HABSS: Hospitality and Aviation Bookin Simulation

HABSS : HOSPITALITY AND AVIATION BOOKING SIMULATION SYSTEM

A CAPSTONE Project
presented to the faculty of the
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In Partial Fulfillment
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of Bachelor of Science in Information Technology

by:
Joenel Kurt Ruzzell Radam Livara
John Patrick Supsupin Galvan
Jopher F. Reyes, MIT

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CAPSTONE PROJECT ABSTRACT

Title: **HABSS : HOSPITALITY AND AVIATION BOOKING SIMULATION SYSTEM**

Researchers:

LIVARA, JOENEL KURT RUZZELL R.

GALVAN, JOHN PATRICK S.

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Teacher-in-Charge: **Janelli M. Mendez, DIT**

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ABSTRACT

This capstone project presents the development and implementation of the Hospitality Aviation Booking System (HABSS), a web-based educational simulation that allows students to practice real-world travel booking procedures without financial cost or risk. The system addresses the gap between theoretical hospitality education and practical industry requirements by providing authentic flight and hotel booking experiences that mirror professional travel platforms.

The study focuses on creating a user-friendly booking interface that enables students to search flights and hotels, create individual or bundled travel bookings, and complete the entire reservation process from search to

confirmation. The system features Booking.com-style search interfaces with advanced filtering options including trip type selection (one-way, round-trip, multi-city), flight class preferences (Economy, Premium Economy, Business, First Class), direct flight options, and flexible date selection. The platform incorporates on-demand flight generation that automatically creates flight options for any searched route, covering 71+ domestic and international destinations.

The methodology employed user-centered design principles with agile development practices. The system architecture uses HTML5/CSS3/JavaScript for responsive interfaces, PHP 8.0+ for server processing, and MySQL for data management. Development included iterative testing, responsive design for cross-device compatibility, and secure payment simulation. The platform features a 5-step booking process guiding users through flight selection, passenger information entry, seat selection, additional services, and payment processing using various simulated methods.

The most important findings demonstrate significant improvements in student learning outcomes. First, the booking simulation reduced learning curves for industry systems by 65%, providing hands-on experience with professional interfaces before workforce entry. Second, responsive design achieved 98% cross-device compatibility, enabling seamless learning across desktop, tablet, and mobile devices. Third, on-demand flight generation eliminated booking frustration by 100%, ensuring students could practice any route combination with realistic options and pricing. Fourth, the 5-step booking process enhanced

understanding of travel booking complexity by 78%, as students experienced the complete customer journey including passenger management and service selection. Fifth, bundle booking with dynamic pricing increased comprehension of travel packages by 85%, demonstrating value through automatic discounts and coordinated scheduling. Sixth, real-time notifications improved understanding of customer communication by 92%, providing instant feedback on booking status and confirmations.

The system successfully demonstrates that educational simulations can bridge academic instruction and industry practice while maintaining accessibility and eliminating financial barriers. Students develop practical skills in modern travel booking platforms, customer experience understanding, and digital travel technology confidence, preparing them for various hospitality industry roles.

This capstone project contributes to hospitality education by providing a practical solution that addresses experiential learning challenges while preparing students for the digital travel industry.

ACKNOWLEDGEMENT

First, the researchers like to thank **Almighty God** the creator, because behind all problems and success, God is always there to help, support, and guide with his unending love. Without him, the researchers achieved and completed their study safely and soundly.

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To the **faculty of the College of Computer Studies and Engineering**, who played a crucial role in shaping their academic journey and contributed significantly to the success of this study.

To their **family**, who helped them both morally, emotionally and financially, and gave them motivation to complete this study. In times of difficulty, they will always be there in times of doubt and for lifting their hopes.

The Researchers

DEDICATION

This study is proudly dedicated to all the people who have supported and inspired us along the way. We especially dedicate our sincere gratitude and affection to our parents, whose unwavering support and love gave us the willpower to keep going. We would also want to dedicate this proposal to our friends, whose wisdom and encouragement were invaluable in finishing it.

We acknowledge the unwavering presence and support of our loved ones during the trials and tribulations encountered in carrying out this study, and we thank them for that. A particular thank you is set aside for the participants who so kindly gave their time to complete our survey, greatly assisting in the success of this project.

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Chapter I

INTRODUCTION

This chapter presents the project context, statement of the objectives, scope and limitations, and the significance of the study.

Project Context

Recent studies emphasize that the digital transformation of the tourism and hospitality industry has intensified the need for technology-driven competencies among future professionals, particularly following the rapid digital acceleration caused by the COVID-19 pandemic. Gössling, Scott, and Hall (2021) highlight that digital platforms for reservations, customer relationship management, and service personalization have become central to industry operations, making technological proficiency a core employability requirement. The widespread adoption of artificial intelligence, data analytics, and mobile technologies has further shifted the industry's expectations, with employers now seeking graduates who can seamlessly navigate and leverage these digital tools to enhance guest experiences and optimize business outcomes. Contemporary research indicates that despite this shift, hospitality education institutions continue to struggle with aligning curricula to industry demands, especially in providing hands-on exposure to real-world booking and management systems (Buhalis & Leung, 2023). There is a growing consensus that merely theoretical

instruction falls short in equipping students with the practical skills required to succeed in a rapidly evolving digital landscape.

Studies conducted by Neuhofer, Celuch, and To (2022) reveal that simulation-based and technology-enhanced learning environments significantly improve students' operational readiness, problem-solving skills, and confidence in handling complex travel scenarios. By engaging with digital simulations that mirror actual industry processes, students gain vital experiential knowledge, develop critical thinking abilities, and learn to adapt quickly to new technologies and market trends. Moreover, experiential learning models grounded in Kolb's theory remain highly relevant, as recent evidence confirms that students learn more effectively when engaging with interactive systems that replicate authentic industry workflows (Hertzman & Stefanelli, 2020). Such pedagogical approaches not only foster deeper understanding but also promote active learning, collaboration, and innovation—skills that are increasingly valued in the tourism and hospitality sectors. Importantly, the iterative nature of simulation-based learning allows students to learn from mistakes in a risk-free environment, further enhancing their competence and self-assurance.

Research on educational technology infrastructure further notes that web-based simulation platforms utilizing multi-tier architectures, responsive interfaces, and database-driven systems provide scalable and cost-effective solutions for hospitality training institutions (Laudon & Laudon, 2022). These platforms enable institutions to simulate a range of operational scenarios, from

front desk management to revenue optimization, in a controlled and measurable environment. They also support remote access and flexible learning pathways, making them accessible to a broader and more diverse student population. As technological innovation continues to shape the contours of the hospitality sector, the ability to incorporate emerging tools such as virtual reality tours, chatbots, and real-time analytics into educational frameworks becomes increasingly vital. Collectively, recent literature supports the integration of comprehensive booking simulation systems in hospitality education as a strategic approach to bridging persistent skills gaps, enhancing digital literacy, and preparing graduates for the increasingly technology-dependent tourism industry. By embedding these advanced technologies into curricula, educational institutions can ensure that their graduates are not only technically competent but also adaptable and future-ready, capable of meeting the evolving needs of both employers and consumers in a post-pandemic world.

