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Poliwangi Jinggo Hotel reservation system as a pilot project for Teaching Factory (TEFA)

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Abstract: Poliwangi Jinggo Hotel is specially addressed for educational purpose which will be used as a Teaching Factory (TEFA), so in other words this hotel will go public in near future. To support the process and everything related to hotel operation, as a baby step it is necessary to create hotel management system. The system was designed using Windows-based application (Bistone Hotel Management System). Subsequently, the research and development were carried out based on waterfall model (requirements analysis and definition, system and software design, implementation and unit testing, integration and unit system testing, and operation and maintenance). As for the evaluation, the room reservation system was measured by quantitative approach using 30 respondents. The results obtained in this study were hotel reservation system which included setting room types, room rates, facilities, room numbers, guest input, making reservations, and printing invoices/receipts for the initial process. Based on USE Questionnaire, the results showed that the percentage of usefulness 81.2%, ease of use 80.2%, ease of learning 80%, and satisfaction 76%. Therefore, it can be concluded that Poliwangi Jinggo Hotel room reservation system is feasible to use, together with some developments and operation & maintenance process.

Keywords: Poliwangi Jinggo Hotel, reservation system, teaching factory, waterfall model

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Introduction

The development of the hotel industry has been increasing rapidly along with the growth of tourism destinations in Banyuwangi, even though the Covid 19 pandemic caused the drop in almost every tourism sector, including hospitality industry. However, the government policies regarding New Normal Tourism and CHSE-based tourism, especially for the hotel industry, provided like a breath of fresh air in term of recovering the tourism economy (Mutiarin et al., 2021), so that the hotel industry in Banyuwangi during the Christmas and New Year holidays experienced a significant increase in 2023.

The hospitality industry, like any other business, opens up socio-economic opportunities for both owners and customers. This kind of opportunities are beneficial for providing hospitality services to customers such as travelers, foreigners, businessmen, tourists and visitors (Bemile et al., 2014) and (Kotler et al., 2016). Poliwangi Jinggo Hotel or commonly called Jinggo Hotel is an educational hotel which was inaugurated by the Ministry of Research Technology and Higher Education on 18 February 2017. This fourth floor hotel has a total of 53 rooms and equipped with several facilities such as a laundry, café and meeting room. Moreover, it also surrounded by the view of rice fields and Ijen mountain, which were built by emphasizing Banyuwangi local wisdom and to be specific would be used for practicum activities by all the students in Tourism Business Management. As shown in Figure 1, the room category of Jinggo Hotel, Politeknik Negeri Banyuwangi, consist of 2 types, standard superior and twin room.

(a) (b)

Figure 1(a). Superior standard room **(b).** Standard twin room

Along with the development of the industrial revolution 4.0 and society 5.0, vocational students are required to follow and also take part in these developments, especially for the one in hospitality industry, so that Jinggo Hotel will become the pioneer of the TEFA (Teaching Factory) in Politeknik Negeri Banyuwangi. TEFA is one of the learning strategies that designed to enhance competencies and skills of the students, especially in the vocational education. In many various sources, TEFA is always associated with practical learning according to the real conditions or working environment in the industry. Focusing to the real working environment is the most important TEFA requirement, so that vocational education institutions should work together with the industry, both for products and services to bring in quality graduates (Triyono, 2012). In addition, TEFA development needs to be supported by the development of hotel management organizations (Regev, 2017) and (Westcott & Anderson, 2021).

Tourism Business Management, Politeknik Negeri Banyuwangi has done many cooperation agreements with several star hotels in Banyuwangi such as Kokoon, eL-Royale, Santika, Aston, and Luminor simultaneously as the part of student human resources and *Tri Dharma Perguruan Tinggi* activities. Referring to these hotels, Poliwangi Jinggo Hotel as TEFA of Politeknik Negeri Banyuwangi has been made some preparations in term of the infrastructure, however the hotel information system still has not built yet. So far, the reservation process is still carried out manually so that the hotel reservation process is an activity where a customer comes to the hotel to order a room and stay in the room that has been booked (Prabowo & Retnoningsih, 2017). Building a system or application can simplify the reservation process and complies with hotel industry standards. Some hotels also developed web-based applications for room reservation systems, like in these research (Syahab & Kuway, 2018) and (Dewi & Suminten, 2019).

