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**College of Informatics and Computing Sciences**

# **FINAL PROJECT DOCUMENTATION**

**CS121: ADVANCED COMPUTER PROGRAMMING**

Submitted By:

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**IT – 2102**



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## **I. PROJECT OVERVIEW**

- The system aims to help the community in finding and reserving a room not only when they want comfort but also in times of need. As I observed, especially in rural areas, there are hotel rooms but they are sticking to the traditional way of accommodating guests, no modern reservation mode was used, no automation, pure paper and writings made their records. When people, travelers, tourists or even evacuees who want better comfort, did not have any assurance if they will be accommodated because they did not have a reservation. There is always the fear that there might be no hotel available to stay in because the reservation was not made, and it would be hard to go there and book a manual reservation due to the distance. That is why using this system assures most travellers, tourists, evacuees a room when they need it. The system will start the change especially in the rural areas wherein automated transactions were not yet utilized. People can start exploring the advantages of innovation of technology and use a system like this, (RoomRadar: A Room Reservation System) for their needs, wants and all things associated with it.
- **Included Features:** The system uses Tkinter which is vital for the creation of graphic user interface, alongside with it are the module inside Tkinter with the likes of \*, ttk, messagebox, timedelta and datetime. It also uses mysql.connector which is essential in order to connect the program to a database in the sql language that ensures smooth collection and saving of data from the users. This system is designed to accept reservations from users, and let them choose their desired room. They are also allowed to view those reservations to be aware of the other dates. An admin dashboard that consists of view reservation, guest and rooms is also provided wherein they can delete unnecessary or out dated reservations.
- **Excluded Features:** Areas outside the scope to manage expectation. The system did not use functions like predefined math functions for the computations. Also those iterative structures like while loop, do-while loop for loop and nested loop. The system did not focus and did not include the functions of giving travel tours, offering car rentals, suggesting beautiful tourist spots or any other exterior offers aside from hotel room accommodation.
- **Target Users:** The intended audience. This system focused more on giving ease to tourists or people going to rural places as the modern technology is not yet utilized. Using this, tourists and travellers can enjoy the fun adventure without worrying about the place to rest after enjoyment. Also, this system is essential and open to evacuees when a worse scenario comes like eruption of volcano, typhoon or other disaster as they can ensure a safe place to go to before they leave their houses. This is an essential system that accommodates any user who wants to assure their place to rest.



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- State the specific, measurable outcomes the project aims to achieve. Use SMART criteria (Specific, Measurable, Achievable, Relevant, Time-bound).

*"To reduce the processing time of manual reservation by 20% within the first three months of implementation by maximizing database queries and automating customer reservation."*

*"To help increase the tourist rate by 10% and tourism growth in areas with hotel rooms that are implementing secure reservation using the system in a span of 1 year after implementation."*

*"To promote the use of automated services, especially the RoomRadar room reservation system that creates a huge impact to the majority of an estimated 50 people that book a room manually in a three month span."*

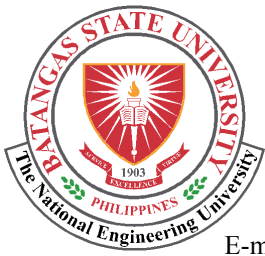
## **II. PYTHON CONCEPTS AND LIBRARIES**

### **Python Tkinter**

In the system, Python Tkinter was used to create a graphic user interface. GUI are the display like text with colors, buttons, message box and other more unlike just pure letters in a console program. Tkinter is a python module that allows programmers to create a more interactive system that consists of buttons, different designs and advanced features. It also provides an aesthetically pleasing environment for the users. Inside Python Tkinter, there is "tk" used to avoid redundant usage of the word tk, when accessing Tkinter functions, "messagebox" for the display of pop-up messages, "datetime" for date and time manipulation and "timedelta" for adding of subtraction days. Using Python Tkinter, users had a better experience of viewing the system with the ability to click different buttons and feel like using a website. Also, it adds up to the beauty of the system created.

### **MySQL**

MySQL plays a vital role in the creation of databases in the system. This is the language used to create tables, attributes, records of the connected database to the system. Using MySQL, the need for a database of this system was accomplished and the interaction of data reservation is smooth. This enables the system admin to manipulate the data. Under MySQL, mysql.connector was imported in order to connect the python program to the database created. Also, from mysql.connector, Error was imported from mysql.connector to handle errors related to MySQL database operations. Using all of these functions of MySQL, there is no need for a manual or written creation of records that consume a lot of time and resources. The system is smooth and easy to manage with the use of modern databases using MySQL.