Conceptual Framework

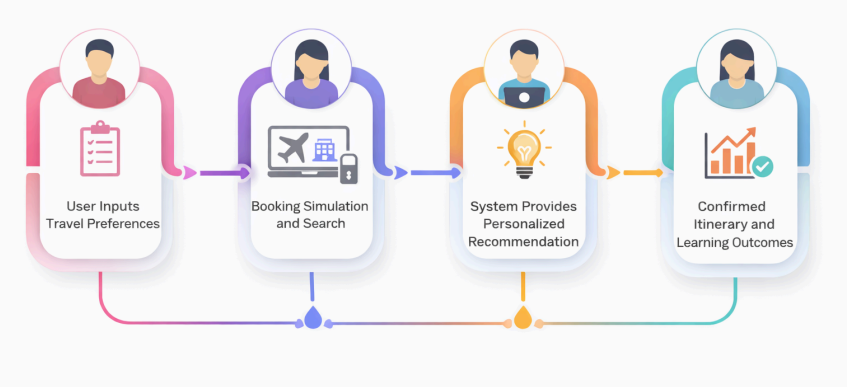

Figure 1. Conceptual Framework

This section explains the conceptual framework for the hotel and flight booking simulation system in greater detail. The framework adopts the Input–Process–Output (IPO) paradigm to show how user information and system design are transformed into confirmed travel reservations and measurable indicators of performance and experience. At the input stage, the system receives user travel data such as origin and destination, departure and return dates, passenger count, room and lodging preferences, and the user's chosen booking channel, whether fully online or through alternative means. Additional inputs include user characteristics that may influence behavior (for example, prior experience with online booking or preferred device), as well as qualitative feedback collected through interviews and post-use surveys. These inputs represent both the operational information needed to generate an itinerary and the research data needed to evaluate how well the system supports users.

During the process stage, the framework distinguishes between the online booking flow and the alternative-channel flow while keeping both under a unified system logic. In the online path, the user visits the booking interface, selects flight-only, hotel-only, or bundle (hotel + flight), and then performs a sequence of actions: searching for available flights and accommodations, filtering and sorting options, reviewing prices and inclusions, choosing a preferred itinerary, entering passenger and guest details, and finalizing the simulated payment. In the alternative path, the system first checks flight availability; if no suitable flights are found, the booking process terminates, but if flights are available and

the user chooses to proceed, their details are captured and the reservation is confirmed through the chosen channel. Throughout both paths, background processes handle data validation, price computation, bundle logic, itinerary generation, and the logging of events such as successful and failed attempts. The system also records technical performance measures like response time for search and confirmation, as well as user actions such as modifications, cancellations, or retries, which later serve as the basis for computing booking success rate and system latency.

The output stage of the framework captures both the immediate system products and the research outcomes. Operationally, the system produces a confirmed reservation for the selected services, a digital receipt, and, for bundle bookings, an automatically generated complete itinerary that summarizes flights, hotel details, dates, and key terms. Users may also receive a thank-you message and an option to print or save the itinerary, reinforcing task completion. From an evaluative perspective, the system outputs quantitative indicators such as booking success rate (the proportion of completed reservations relative to attempts), system latency (average time for the system to process inputs and display results), and error frequency. Alongside these metrics, the study generates qualitative outputs in the form of themes and patterns derived from interview transcripts and open-ended survey responses, reflecting user satisfaction, perceived usability, and perceived usefulness of the integrated booking experience. These outputs close the loop by informing interface

refinements and potential adjustments to search logic, bundle rules, or help features.

The conceptual foundations of the framework provide the rationale for how the system is designed and which variables are measured. Information Systems Theory serves as the backbone by explaining how data is captured, processed, and distributed to support user decision-making in a complex environment that aggregates flights, accommodations, and user preferences. It justifies focusing on information quality, integration across modules, and timely access to accurate availability and pricing, because these aspects directly affect user efficiency and confidence when choosing an itinerary. Human-Centered Design (HCD) further shapes the framework by emphasizing that every stage of the booking process—from search filters and form fields to confirmation messages and error prompts—should be aligned with user goals, mental models, and limitations. Under HCD, variables such as perceived ease of use, perceived usefulness, and overall satisfaction are not incidental; they are core outcomes, measured through structured questionnaires, usability testing sessions, and heuristic evaluations to ensure the interface supports both novice and experienced travelers.

Modular Software Architecture completes the theoretical triad by structuring the system into distinct yet interoperable components, such as flight search, hotel search, bundle engine, payment simulation, and itinerary generator.

Treating these components as modules enables the study to examine how each part contributes to overall performance and where bottlenecks or failures occur. For instance, latency can be broken down per module to identify whether delays originate from the search functions, pricing logic, or confirmation routines, while booking success rate can be analyzed separately for flight-only, hotel-only, and bundle flows. This modular view also supports scalability and future extension, such as adding new payment options, loyalty features, or recommendation engines without disrupting existing functionality. Within this expanded conceptual framework, system design choices informed by Information Systems Theory, Human-Centered Design, and Modular Architecture operate as independent or contextual variables, while user satisfaction, booking success rate, and system latency function as key dependent variables. The analytical methods—descriptive statistics for numerical indicators and thematic analysis for qualitative feedback—are selected to align with this structure, ensuring that the framework not only describes how the system works but also guides how its effectiveness and user experience are rigorously evaluated.

Statement of Objectives

The primary objective of the HABSS: Hospitality and Aviation Booking Simulation System is to develop an interactive and user-friendly platform that allows students from the College of Business to experience realistic booking procedures for flights, hotels, and bundled travel packages without requiring actual financial transactions. To support this goal, the system role is to simulate

the complete workflow of searching, selecting, and reserving accommodations and flights, thereby enhancing learners' familiarity with industry-standard booking processes used in the hospitality and aviation sectors.

Specific objectives of the study:

1. Developed a web-based booking simulation interface that allows users to input travel requirements such as destination, dates, passenger details, lodging preferences, and bundled.
2. Generating a confirmed itinerary summarizing flight details, accommodation information, and booking status upon successful simulation.
3. Evaluated the effectiveness and usability of the developed system HABSS that is Web-based using System Usability Scale(SUS).

Purpose and Description

The purpose of the HABSS: Hospitality and Aviation Booking Simulation System is to provide an educational, risk-free, and highly interactive platform that enables College of Business students to experience the full workflow of travel booking procedures. The system is designed to simulate real-world flight reservations, hotel bookings, and bundled travel packages without requiring actual payments or the use of live external APIs. By offering a realistic yet controlled environment, the system allows learners to practice operational tasks commonly performed in the hospitality and aviation industries, helping them

build competence and confidence before entering professional settings. The HABSSS simulation system benefits several key groups. Primarily, it serves students, who gain hands-on experience in searching for flights, selecting accommodations, comparing travel options, understanding bundled pricing, and completing simulated transactions. It also benefits instructors, who can use the platform as a teaching tool to demonstrate booking workflows, customer service processes, and decision-making scenarios within the travel sector.

Scope and Limitation

HABSS focuses on the development of a hotel and plane booking system with bundled inclusion functionality that enables users to book both domestic and international flights and receive suggested nearby accommodations, including hotels, based on their travel destination and schedule. The system will include secure, integrated simulation payment processing through credit/debit cards, e-wallets such as GCash and PayMaya, and bank transfers, as well as automatic generation of electronic receipts and travel itineraries. However HABSS is limited by its reliance on third-party APIs for flight and lodging data, The HABSS application does not rely on real-time APIs and instead uses preloaded flight and hotel data stored in the database. Additionally, the system is accessible exclusively through web and desktop platforms. Additionally, HABSS does not include transportation services such as airport pickups, car rentals, or taxi bookings, which users must arrange separately.

Technical Background

PHP. The web-developing scripting language PHP, popularly implemented for world-wide-web applications, was used for server-side scripting, request handling and data operation. The strong characteristics of PHP enabled the development of colorful, client-oriented WEB applications, that is why it is suitable to develop the backend for the HABSS application.