In this study, the research team focused in designing the reservation system for Jinggo Hotel room based on the Bistone Hotel Management System application, starting from room type settings, room rates, services, guest input, reservation, and printing out invoices and receipts. It should be done properly since Jinggo Hotel will be operated as a TEFA in Politeknik Negeri Banyuwangi this year. Several previous studies were used as references related to planning the hotel room reservation information system, such as in these papers (Prasetyo, 2015), (Akazue, 2016), and (Muliadi et al., 2020).

Methodology

This research is conducted using the waterfall model, to be specific there are five stages in the Waterfall Method, such as Requirements Analysis and Definition, System and Software Design, Implementation and Unit Testing, Integration and System Testing, and Operation and Maintenance (Sommerville, 2013). The next step is to evaluate the reservation system after being tested using the USE Questionnaire involving 30 respondents from academia and students who are familiar with hotel/ front office department information systems.

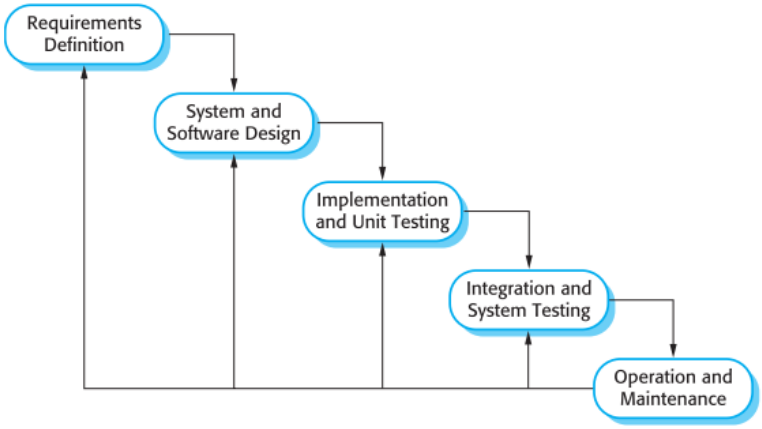

Figure 2. Waterfall model (Sommerville, 2013)

According to the Figure 2 which waterfall model consists of the five steps, it can be described as follows:

Requirement Analysis and Definition

Before carrying out software development, a developer should know and understand about the information needs of users related to the software. The method of information collection can be obtained in many various ways, including discussions, observations, surveys, interviews, and so on. The information obtained are processed and analysed in order to acquire complete data or information regarding the specification of user requirements, as for the software to be developed.

System and Software Design

Information regarding the requirements specifications from the Requirements Analysis stage is analysed subsequently, to be implemented in the development design. Design planning is carried out to provide a completed "big picture" of what must be done. This stage will also help developers to prepare hardware requirements in making the overall software system architecture.

Implementation and Unit Testing

The implementation and unit testing are the programming stages. Making the software is divided into small modules which will later be combined in the next stage. In addition, at this stage testing and checking are also carried out on the functionality of the modules that have been made, whether they meet the desired criteria or not.

Integration and Unit System Testing

After all the units or modules that have been developed and tested, then the implementation stage is integrated into the overall system. Later when the integration process is completed, further inspection and testing of the system is carried out thoroughly to identify possible system failures and errors.

Operation and Maintenance

In the final stage of this Waterfall Method, the finished software is operated by the user and maintenance carried out subsequently. Maintenance allows developers to make improvements to errors that were not detected in the previous stages. Maintenance includes repairing errors, repairing the implementation of system units, and upgrading and also adjusting the system as needed.

In this study, the software used by researchers to design Jinggo Hotel room reservation system is the Bistone Hotel Management System, because the system design is still offline-based which includes setting unit room type, room rate, services, room/beds, and reservation.

