"Hotel and Restaurant Booking Simulator"

A non-thesis Project
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In Partial Fulfillment
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APPLICATION DEVELOPMENT AND EMERGING TECHNOLOGY

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TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION

In this chapter, researchers will delve into the essential aspects of the project that provide a comprehensive foundation for the project ahead.

Project Context

People's lives revolve around technology. This way of life is sometimes referred to as the *Digital Age*. The digital age is defined as the current environment in which digital media and technologies are complexly present within all spheres of life (Ferreira et al., 2021). This period resulted in the production of various types of systems and applications which are now heavily used by people all over the world. Despite this, it's far from perfect and some gaps are still present, especially in the fields of hotel and restaurant related business and education which, fortunately, leaves room for improvements and possibilities.

The researchers are proposing the Hotel and Restaurant Booking Simulator which will assist and guide students that are in the hospitality industry such as hotels and restaurants. This system will also train students to handle socialization with customers in a professional manner which

will be helpful in their career paths later on. In the study conducted by Ahlawat (2022), it found several major gaps between hospitality industry and hospitality education, and it included lack of communication skills among students. The reasons were lack of experienced faculties in institutions, outdated curriculum, lack of modern infrastructure, lack of research and development facilities in institutions, and lack of innovative teaching methods.

The Hotel and Restaurant Booking Simulator is an innovative solution for teaching. The system will generate a roleplay scenario between a customer and the student to attempt real-life socialization. The roleplay scenarios will usually be composed of actors, such as students and instructors. The student will roleplay the customer and the other student will play the hotel or restaurant staff. This simulated interaction mirrors real-life situations where customers make reservations, ask questions, or request services through the system. This will improve the students' communication and technical skills and are much better than learning through textbooks. In a study by a Harvard staff writer, Siliezar (2021), students learn better by engaging them physically. Which means simulation-based learning is ideal.

Objectives

This study aims to develop hotel and restaurant booking simulator for the College of Bachelor of Science in Hospitality Management to simulate scenarios suitable for both instructors and students to use and learn from.

Specifically, this study has the following objectives to:

- Allows users to practice skills that need improvements by using the system's simulator mode (e.g., multitasking by communicating with clients and entering information into the system at the same time).
- Make the system accessible on several platforms at once, enabling users to replicate real-time restaurant and hotel reservations anytime, anywhere and with any device available.
- Provide the users with two simulator modes to choose from that concentrate on teaching either restaurant reservations or hotel bookings.
- Design a simple and user-friendly interface that is easy to use and comprehend for users of all computer literacy levels.
- Offer the users an alternative modern way of teaching basic knowledge about hospitality education that is aligned to the modern age. Traditional ways of teaching

are often outdated, limiting the learning possibilities.

Scope and Limitations

Hotel and Restaurant Booking Simulator, aims to provide a holistic educational tool for students pursuing a Bachelor of Science in Hospitality Management. Taking inspiration from Smith's (2018) research on the importance of hands-on learning in hospitality education, the project's primary objective is to create an immersive simulation environment that faithfully replicates hotel and restaurant booking procedures and guest services. Which underscores the effectiveness of simulation-based learning in enhancing students' comprehension and engagement within the hospitality field. The application will boast a user-friendly interface, which emphasizes how user interface design can significantly impact customer satisfaction and the success of hospitality applications. It will encompass a comprehensive venue database, drawing from Walker's (2018) research that champions the benefits of centralized databases in enhancing operational efficiency and guest services.

The reservation system will empower students to book rooms or tables and manage check-in/check-out processes, mirroring Smith's (2018) insights into the impact of

reservation systems on hotel occupancy and revenue optimization. The project will simulate payment processing and billing procedures, The role of financial management in sustaining and growing hospitality businesses. Furthermore, the simulation will include guest services, to emphasize the importance of delivering excellent service and its positive impact on customer loyalty and business success.

However, the project does come with certain limitations. Firstly, it exhibits an inherent reliance on the internet, as some features, like data synchronization, may still necessitate an internet connection, making it fall short of the goal of complete offline functionality (if Applicable). Additionally, the simulator might not fully encapsulate all the dynamic variables that can affect real businesses, as mentioned by industry experts like Johnson (2018), including local economic conditions, seasonal variations, and unforeseen events. Furthermore, the application's venue database may become outdated over time, potentially leading to inaccuracies due to the dynamic nature of the hospitality industry, as identified by Thompson (2018). Additionally, the guest feedback system may not fully represent the intricacies of actual customer feedback, has underscored the complexities in interpreting and effectively responding to guest feedback. Lastly, the

project may not entirely replicate the intricacies of large-scale hospitality operations and may not encompass every facet of hotel and restaurant management, as noted by Turner (2018) in the context of limitations in simulation-based learning. These limitations should be taken into consideration when using the application as an educational tool, with room for exploring potential solutions or future enhancements.

Definition of Terms

To enhance clarity and facilitate comprehension, the subsequent terminology is conceptually and operationally elucidated:

Database – The system will access the database to make use of the CRUD functions needed by the system to perform its functions.

Reservation Confirmation – The system-generated notification or confirmation message sent to users after a successful booking. This feature aims to reassure users and provide them with essential details about their upcoming stay or dining experience.

Transaction security – Safeguards sensitive user information, such as credit card details, personal identification, and other financial data. This

protection is vital in preventing unauthorized access, identity theft, and fraud.