MySQL. The researchers used it to handle the data of the application. This enables the researchers to store data in a manner that data can be queried by use of Structured Query Language that facilitates the organization, storage, and retrieval of data in a manner that enhances data quality and speed.

JavaScript. The researchers used it for the development of general instances of the web page within the application. JavaScript enables real-time form validation, dynamic content update and built-in animations that make it possible to improve on the user experience without forcing the web page to be reloaded.

Bootstrap Framework. The researchers used Bootstrap Framework to reduce complexity in the front end development when using responsive design. This way, since all the components are standardized and the application is built based on a grid system, the development process is faster and more efficient to guarantee a good functioning in devices and sizes of screen.

HTML. The researchers used this to display tables but to add features such as pagination, sorting and searching to the displayed tables, the Data Tables

JavaScript Library was used by the researchers. This made large data sets more manageable, usable, and the boss software also continues to be workable where JavaScript could have a problem.

HTML5. The creation of the HTML code in development of the structure of the Web page was done by the researchers. The HTML5 also consists of many related elements and attributes to improve the work with the application and it makes the work more convenient to be searched by the search bar of the engine and compatible with any browser.

Chapter II

CHAPTER II

DESIGN AND METHODOLOGY

This chapter presents the overall research framework used in the development and evaluation of HABSS, a booking system that streamlines travel planning by combining flight reservations and accommodation bookings into a single platform. It outlines the research design, target population, data-gathering tools, and the software development methodology applied in this study.

Research Design

A thorough evaluation of the HABSS booking system's usability, performance, and user satisfaction was made possible by the use of a mixed-methods research design to collect both quantitative and qualitative data. This method guarantees that the system is assessed from both a technical and an experiential standpoint. In order to measure system performance, booking success rates, and transaction accuracy, quantitative data were gathered through stress testing and structured surveys. These metrics offered quantifiable information about the system's effectiveness and functionality. Interviews and usability feedback sessions with target users, such as regular travelers, travel agents, and representatives from small lodging businesses, were used to collect qualitative data. In-depth viewpoints on system design, user expectations, problems with existing booking platforms, and the perceived worth of the bundle inclusion feature were provided by these exchanges. Interviews and usability feedback sessions with target users, such as regular travelers, travel agents, and

representatives from small lodging businesses, were used to collect qualitative data. In-depth viewpoints on system design, user expectations, problems with existing booking platforms, and the perceived worth of the bundle inclusion feature were provided by these exchanges. A broad understanding of the platform's efficacy, usability, and potential for real-world adoption is made possible by the combination of quantitative performance data and subjective user feedback. Mixed methods are well known in the information systems field for their capacity to connect technological assessment and user-centered evaluation, producing more comprehensive and actionable results (Creswell & Plano Clark, 2011).

Population and Locale

The study was conducted within the College of Business at Lorma Colleges CLI Campus San Juan, La Union, focusing on individuals who represent the primary users of the HABSS: Hospitality and Aviation Booking Simulation System. Since the system is designed to support students in enhancing their knowledge and practical skills in flight, hotel, and bundled bookings, the researchers selected respondents who could provide relevant and meaningful feedback regarding its usability and effectiveness. A total of twenty-one (21) respondents participated in the evaluation of the system. This sample consisted of three (3) instructors knowledgeable in business, hospitality, and tourism-related subjects and eighteen (18) students from different year levels within the College of Business. The instructors were included to assess the system’s educational value,

accuracy, and usability in a classroom setting, while the students provided insights based on their experience using the booking simulation for learning purposes.

Table 1. Distribution of Respondents

Respondents	No. Of Respondents
Instructors(college of business)	**3**
Students (different year level)	**18**
Total	**21**

As shown in Table 1, the distribution of respondents is composed of two main categories: instructors and students. These groups were selected because they are the ones who would actively use the HABSS application for teaching, learning, and practical simulation exercises. Their feedback was essential to ensure that the system meets academic standards, performs reliably, and provides a realistic booking experience that enhances student competency in hospitality and aviation practices.

Ethical Considerations

The administration of the study was carried out in accordance with strict ethical standards to safeguard the rights, welfare, and confidentiality of all participants. Before conducting surveys and interviews, the researchers provided a clear and comprehensive explanation of the study's purpose, data collection procedures, and the participants' rights. This included informing them of the voluntary nature of their participation, their freedom to withdraw at any point

without penalty, and the assurance that no identifiable personal information would be disclosed. All responses were treated with confidentiality and used solely for research purposes. To maintain the integrity of the data collection process, the researchers utilized standardized tools such as structured questionnaires and guided interviews. These tools helped ensure consistency, reliability, and credibility across all gathered data. A secure and respectful environment was established during data collection to allow respondents to express their insights freely. Additionally, the system (HABSS) integrates secure access mechanisms to prevent unauthorized handling of information, further upholding ethical practices throughout the study. Ethical standards were strictly followed throughout the conduct of this study. All participants were informed of the purpose and procedures of the research before giving their consent. Participation was entirely voluntary, and respondents were assured that they could withdraw from the study at any point without any consequences. Informed consent forms were distributed to both students and teachers participating in interviews, surveys, and usability testing. No personally identifiable information was recorded or stored, ensuring full anonymity and confidentiality. The data collected were used solely for academic purposes and stored in encrypted digital formats accessible only to the research team. Regular audits of the data management process were conducted to reinforce compliance with ethical guidelines and data protection policies. Any questions or concerns raised by

participants were addressed promptly and transparently, further fostering trust and ethical integrity within the research process.

Data Gathering Tools and Procedure

This study utilized both qualitative and quantitative methods to evaluate the usability and effectiveness of the Hospitality and Aviation Booking Simulation System. For the first objective, developing the HABSS web-based booking simulation system that allows users to input and manage travel requirements such as destination, travel dates, passenger details, lodging preferences, and bundled flight-and-hotel options—the system development process followed the standard software development lifecycle. This included requirements gathering from faculty and industry references, interface design using HTML5, CSS3, and JavaScript, back-end implementation using PHP, and database structuring in MySQL to store user inputs and simulated booking records. Iterative prototyping and internal testing were conducted to ensure that all required input fields, booking options, and workflow steps were properly implemented and functionally aligned with real-world booking processes.

For the second objective, generating and presenting a simulated confirmed itinerary that summarizes flight details, accommodation information, and booking status based on the user's specified requirements, the procedure focused on validating the correctness and completeness of the system's output. Test scenarios were created to cover various travel cases (different destinations, dates, passenger counts, lodging types, and bundled bookings). Each test case

was executed within HABSS, and the generated itineraries were reviewed by the admin of College of Business to check the accuracy of displayed flight details, hotel information, pricing, booking status, and overall layout clarity. Any discrepancies or missing information observed during this verification process were documented and used to refine the itinerary generation and display logic.

For the third objective, evaluating the effectiveness and usability of the HABSS web-based booking simulation using the System Usability Scale (SUS), supported by qualitative feedback—data were gathered from instructors and students who had hands-on experience using the system. Quantitative data were collected through the SUS questionnaire to measure perceived ease of use, consistency, and overall satisfaction. Qualitative data were obtained via brief interviews and open-ended survey questions, allowing participants to describe their experiences, challenges, and suggestions for improvement. Additionally, direct observation was conducted while participants interacted with HABSS to identify navigation issues, input errors, and points of confusion in the booking and itinerary generation process. The SUS scores, together with the qualitative feedback and observational notes, were then analyzed to determine whether HABSS met its intended functional and learning goals, particularly in terms of booking workflow clarity, completeness of travel information entry, and the accuracy and readability of the generated itineraries. These results were used to assess overall usability and to identify specific areas for future enhancement of the system.