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**III. SUSTAINABLE DEVELOPMENT GOALS**

**SDG 9: Industry, Innovation, Infrastructure**

The system is associated with a digital approach that allows a no-appearance reservation by the user and secures anything indicated in the reservation. It promotes innovation especially in rural areas wherein there are numerous hotels but guests cannot assure the reservation until they book it personally which is time consuming and not practical. The automation of this system enhances operational efficiency, reducing reliance on manual processes and minimizing human error, which is a vital part of innovating and modernizing transactions. As it introduces digital tools like automated no-appearance booking and digital data manipulation most of the people will use this type of digital reservation because it is less hassle and not time consuming. Admin or owner of the hotel rooms will also be having an easy time of gathering customers and recording reservations. As this system of innovation emerges, the modern time of technology grows for more and for the better. Not only for the wants of users, but most especially for essentials of different people who need comfort and accommodation.

**SDG 8: Decent Work and Economic Growth**

Integration of innovation and business leads to the growth of the economy. The system provides an opportunity for businesses to bloom with the use of a system like this. Using this system encourages most businesses to embrace e-commerce and online services that are important for the uprise of industry. Many people tend to try new things connected with staying in a hotel room because they are assured a place to rest after even the trip is unexpected. When people see a chance like this, the likes of the tourism department rises because people will be more engaged to travel and explore once there is a platform like this. As more travelers and tourists become part of the economic interactions, many opportunities are on the way which is a vital factor of progression and economic growth. By the use of this system, hotels especially those located in rural areas which are not yet using automation and digital reservation can cater to a broader customer base, including international visitors, increasing their market reach and fostering economic integration. Additionally, the data insights provided by the system can help hotels refine their marketing and pricing strategies, improving financial stability and ensuring long term growth.



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**IV. PROGRAM/SYSTEM INSTRUCTIONS**

1. Make sure to download all the necessary development tools needed to operate the system. An IDE like Vscode is a must to be able to run, debug and edit the system to a successful operation. Also, a local server environment like xampp is needed to connect this program to the database created and use that to save all the reservation of the system.
2. After downloading those tools, paste the source code to the IDE or just open the file.
3. Once done setting up the IDE, go to xampp and start MySQL to enable the connection of the database when it is not started, the program still run but the reservations will not be saved on the database and Apache if you want to view the tables of the database using the browser/phpmyadmin).
4. Once those two are already set, the user can start running or debugging the program, just click the triangle button on the upper right part of the IDE, when it does not have an error, then it will proceed to the system interface or the program's main dashboard.
5. If the user already reaches the main dashboard, they will see different labels and buttons that contain the function of the system.
6. Users will see the buttons named, the STANDARD, SUITE, DELUXE which refers to the room types that user can choose from, the ADMIN wherein base on its name, it is for the admin and they can manipulate the reservations, also there is the HISTORY RESERVATION that will display the current reservation in the database that can help user in choosing their preferred dates.
7. When the user clicks the button STANDARD or SUITE or Deluxe, they will proceed to another window showing different rooms inside the category or type they choose. The user can choose which one they want and click it.
8. After clicking the button beside the room and its features, another window will appear and the user will input their information that is needed to reserve a room then they will click submit.
9. Once submitted, and there is no error like invalid format of date, or having the same date of reservation, the program will display another window containing the full details of the reservation and it means that it was successful and already saved in the database( if MySQL in xampp was started, if not, it will not be save).
10. If the user wants to check the reservation, they can check it by clicking the HISTORY RESERVATION button.
11. For the ADMIN button, once it is clicked, a window showing admin login shows up and the admin needs to type their username and password to enter the admin dashboard.
12. if the input of admin is correct and they clicked login, the admin dashboard will show up and there, the admin can see the button VIEW GUEST, to see who are the guests who booked a reservation, VIEW RESERVATION, to see the date of reservation, guestID of guest who reserve that specific room and roomID of the room they choose. Lastly, the VIEW ROOM to see the different rooms.
13. The admin has the ability to delete guest, reservation and room, they just need to click the delete button shown in the lower part of the window once they click VIEW GUEST or VIEW RESERVATION or VIEW ROOM.
14. After all of those, the user successfully explores the system and hopes they enjoy using it and find the comfort they want by reserving their desired room.