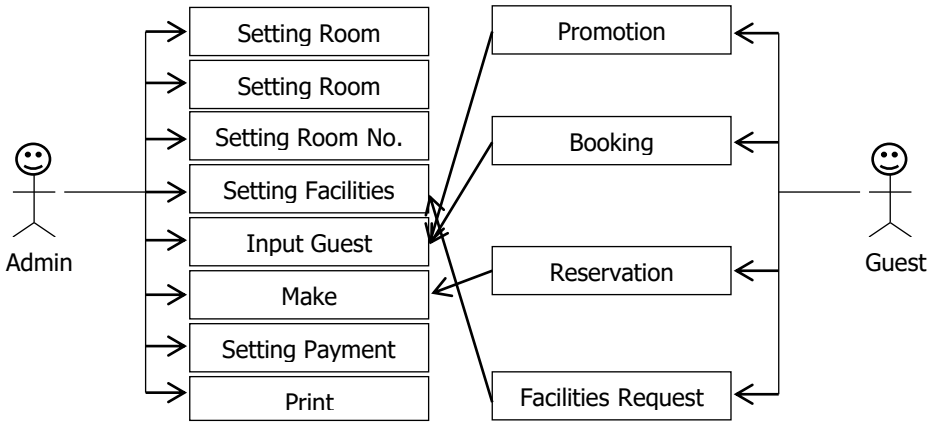

Figure 3. Use case diagram of the application content

Based on Figure 3, a simple logic can be seen in this reservation system which will be designed and made for the development of the hotel system here. In this case, the admin also acts as a receptionist considering that the application is designed to ease to use and reliable.

Results and Discussions

Results

Based on the discussions, observations, surveys, and interviews with several human resources managers and related parties such as the Head of the Laboratory and the Head of the Jinggo Hotel, applying the waterfall model will produce several results in term of planning and development of the reservation system, as follows:

1. Login page

   First of all, the user (receptionist) must log in to the system before entering the start page. Based on Figure 4, for the default user, fill in Admin and leave the password blank then click login to enter the start page because the system is still in the design and development stage.

Figure 4. Login page

2. Setting Room Type

   After entering the home/landing page, the first step is to set the room type, add room type and enter information according to the needs and availability of Jinggo hotel rooms (Standard Room and Twin). In Figure 5, the dialog box displayed for Add RoomType which contains Name, Max AdultNo., Max Child No., Max Infant No., Code, Bed Type, and Smoking Allowed.