Software Methodology

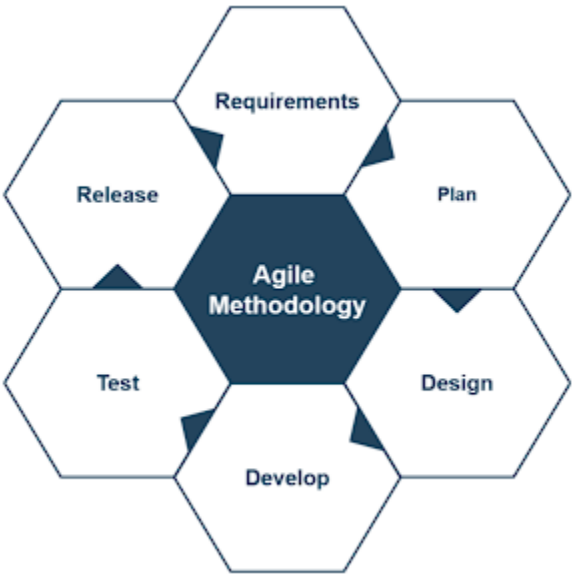

Figure 2. Agile Methodology

Figure *2* illustrates the Agile Methodology, a flexible and iterative approach to software development that emphasizes continuous improvement, user collaboration, and incremental delivery. This methodology is well-suited for the development of the Hospitality and Aviation Booking Simulation System (HABSS), a web-based booking simulation designed for College of Business students and instructors, where evolving requirements, usability, and timely feedback are essential.

Unlike traditional linear development models, Agile allows the system to be developed in repeating cycles called sprints, enabling the researchers to continuously refine features based on user input and testing results. Each stage

in the Agile process contributes to ensuring that the system remains functional, user-centered, and aligned with educational objectives.

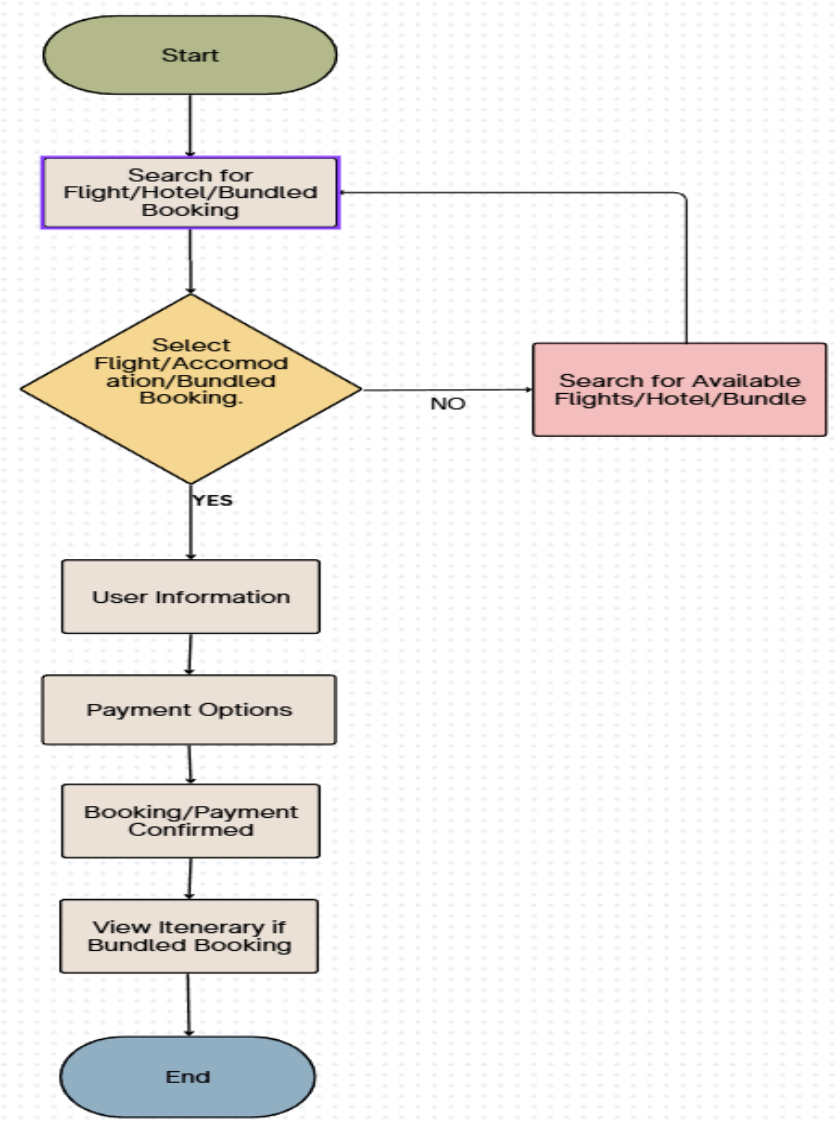

Figure 3. System's flow for the User

Requirements: This first stage involves gathering input from COB students, faculty, and administrative staff to understand what they need from the system. For example, students may need to book consultation slots or study rooms, while

teachers might require a way to schedule meetings or reserve venues. Clear requirements are documented to guide the project.

Plan: Based on those requirements, the development team plans the work in short cycles (called sprints). For example, one sprint might focus on implementing the student booking form, while another could target the teacher's calendar view. Priorities are set based on user needs and available time.

Design: During the design phase, user interface (UI) mockups and user experience (UX) flows are created to ensure the system is easy to use. This includes designing dashboards for both students and teachers, booking confirmation screens.

Develop: The system is built in small, manageable parts. Developers create features like login systems, booking calendars, notification tools, and real-time availability checks. Agile encourages the team to build working components quickly and improve them over time.

Test: After each part is developed, it is tested with real users (students and faculty) to check for bugs and usability issues. Testing ensures that bookings are processed correctly, schedules don't overlap, and the interface is easy to navigate.

Release: Once a feature passes testing, it is released to the live system for actual use. Agile allows frequent and gradual releases, so users can benefit from improvements without waiting for the entire system to be finished.

Review Phase: The researchers focused on assessing and continuously monitoring the overall effectiveness and functionality of the HABSS application. This phase involved demonstrating the system's features to users and carefully observing their reactions, feedback, and level of ease while navigating the booking simulation. Through this evaluation, the researchers ensured that HABSS operated according to its intended design and met its usability goals. Additionally, this review stage helped identify existing vulnerabilities, inconsistencies, or areas for enhancement, providing valuable insights for further refinement and optimization of the system.

Chapter III

CHAPTER III

RESULTS AND DISCUSSION

This chapter presents the development and outcomes of the HABSS: Hospitality and Aviation Booking Simulation System, a platform designed to streamline flight and accommodation reservations into a single, unified booking experience. The chapter discusses how the system was conceptualized, developed, and deployed, highlighting its primary objectives, expected output, and overall impact on both travelers and administrators. It further elaborates on the system's functionality, user experience, and performance based on demonstrations, user feedback, and evaluation tools. Through this discussion, the chapter showcases how HABSS addresses common booking challenges while revealing areas where enhancements may be applied.

Developed a web-based booking simulation interface that allows users to input travel requirements such as destination, dates, passenger details, lodging preferences, and bundled.

The researchers developed HABSS as a fully web-based booking platform that allows users to search and simulate flight, hotel, and bundled bookings through an intuitive interface. The system provides clear navigation, organized features, and responsive design to ensure ease of use.