System Simulator – Provide a controlled and flexible environment for testing, analyzing, and optimizing complex systems, ultimately contributing to better decision-making, reduced risks, and improved overall system performance.

User Recommendation - This feature enhances the booking simulator by tailoring recommendations and services to the specific needs of each user.

CHAPTER 2. REQUIREMENTS SPECIFICATION

This chapter elucidates the specific criteria, features, and functionalities essential for the successful realization of our project.

Hardware and Software Requirements

Software Requirements

Visual Studio Code – This will be used as the text editor. Version 1.83.1 or higher is required.

CodeIgniter – The framework used is required to be in Version 4.

Microsoft Edge – In fact, any browser is alright to use, but the latest version is mostly recommended.

Windows – Version 7 to 10 64-bit.

Laragon – Version [php-8.1.10-Win32-vs16-x64]

PHP – To implement the project, PHP language will be used. Version 7 to 8.2 is required.

Vue – No fixed version is required but installing patch releases and updates are recommended.

phpMyAdmin – Latest version is required.

Hardware Requirements

Memory - To handle the expected workload, it's essential for the server to possess an ample amount of memory resources. 4gb of RAM is required to run the system but 6gb of RAM is recommended for better performance.

Storage – (If applicable) The system will require 200mb and an additional 50mb of free space for future updates as an application. Otherwise, in a pc, 200mb to 1gb is needed to store and manage data. More may be needed depending on the size of the system.

Server/s – Researchers will need one or multiple servers to implement the system.

Functional Requirements

General (All Users):

1. Users can access the hotel and restaurant booking simulator.
2. Provide a user-friendly interface for easy navigation.
3. Allow users to search for hotels and restaurants by location, date, and other

criteria.

4. Display information about available hotels and restaurants, including name, location, ratings, and prices.

5. Users can view detailed information about a specific hotel or restaurant, including photos, descriptions, and amenities.

Guest (Unregistered Users):

1. Guests can browse available hotels and restaurants.

2. Allow guests to view general information

Student:

1. Students can register for an account using their name, email, and password.

2. Authenticate with their name and password.

3. Users can reset their password if forgotten.

4. Maintain user profiles, including contact information.

5. Students can book hotels and restaurants for personal use.

6. Specify check-in and check-out dates for hotel bookings.

7. Specify the date and time for restaurant

reservations.

8. View available rooms or tables and their prices.

9. Confirm and pay for hotel and restaurant bookings.

10. Receive booking and reservation confirmations via email.

Instructor:

1. Instructors can register for an account using their name, email, and password.

2. Authenticate with their name and password.

3. Users can reset their password if forgotten.

4. Maintain user profiles, including contact information.

5. Instructors can book hotels and restaurants for educational purposes.

6. Specify check-in and check-out dates for hotel bookings.

7. Specify the date and time for restaurant reservations.

8. View available rooms or tables and their prices.

9. Confirm and book hotel and restaurant

reservations.

10. Receive booking and reservation confirmations via email.

Admin:

1. Admin can manage user accounts, roles, and access control.
2. Monitor the system for misuse, abuse, and fraudulent activities.
3. Handle disputes and issues between users.
4. Access system-wide analytics, including booking trends and user statistics.
5. Review and manage hotel and restaurant listings.
6. Admin can add, update, or remove hotels and restaurants from the system.
7. Admin can handle user account-related issues, including password resets.
8. Receive notifications about system-wide activities and issues.

Non-Functional Requirements

Operational Requirement

Availability - The system must remain accessible around the clock to enable users to make

reservations at any time.

Maintenance Window: Scheduled system maintenance should be conducted during low-traffic periods to minimize disruption.

User Support - Assistance for users, including a helpdesk and online support, should be available during college operational hours.

Performance Requirement

Response Time - The system needs to provide swift responses, ensuring that most operations are completed within 5 seconds to facilitate a seamless and efficient booking process.

Scalability - The simulator must accommodate a growing user base and increasing bookings without a significant performance decline, including handling peak loads during special events and holidays.

Concurrent Users - The system should support a high number of concurrent users, especially during peak booking periods.

Load Testing - Rigorous load testing is essential to guarantee that the simulator can handle peak usage without compromising performance.

Security Requirement

Data Backup and Recovery - User data and reservation information must be regularly backed up to prevent data loss, with a robust recovery plan in place in case of system failure.

Data Security - User data, including personal and payment details, must be safeguarded through encryption during transmission and secure storage.

User Authentication - Secure login procedures and access controls are necessary to prevent unauthorized access to user accounts and booking data.

Transaction Security - Payment transactions should be conducted securely with industry-standard encryption protocols, and compliance with the Payment Card Industry Data Security Standard (PCI DSS) is mandatory for handling credit card information.

Privacy Compliance - Compliance with relevant data protection regulations, such as GDPR, and the inclusion of data management mechanisms for users, including the option to opt out of marketing communications, are imperative.

Security Auditing - Implementing logging and

auditing mechanisms is essential to monitor user activities for security and forensic purposes.

Cultural Requirements

Multilingual Support - The system should be capable of accommodating multiple languages to cater to a diverse user base. Users should be able to select their preferred language for the user interface.

Currency Support - The system must be able to display prices and process transactions in various currencies to serve an international audience.

Cultural Sensitivity - The content within the system, including images, descriptions, and policies, should be culturally sensitive and respectful of cultural norms and traditions.

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