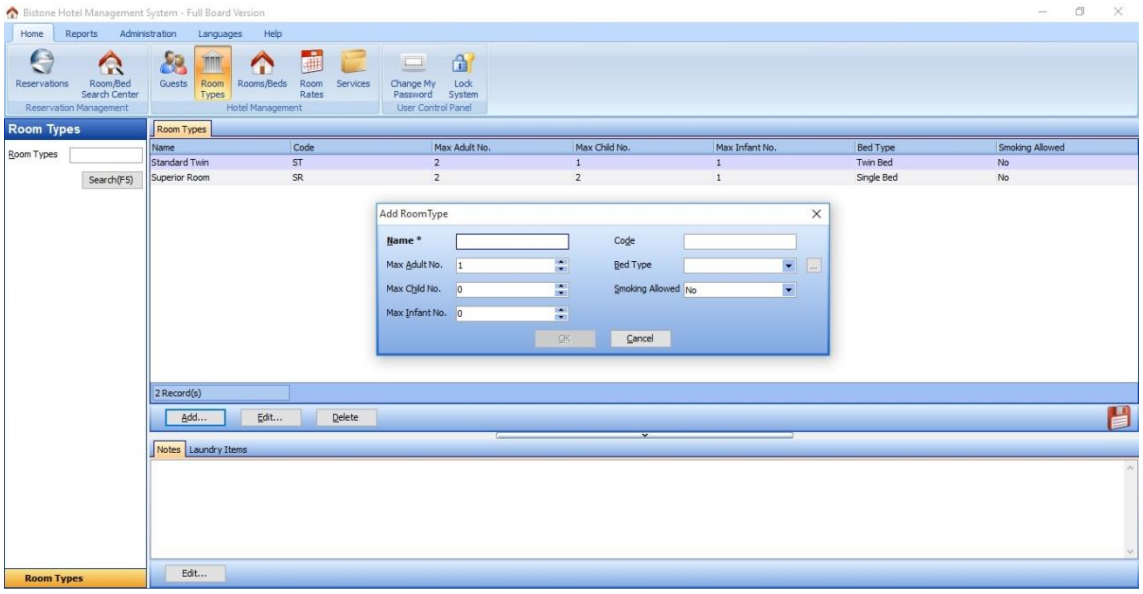

Figure 5. Room type page

3. Setting Room/Beds

Figure 6 show the setting room or beds. This menu is similar to the room types, the difference is that on this menu you will be given a room name and room number. Jinggo Hotel has 5 standard type rooms named Jinggo 1-Jinggo 5 (Room Number: 201-205) which is located on the second floor, this room is often called the VIP Room so that the system also writes it as Superior Room. Meanwhile, on the third and fourth floors there are 48 rooms with the type of twin room and in this system they are named Sayu Wiwit 1-Sayu Wiwit 24 (Room Number 301-325) for the third floor, and Tawang Alun 1-Tawang Alun 24 (Number 401-425) for the fourth floor.

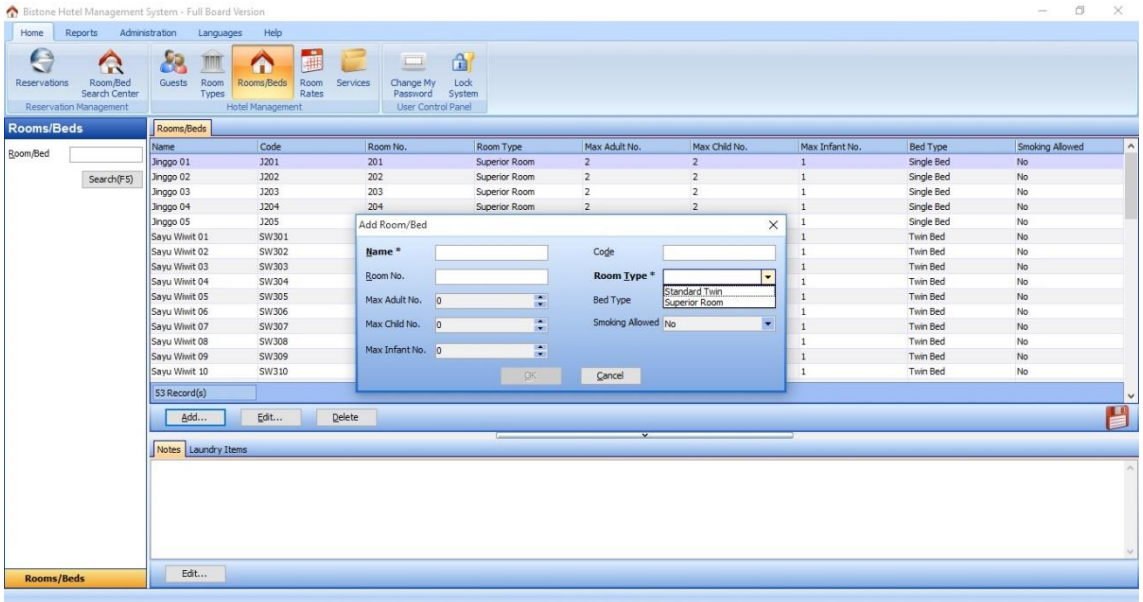

Figure 6. Room/ beds page

4. Setting Room Rate

The next step is to set the room rates, based on Figure 7 the prices are categorized into two, Rack Rate (week day prices) and the Best Available Rate (BAR) Rate (weekend prices), because the prices listed can still be changed according to policies and needs.