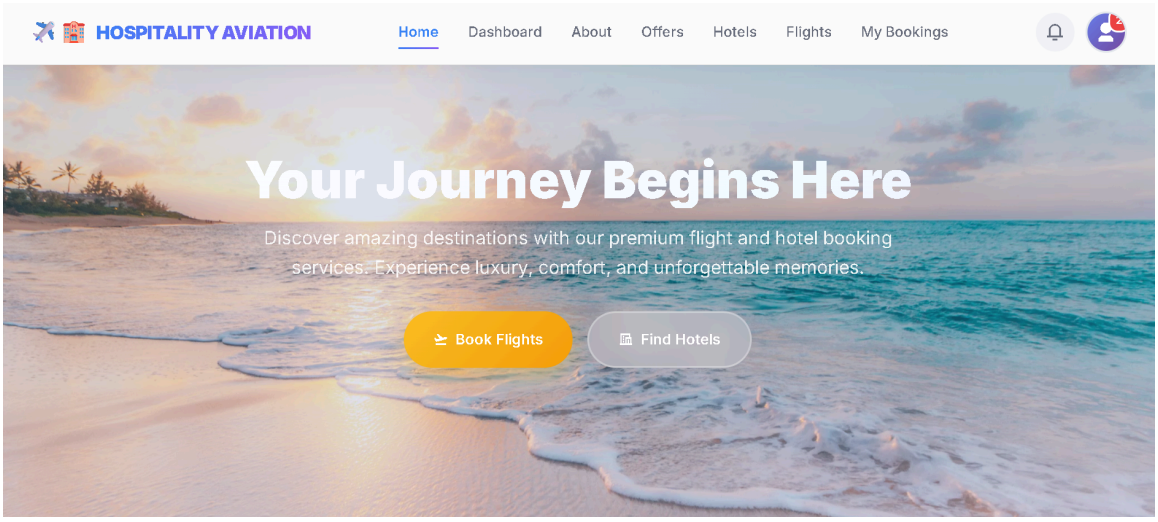

Figure 4. Homepage

Figure 4 is the HABSS dashboard. The homepage features a clean, modern design with a tropical beach background image showcasing crystal-clear waters and sandy shores, creating an inviting travel atmosphere. The main navigation bar at the top displays the Home, Dashboard, About, Offers, Hotels, Flights, and My Bookings, plus a user profile icon and notification bell.

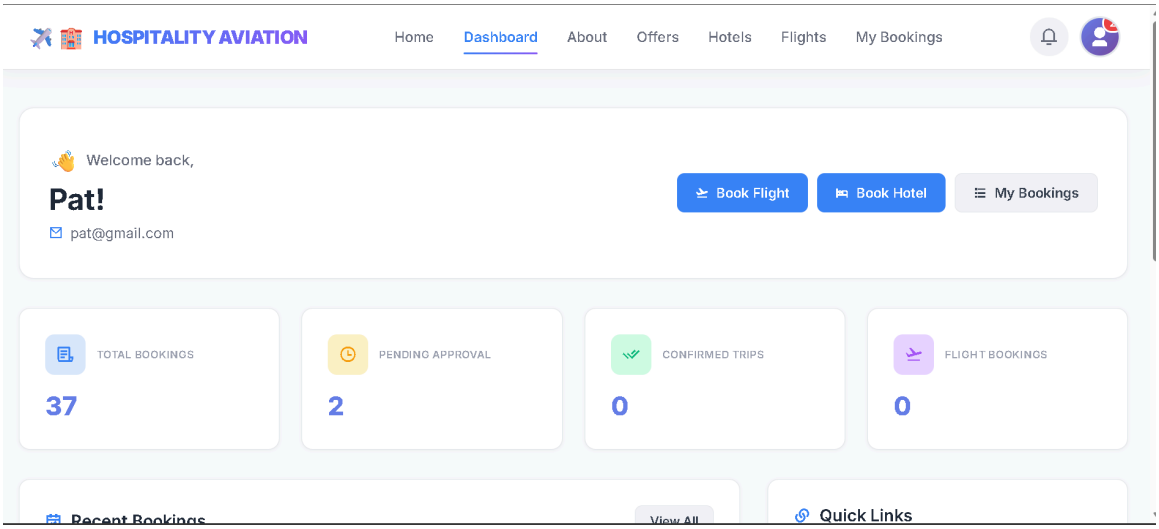

Figure 5. User Dashboard

Figure 5 shows the user dashboard where you can see your booking statistics, completed trips, and flight bookings, along with quick access buttons to book flights, book hotels, and view your bookings, plus sections for recent bookings and quick links for easy navigation through the educational booking simulation system.

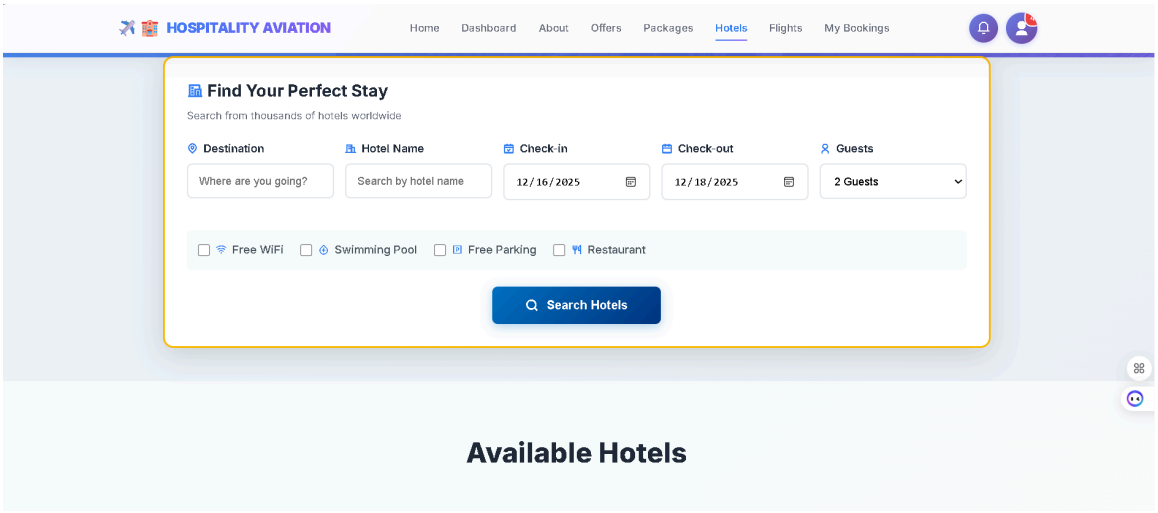

Figure 6. View Hotels

Figure 6 shows the Hotel Search Interface in the HABSS (Hospitality Aviation Booking Simulation System) website's hotel booking functionality. This screen demonstrates the system's comprehensive hotel search and filtering capabilities, providing users with an intuitive interface to find accommodations that match their specific requirements. Users can enter their desired destination, travel dates, and other preferences, then apply filters such as price range, star rating, amenities, and guest reviews to refine their search results. The interface is designed to make it easy for users to compare options and select the hotel that best fits their needs.

