality industry has sped up operations and made travel more enjoyable as well as efficient. Technology can benefit not only large chain hotels but also the other smaller businesses in the industry(Entre Technology Services, 2018).

The first property management systems for the hospitality industry were introduced to the market in the early 1980s. Nowadays, it has evolved into a comprehensive software application critical in hotels for achieving goals such as

coordinating front-office operational functions, sales and planning, and reporting. Hotel operations such as guest bookings, guest information, reservations, room management, point of sale, accounts receivable, sales and marketing, human resource, maintenance, and quality management are all automated by the system(HospitalityNet, 2003).

Hospitality management is a significant course/program for students who aspire to be competitive hoteliers. Bicol College in DaragaAlbay offers this bachelor's course to its students. The Bicol College Hospitality Department has many different approaches in terms of educating students. One of these approaches is how they assess the student's in their practical exam. The department uses software where the students perform on how to effectively use the software. However, hospitality management uses the software only for trials. It is third-party software that they avail in a certain. With this challenge in mind, what if hospitality management has software where its students can perform and practice their hands-on skills without risks like exposing valuable data such as; Student Personal Information and Staffs Information? The researcher aims to develop a functioning system that will be used to evaluate and assess the third-year students taking the Bachelor of Science in Hospitality Management at Bicol College Daraga, Albay. Enhance their raw skills and for them to engage in a new way of utilizing technology in their studies. Utilizing technology in the student's studies will give them a better experience and hands-on practical practices in this specific course/program.

FRAMEWORK

The researchers chose to develop a system that will serve as a learning material for the students of the Hospitality Management Department of Bicol College. The developed system will be put to good use within the institution as a new teaching and learning method. The researchers determined the variables necessary during the study in order to create a favorable system for the Hospitality Management Department. Then, the researchers conducted meetings, interviews, and surveys to gather input from the faculty and the students. As a result, the researchers aim to design and develop a Hotel Property Management System for the Bicol College Hospitality Management Department.

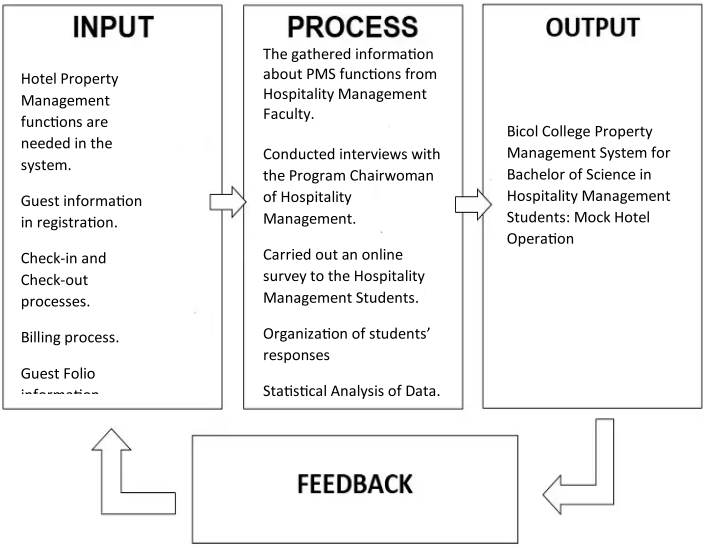

Figure 1. Input-Process-Output Model

The major components of the study's conceptual framework are presented in the Input-Process-Output model.

OBJECTIVES OF THE STUDY

This study aimed to Design and develop a Property Management System: Mock Hotel Operation for third-year students of the Hospitality Management Department enrolled in the Bachelor of Science in Hospitality Management Course/Program. The system accepts data from the user to explore the system. This system generates reports and prints them as results. This study was integrated with RFID technology, and limited information can be stored in RFID cards. Users are categorized depending on their respective position as hoteliers.

Its specific objectives include the following: Create a Registration System for guests of a mock hotel with RFID integration, design a registration Process for check-in and check-out, create a billing system for the guest/client, and generate a printable guest folio and billing.

METHODOLOGY

Research Design

The researchers chose the quantitative method for collecting data in this study. Quantitativeresearch involves the collection of numerical data that can be ranked, measured, or classified using statistical methods. It aids in the identification of patterns or connections, as well as the formulation of generalizations. This type of research is useful for determining the quantity, amount, frequency, or scope of something. This approach helped the researcher to determine the perspective of the target participants.