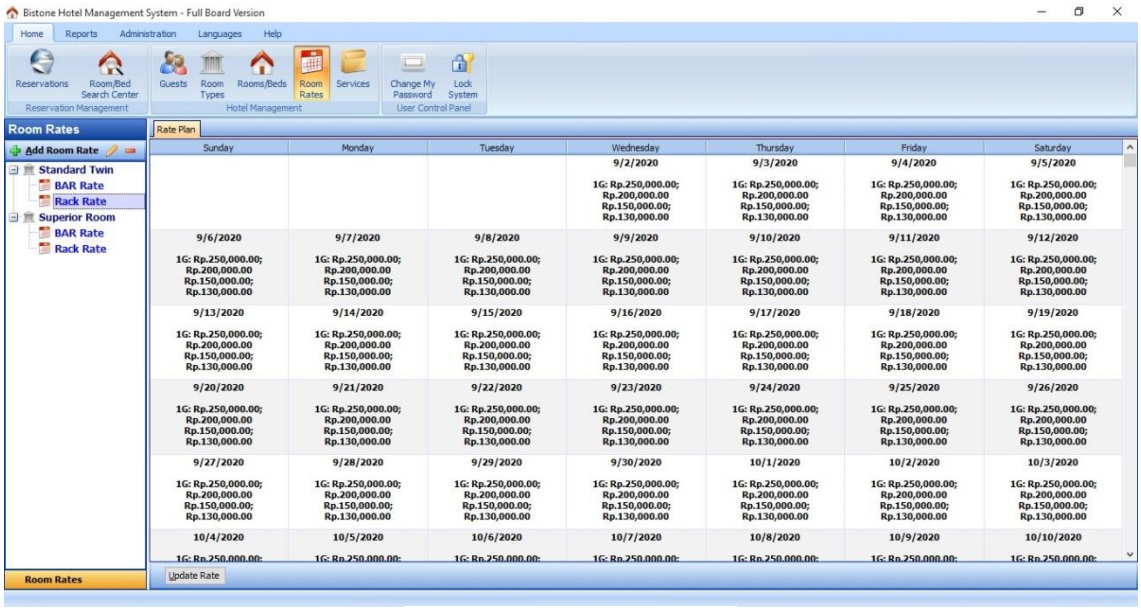

Figure 7. Room/ beds page

5. Input Guest

The following stage is guest input, in which there are some information such as Name, Gender, Code, Company, Email, Phone1, Phone2, Identifier, and Guest Type. Figure 8 showed a list of guest names as a form simulation of initial data input regarding the system.

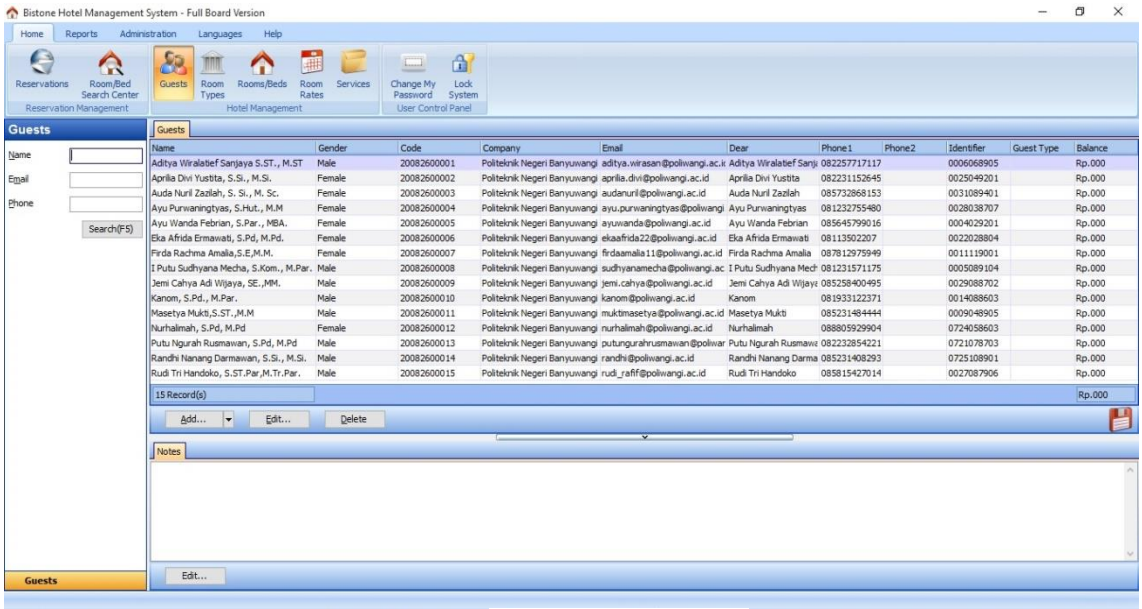

Figure 8. Guest page

6. Setting Services

On the following menu, namely services, contained a menu to input several services available at Jinggo Hotel, including F&B services, Laundry, and Live Music. Based on Figure 9, an example of the services available at Jinggo Hotel and their rates can be seen.