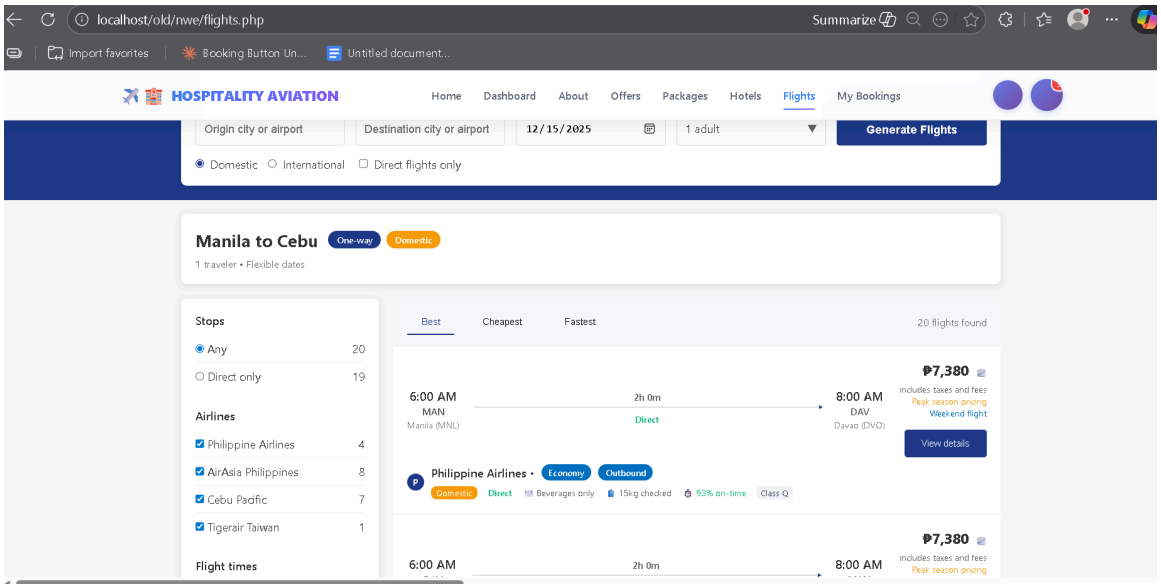

Figure 7. View Flights

Figure 7 shows the HABSSS (Hospitality Aviation Booking Simulation System) website's View Flight page. It provides an overview of user navigation paths and displays the available flights.

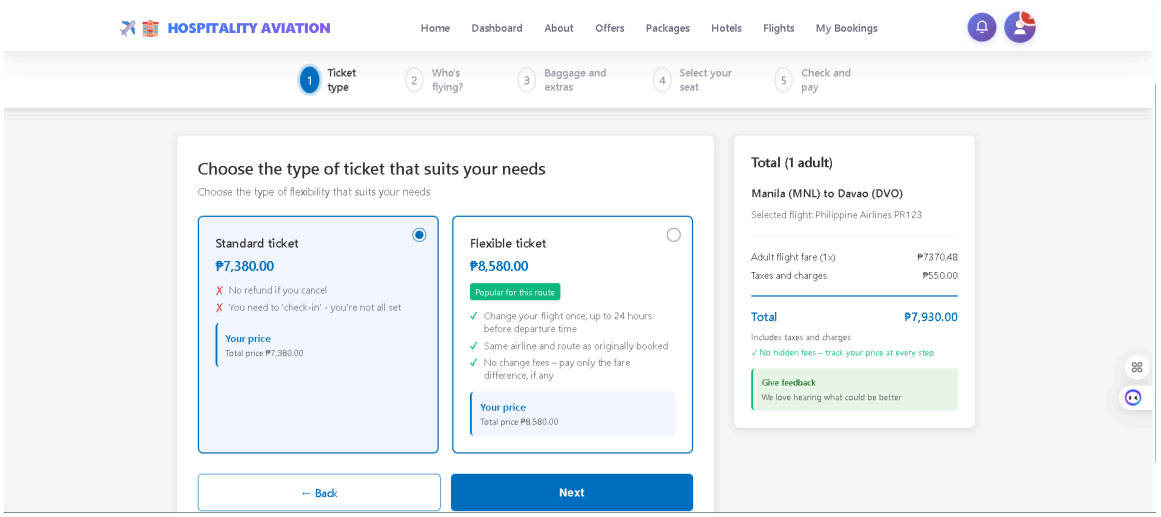

Figure 8. Booking Input

Figure 8 shows the HABSS (Hospitality Aviation Booking Simulation System) Booking Page, which outlines the user's navigation path and displays the section where passengers' information is entered

Generating a confirmed itinerary summarizing flight details, accommodation information, and booking status upon successful simulation.

Upon successful simulation of your travel bookings, the system generates a detailed confirmed itinerary that summarizes all key aspects of your trip. This includes flight details, accommodation information, and the status of your bookings, ensuring that you have a clear and comprehensive overview of your travel arrangements. The generated itinerary serves as a final confirmation, providing you with all necessary details to make your journey as smooth and hassle-free as possible.

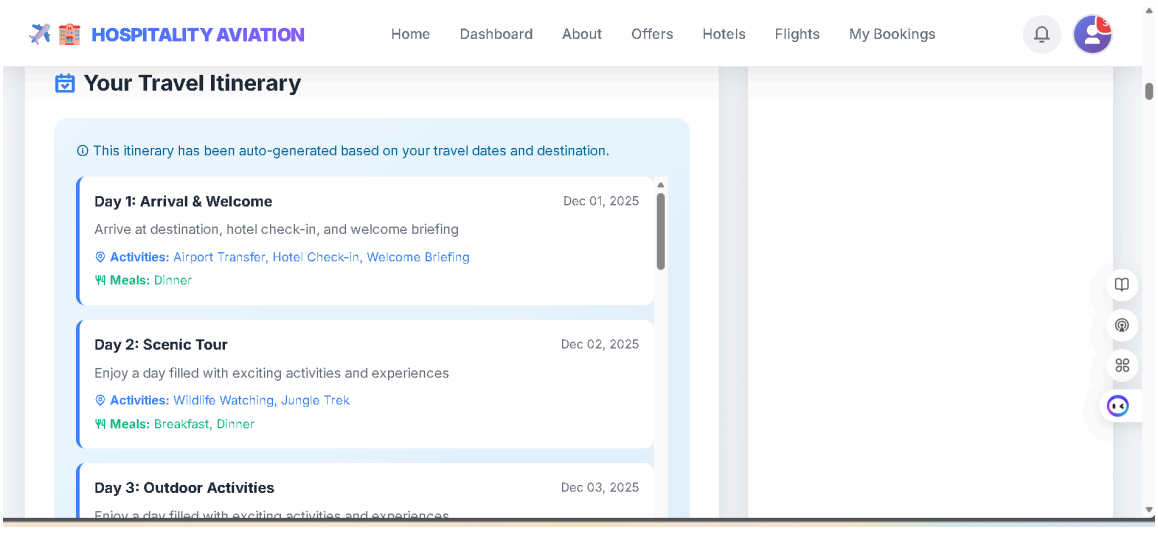

Figure 9. Generated Itinerary

Figure 9 shows that the system generates a confirmed itinerary that provides a comprehensive summary of the user's trip, including detailed flight information, accommodation details, and the current booking status. This occurs upon the successful completion of the simulation, ensuring that all selected options and preferences are accurately reflected for the user's reference.