Research Respondents

The researchers coordinated with the Hospitality Management Department of Bicol College and asked for their help in this study. The Program Chair, Mrs. MeryJoy P. Mesa, and the researchers decided that the target participants in the study will be third-year college students enrolled in the Bachelor of Science in hospitality management at Bicol College, DaragaAlbay only.

Table 1. Computation for Number of Respondents using Stratified Sampling

Female Respondents	= (BSHM 3rd Year Female Student Population x = 60%) 80% = (25 x .60). 80 = (15) .80 = 12 BSHM 3rd Year Female Students
Male Respondents	= Male Student Population x 40%)80% = (19 x .40) .80 = (7.6) .80 = 6.08 or 6 BSHM 3rd Year Male Students
Total Respondents	= Female Respondents + Male Respondents = 12 BSHM 3rd Year Female Students + 6 BSHM 3rd Year Male Students = 18 BSHM 3rd Year Students

Requirements Planning

The researchers conducted a meeting with the Program Chairwoman of Hospitality Management to discuss the current difficulties of not having their own Property Management System, which is primarily used by third-year students as a learning material in hotel management. The researchers planned and identified the requirements for the research study after the meeting. In

finalization, the researchers asked for approval from the Program Chairwoman, Research Professor, and Research Adviser to conduct the study with the aim of solving the problem.

User Design

The components of user design are divided into three parts, namely, Prototyping, Refinement, and Testing. The researchers developed and sent a prototype to the participants for testing and feedback. The feedback is then collected to make the necessary changes and refinements. The complete cooperation of the Hospitality Management Faculty and Students is needed to fix errors during the development.

Construction

After addressing the problems and making the needed changes during the user design phase, the researchers that develop the system work together with the participants to make sure everything is working as intended without errors and to come across that will satisfy and meet the Hospitality Management Faculty and Students' expectation and the research objectives.

Cutover

In this phase, the researchers finalized their developed system for implementation. It comes with a demonstration, beta testing, trial and error, and a user guide. The researchers coordinated with the Hospitality Management Department for this phase to happen.

Instrumentation

The researchers aimed to determine the perception of the respondent's based on the Overall Design, Functionality, and User Friendliness of the system. The researchers distributed a Questionnaire that is answerable by Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree after the beta test of the system.

The researchers chose Rapid Application Development (RAD) because of its advantages. The key benefit of a RAD approach is fast project turnaround, making it an attractive choice for the researchers to work in a fast-paced environment in developing the system of this study. This rapid pace is made possible by RAD's focus on minimizing the planning stage and maximizing prototype development.

Demonstration

The researchers set up a schedule where they can demonstrate the system that they have developed. The researchers coordinated with the third-year students of hospitality management to participate in the demonstration. During the demonstration, the researchers provided the participants with a copy of the user manual for their guidelines for using the system. The researchers also set up a google meeting to present a tutorial to the participants online.

Data Collection

After the beta test, the researchers created a google form where they uploaded the survey questionnaires. The questionnaires are divided into three categories: Overall Design, Functionality, and User Friendliness. Each category consists of questions with a 5-point Likert scale response. The aim was to determine the respondent's perception based on the categories above. The participants were given two hours to fill in the survey anonymously. The survey was conducted online on May 5, 2022, starting at 3 PM to 5 PM.

Ethics Consideration

In regard to their involvement in this study, the participants will not be subjected to harm in any way. Prior to the study, permission was requested for the respondents to answer the questionnaire. In addition, the protection of privacy was assured, and the response would be treated with confidentiality.

RESULTS AND DISCUSSION

The researchers conducted a beta test to check whether the system would pass the standards of the users and meet its objectives. The aim was to determine the perception of the participants in terms of using the developed system. They had sessions of beta testing. First, they created a video tutorial. Second, they set up a meeting with the participants to demonstrate the system in person. Third, the participants themselves tested and used the system. With this approach, the researchers would know if the system has any problems. They collected their data through Google forms online.

The researchers developed a web-based program. The users enthusiastically tried out the system and were amazed by its functionalities. Several users asked for an in-depth explanation of the system's function during the exploration of the system. After the system was completely tested, the researchers provided a

questionnaire (24) about the Overall Design, Functionality, and User Friendliness. The questions were carefully organized to cover the entire system. The beta testing of the system was successful as its overall functionality and design satisfied the target users with a full understanding of the study's main objectives.