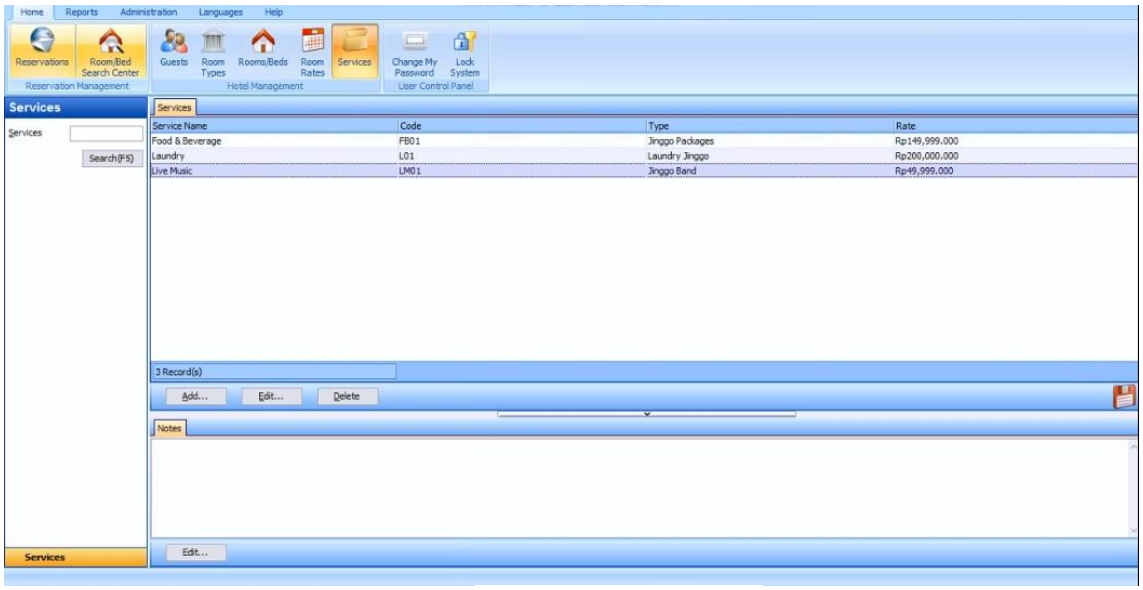

Figure 9. Services page

7. Reservation Simulation

After making some settings, the next step is the reservation process using simulations of several gust lists that have been previously added. Based on Figure 10, on the reservation menu the process began by selecting Add a new Add Reservation window, then some information will be appeared and needs to be inputted correctly by a receptionist, which specified with the information marked with an asterisk (*) such as Code, Status, CheckIn, Check Out, Room, and Guest Name, and Add Services if needed.