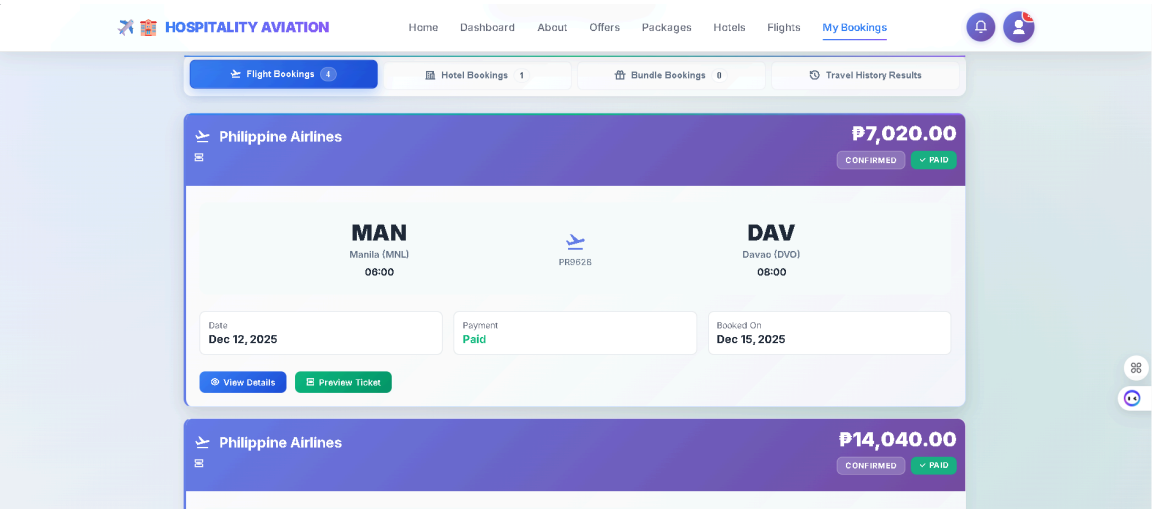

Figure 10. Travel History

Figure 10 shows the Travel History of the user in the HABSS (Hospitality Aviation Booking Simulation System) website's booking management interface. It provides a comprehensive overview of the user's past and current bookings across different categories including trip bookings, hotel reservations, bundle packages, and travel history results. The interface maintains the consistent HOSPITALITY AVIATION branding with the main navigation bar displaying menu items for Home, Dashboard, About, Offers, Packages, Hotels, Flights, and My Bookings, along with user profile and notification icons. The page features four

distinct booking category tabs at the top, with the "Travel History Results" tab currently active, allowing users to filter and view their booking history by type.

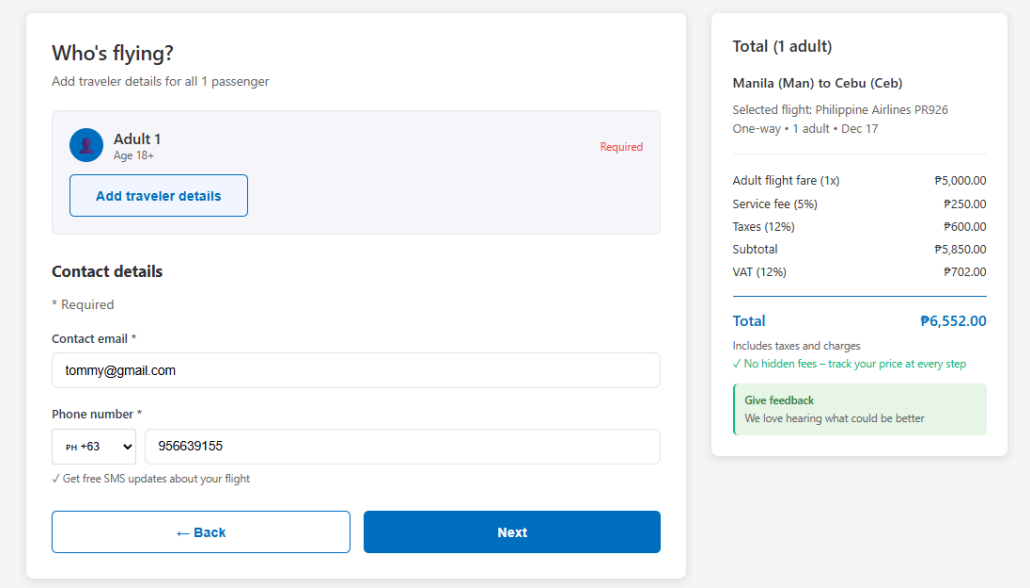

Figure 11: Passenger Flight Information

Figure 11 shows the booking summary panel shows real-time pricing information with the route demonstrating the system's dynamic route display functionality. It displays the selected flight.

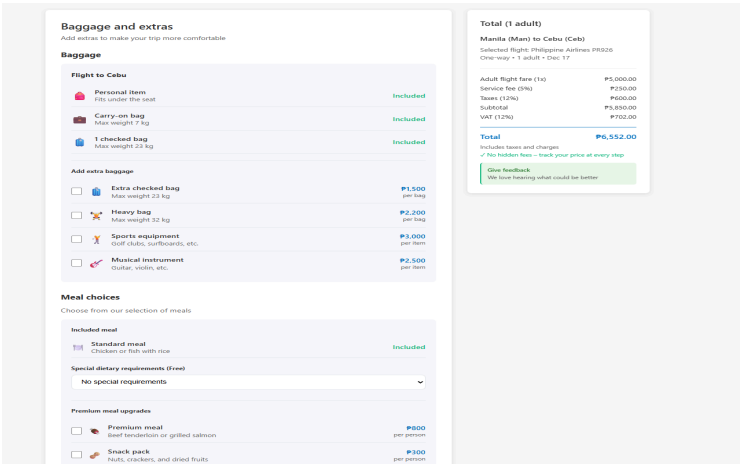

Figure 12: Baggages and Extras

Figure 12 shows the Step 3: "Baggage and extras" interface in the HABSS (Hospitality Aviation Booking Simulation System) website's 5-step flight booking process. This screen demonstrates the system's comprehensive add-on services selection functionality, allowing users to customize their travel experience by adding extra baggage allowances and meal preferences.

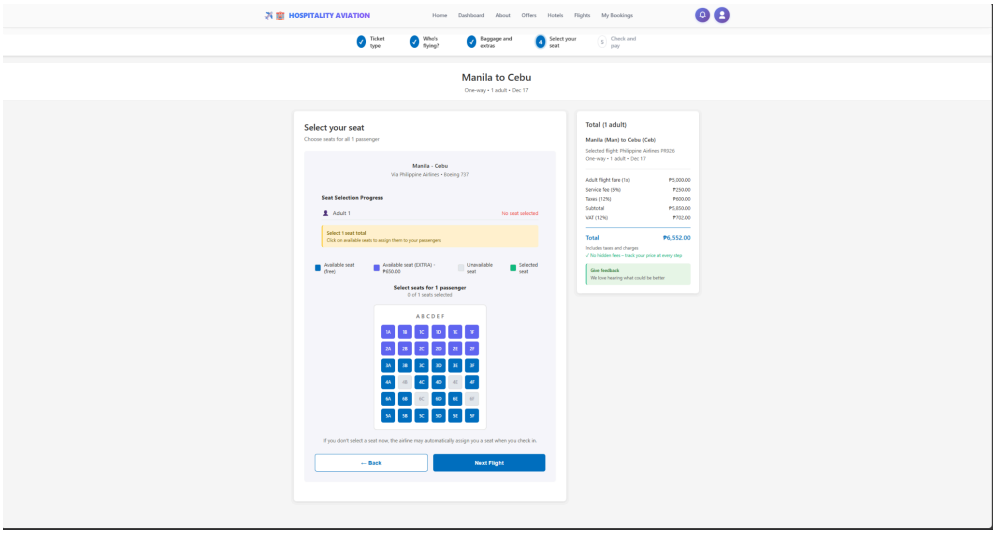

Figure 13: User seat selection

Figure 13, shows the Step 4: "Select your seat" interface in the HABSS (Hospitality Aviation Booking Simulation System) website's 5-step flight booking process. This screen demonstrates the system's interactive seat selection functionality, providing users with a visual aircraft layout and comprehensive seat management capabilities.