Questions contained in the questionnaire are (24). Researchers have confidence that user satisfaction with the system is the best answer in demonstrating the system. The interviewees tested and reviewed the whole system.

The survey mainly focused on the overall design, functionality, and user-friendliness of the system. The results were calculated and given a detailed interpretation using a 5-point scale.

The researchers can easily determine whether they achieve their objectives in the system by dividing the categories into three parts. The first category in the questionnaire is about the Overall Design of the system that discusses the components and the interface. The overall design focuses on layout, user interface, and other visual imagery to make the website more aesthetically appealing and user-friendly. The overall mean is 4.48, which means the overall design is "Agree"; infunctionality,the category analyzes the performance of the system, and the overall mean is 4.07, "Agree"; In User-Friendliness is about how easy the users are able to operate the system with an overall mean of 4.47 which is "Agree." This indicates that all of the respondents are satisfied with the overall performance of the system.

Technology has been commonly used for almost everything in today's time. Numerous research findings highlight that utilizing technology in work, business, and studies has became an advantage. The automated process became more efficient compared to a manual process. The use of a property management system (PMS) is critical to the success of a hotel. A system that simplifies front desk workflows will result in a more seamless guest experience.

According to Abukhalifeh and Pratt (2022), Hotel Property Management System is defined as a collection of application programs that directly relate to hotel front and back-office activities, such as revenue management, reservation management, room and rate assignment, check-in and out control, guest accounting, folio management, account settlement, and room status management. This study focused on developing a Hotel Property Management System with functionalities similar to a five-star hotel. According to them, data availability and accessibility are vital for people working in the hospitality business.The aim of the journal, composed by Priyadharshiniand Catherine Joy(2021), is to cover all procedures that take place in residential hotels. This implemented application

covered all the operations from personnel management to booking, floors, offices, and room type management. This study aimed to illustrate how data/information is handled in hotels.The impact of mobile hotel reservation system on continuous intention to use in Jordan is an article first published online on February 23, 2020, by SufianKhwaldeh attempts to fill this gap by investigating the relationships between several Technology-Organization-Environment variables at Aqaba five-star hotels in Jordan, specifically relative advantage, complexity, compatibility, top management support, firm size, technology competence, competitive pressure, critical mass, information intensity, age, gender, educational level, personal income, and work position in enhancing perceived usefulness, and the latter on a continuous basis.

Trinidad (2020) explains the BSc in Hospitality Management Program of Host Training establishments in the National Capital Region" was designed to give students a chance to supplement their academic education with practical knowledge, capabilities, and desired attitudes while receiving hands-on experience at recognized Host Training Establishments. This study was conducted within the premises of the Polytechnic University of the Philippines. The objectives of this study are to identify the implementation Student Internship Program in the Philippines (SIPP) in terms of training, obligations/responsibilities, and the training plan of the Host Training Establishment (HTE) for the Bachelor of Science in Hospitality Management Program in the Philippines' National Capital Region; to evaluate the amount of advancement in the workplace, industry-wide, and industry sector technical abilities as evaluated by student interns, faculty/ SIPP coordinators, and hotel internship coordinators.Then also, this program is crucial since it allows for the building of history databases when a guest checks out, which can then be utilized as a valuable marketing tool. According to Benckendorffet al. (2019), databases may be utilized for research and marketing. Koh and Hassim (2021) designed to develop a hotel reservation management system for Hotel Time located in Johor Bahru, Malaysia. The hotel currently features hotel information on its BlogSpot site. Without a suitable reservation system, they depended on third-party hotel platform reservations. Hotel Time is having difficulty due to the lack of its booking system. The hotel earns lower revenues since it must pay a fee to the external booking platform each time a client makes a reservation.

Habade (2021), conducted at Mio University in Kenya, focused on investigating the application, information aspects, integration, and staff usability of the Property Management System on quality service delivery in the rooms

division of selected hotels in Nairobi County, Kenya. The study used descriptive and explanatory research designs. The study focused on star-rated (1-5) hotels in Nairobi County that had been using PMS for at least two years. Targeted hotels were stratified based on star ratings, and one hotel was chosen from each layer using simple random sampling techniques.