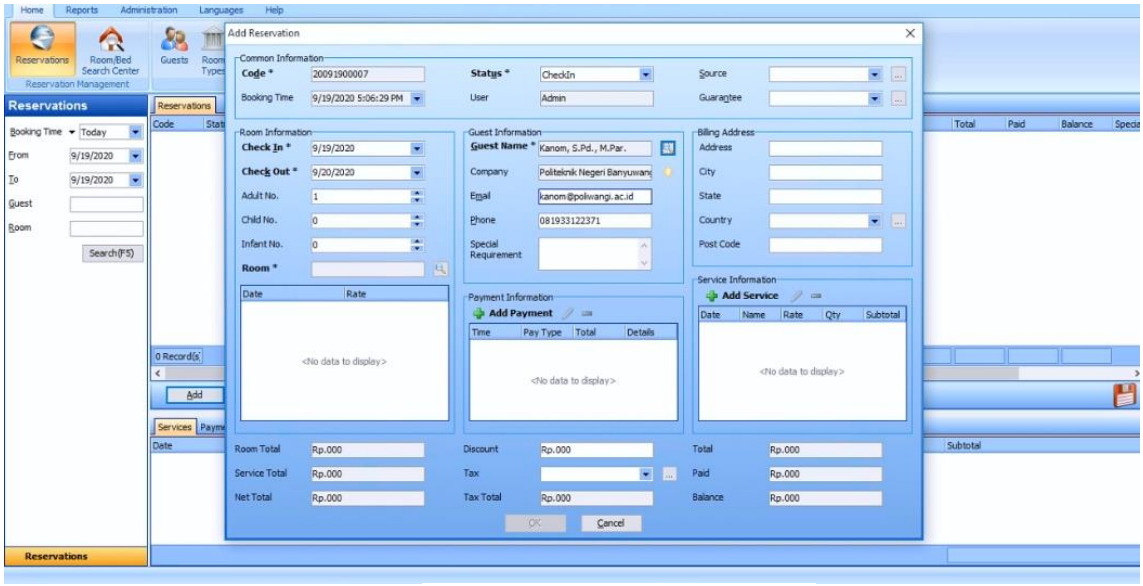

Figure 10. Add reservation page

After all the Add Reservation processes have been filled in, the reservation page will appear as shown in Figure 11 where Net Total, Discount, Tax, Total, Paid, and Balance are listed according to the room, length of stay, and services. The following step is to select Print Invoice to get an Invoice or select Print Receipt to get a Receipt, which is provided in pdf format.

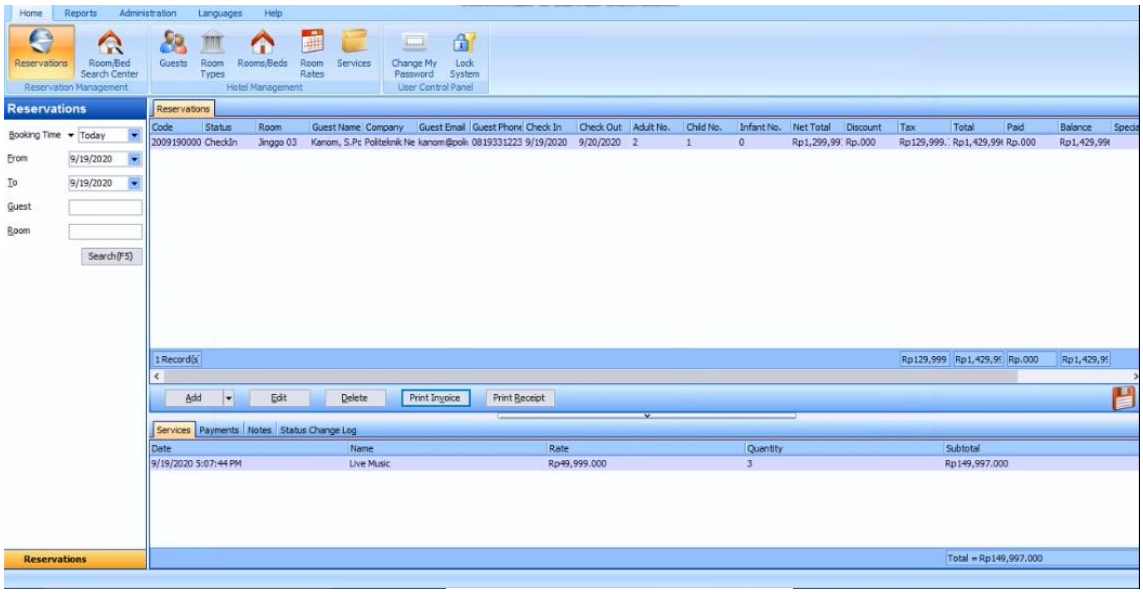

Figure 11. Reservation page

Discussion

Setting design of the Jinggo Hotel room reservation system was conducted using the Bistone Hotel Management system which has been implemented previously, and tested using quantitative approach based on 30 respondents from academia and students at Politeknik Negeri Banyuwangi, focusing to whom were often involved and used the Jinggo Hotel room facilities, by adapting the USE Questionnaire (Lund, 2001). The results can be seen in the Table 1 below.

Table 1. USE questionnaire (Lund, 2001)

No	Criteria	Average likert scale
Usefulness		
1	It helps me be more effective.	4,0
2	It is useful.	4,5
3	It makes the things I want to accomplish easier to get done.	4,2
4	It saves me time when I use it.	4,1
5	It does everything I would expect it to do.	3,5
Average		*4,06*
Ease of Use		
6	It is easy to use.	4,5
7	It is simple to use.	4,2
8	It is user friendly.	4,2
9	It is flexible.	4,1
10	Using it is effortless.	4,0
11	I can use it without written instructions.	3,7
12	I can recover from mistakes quickly and easily.	3,5
13	I can use it successfully every time.	3,9
Average		*4,01*
Ease of Learning		
14	I learned to use it quickly.	4,0
15	I easily remember how to use it.	4,0
16	It is easy to learn to use it.	4,0
17	I quickly became skillful with it.	4,0
Average		*4,0*
Satisfaction		
18	I am satisfied with it.	3,5
19	I would recommend it to a friend.	3,5