In the study by Tunjungsari and Arianty (2020), the qualitative exploratory technique, a literature study, and in-depth interviews with four properties are used. Since the perspectives employed are from the property's partners, the effects are typically suitable. However, it is a new trend in the tourist business that should be recognized and leveraged to maximize the chance for partners to increase the quality of the service. Furthermore, the property should be high quality, as depicted on the Virtual Hotel Operator website.

Hossainet al. (2019) cited that a website was developed for travelers and tourism management. The study was conducted at Daffodil International University, Dhaka, Bangladesh. The researcher created this system to build and enhance tourism types that give guests more opportunities to collaborate and widen their understanding of other cultures, habits, lifestyles, traditional knowledge, and beliefs. The main objectives are to help tourism management manage guest reservations and other hotel activities.Moraitis (2018) focused on designing and developing a "Property Management System" software suite for hotels. He conducted this study to identify and create a unique cloud-based Property Management System, utilizing the most recent accessible technologies and documenting its creation and development processes. The respondents of the said study are Hotel buyers. This implemented system has a vital role. Through manual workloads into automated processes, Hotel stakeholders will encourage to upgrade their strategies.

According to Maria et al. (2018), it is to analyze the impact of the usage of Fidelio Opera Property Management System in Transcorp Hilton Abuja. Based on this, researchers developed questions to determine whether the property management system helped the hotel by making available and accessible required data for its daily transactions, thereby improving service delivery for the best services to guests. To carry it out, they adopted the qualitative research questionnaire method to examine if the Fidelio Property Management System aids decision-making at Transcorp Hilton Hotel Abuja for competitive advantage.

Prarthana (2017) focused on automating the old process of manual hotel work. This study benefited the hotel and fulfilled the client's request; to have a useable and practical management system that includes an online reservation

system, a user management system, food and beverage operations, room management system status, check-in and check-out transactions, banquet operations management, and content management system for report generation. The system also allows for control of the data rates, transaction details, and report details. Lastly, the effects of computer reservation systems on the operations of travel agencies (Felicen&Ylagan, 2016). They conducted this study to identify the effect of using a Computer Reservation System among Travel Agencies in terms of the technical, human, and financial aspects. The descriptive method of research was used with managers and users/staff of 20 travel agencies as participants of the study.

CONCLUSIONS

This research aimed to create a system for Bachelor of Science in Hospitality Management students at Bicol College, DaragaAlbay. Based on a quantitative analysis of the standard practices in software development, it can be concluded that the observations and coordination with the participants are important factors in designing and developing software. The results came with positive feedback from the participants of the study, indicating that the potential of utilizing technology in the academics of the students has more advantages than disadvantages.

Technology has advantages and disadvantages in our daily life, using technology, work, study, and business. Through the study, the researchers aimed to create a system that can be used as a learning material by the Hospitality Management Department at Bicol College. By conducting this study, the researchers gained more knowledge in their perspective program.

The researchers had met their general and specific objectives. They can create a registration system for the guest/client with the Radio Frequency Identification (RFID) integration, they have been able to design a registration process for check-in and check-out that is fully functional, they have been able to create a billing system for the guest/client that produces an accurate result, and lastly, they had been able to set the system to generate printable guest folio and billing without any difficulties.

The developed system can only be used offline, per the panelist's suggestion. For future use and implementations, the researchers suggest that the developed system be uploaded online to be flexible to use, whether offline or online, for future researchers that will use this study as a reference. It will be recommended

by the current researchers to improve the buttons and add functions and features to the system, like adding other departments of a hotel that is not included in this study.

This study has been able to help the Hospitality Management Department and Hospitality Management Students. This study gave Hospitality Management the system to be used in their program. This study also helped them by introducing a new technology which is Radio Frequency Identification (RFID).

In conclusion, this study became useful to the following people that had been a part of this journey: Researchers, the College of Computer Studies (CCS) Dean, the Hospitality Management (HM) Department, the Hospitality Management Program Chair, the Research Professor, the Research Adviser, Panelist, Instrument Validator and lastly the Hospitality Management Students.

TRANSLATIONAL RESEARCH

The findings of the study will be a necessity to the Hospitality Management Department and Hospitality Management Students. Also, the system's implementation will provide a better understanding to utilize in their program. Eventually, it can be translated as a reference for upcoming studies.

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