20	It is fun to use.	4,0
21	It is wonderful.	4,0
22	It is pleasant to use.	4,0
Average		3,8

Based on Table 1, the design of the Jinggo Hotel room reservation system had a good rating with the aspects of usefulness = 81.2%, ease of use = 80.2%, Ease of Learning = 80%, and Satisfaction = 76%, and can be seen in more details below in Figure 12.

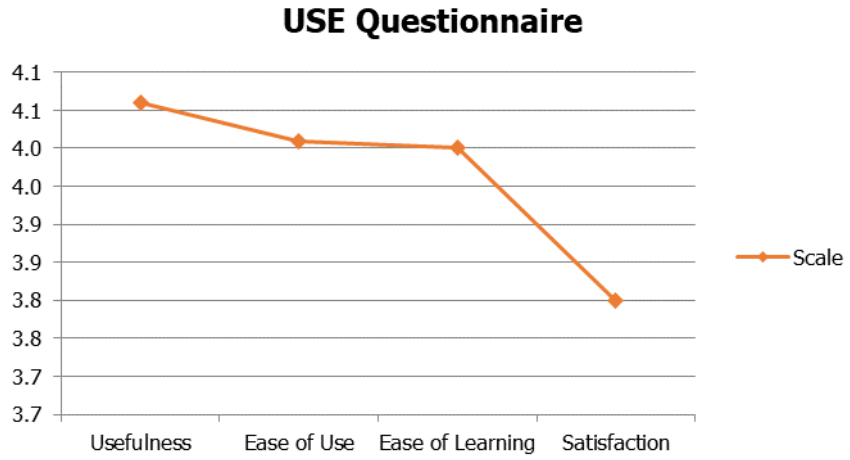

Figure 12. Results of USE questionnaire

Based on Figure 12, it can be seen that the four evaluation criteria showed a good value, and can be categorized as feasible (Ernawati, 2017). However, there are several things that need to be improved in terms of the satisfaction criteria which shows an average value of 3.8 which indicates the need for improvement. Considering that Jinggo Hotel room reservation system is still in the initial design stage and operates offline, so it is necessary to design and implement it by online in near future. Jinggo Hotel will operate as a TEFA of Politeknik Negeri Banyuwangi and all the needs should be taken into account. Besides that, the satisfaction criteria experienced a score below 4, because most of the respondents are familiar with the hotel system in the hospitality industry such as VHP, Power Pro, and HotelMu.

Conclusions

The design of the Poliwangi Jinggo Hotel room reservation system with a waterfall model approach based on the Bistone Hotel Management System application has already done and refer into some important points. The first is the hotel room reservation system application that has been carried out, is a desktop application that works perfectly on the Windows operating system, and the initial login page as the initial design is still by default. There are seven menus that are used to design the Jinggo Hotel room reservation system, starting from setting room type, room rates, room/beds, room/beds search center, services, guests, and reservations. All of those have been set according to the results of observations, interviews, and the real conditions of Jinggo Hotel. For the process of inputting guest data, reservations, and printing out invoices, the receptionist will not have too many difficulties considering that the application that has been designed is easy to use and reliable. The sesond is the feasibility evaluation of Jinggo Hotel room reservation system was conducted by quantitative approach with 30 respondents using the USE Questionnaire, so the results can be concluded as follows, Usefulness = 81.2%, Ease of Use = 80.2%, Ease of Learning = 80%, and Satisfaction = 76%. Based on those, the design of room reservation system was included into the feasible category, even though from the satisfaction aspect was still below 80%, and this aspect needs to be enhanced for the next system development.

Many studies and research are still needed to build and develop the system for Jinggo Hotel room reservation, noting that the satisfaction aspect which was still below 80%. So basically, some similar research focusing on reservation systems can be a perfect fit, especially the one which explained about reservation system in more details, that are already connected online and collaborated with third party, such as travel agents.

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