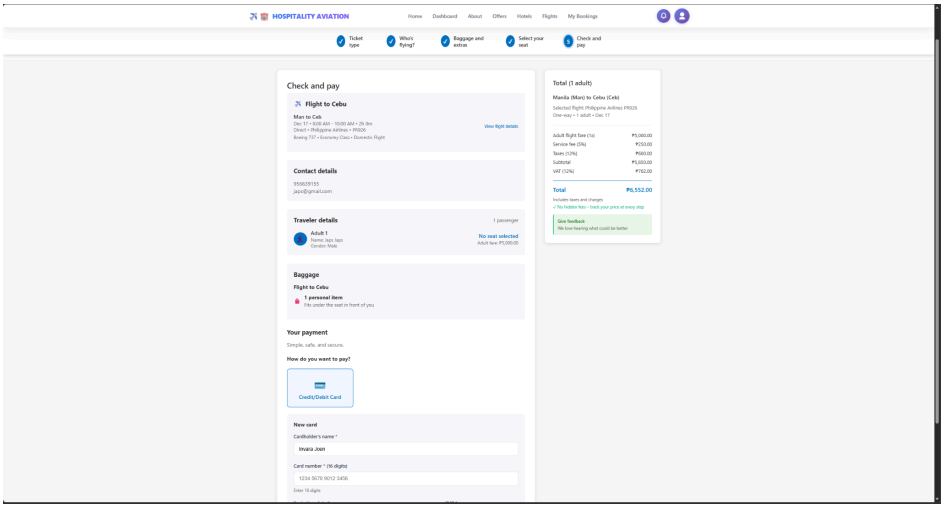

Figure 14: User Payment Method

Figure 14 shows the Step 5: "Check and pay" final confirmation interface in the HABSS (Hospitality Aviation Booking System) website's 5-step flight booking process. This screen demonstrates the system's comprehensive booking review and payment processing functionality, providing users with a complete summary of their selections before finalizing the transaction. The interface serves as a critical checkpoint where users can verify all booking details including passenger information, flight specifics, selected extras, and pricing before committing to payment. This final step incorporates robust security measures and multiple payment options to ensure a safe and flexible transaction experience. The system maintains complete price transparency throughout the process, displaying a detailed breakdown that includes all fees, taxes, and selected services to eliminate any surprises at checkout.

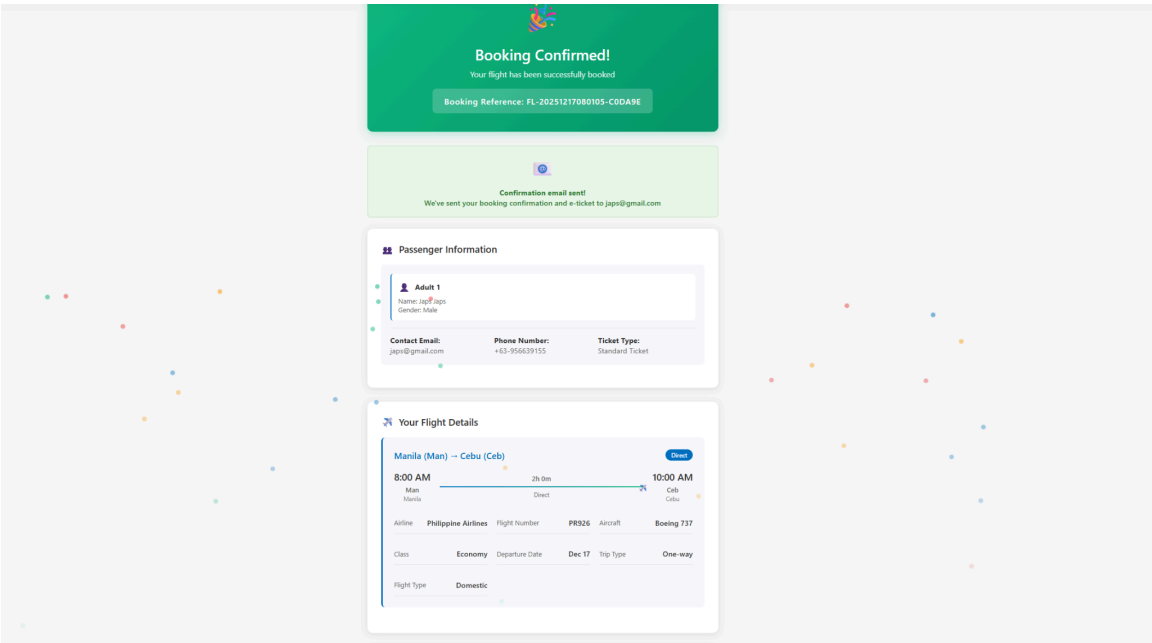

Figure 15: User Payment Confirmed

Figure 15 shows the Booking Confirmation Page in the HABSS (Hospitality Aviation Booking Simulation System) website, representing the successful completion of the flight booking process. This screen demonstrates the system's comprehensive confirmation functionality, providing users with immediate verification of their completed transaction and all relevant booking details. The interface features a prominent green confirmation banner at the top displaying "Booking Confirmed!" with a celebratory airplane icon, accompanied by the message "Your flight has been successfully booked" and the booking reference number "FL-20231216000001-CE2048", ensuring users have immediate access to their confirmation details for future reference. It also displays the flight details of the user booked flight that includes prices, etc.

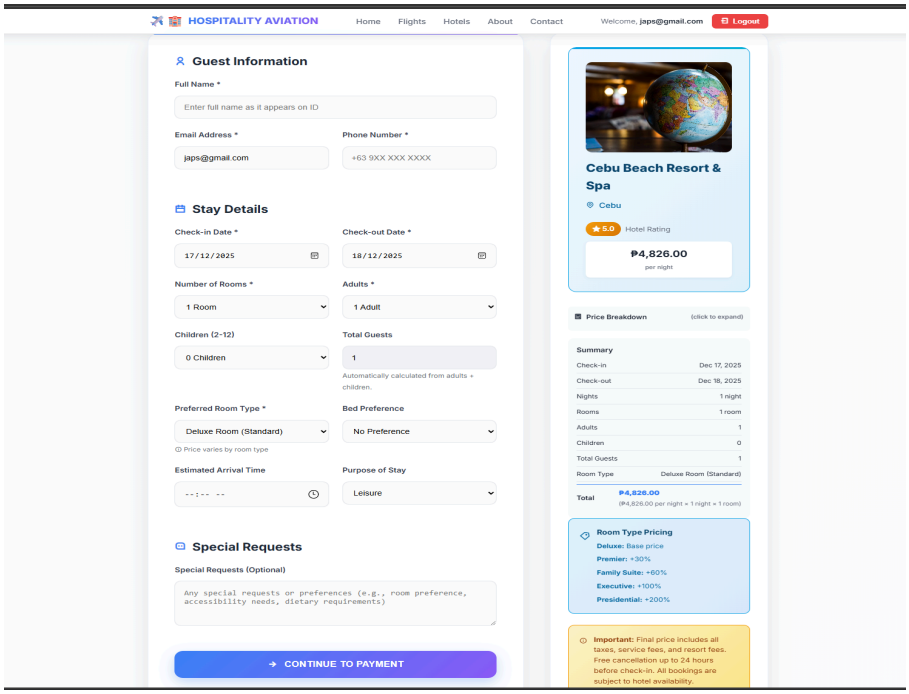

Figure 16: Guest Information for Hotel Booking

Figure 16 shows the selected "Cebu Beach Resort & Spa" located in Cebu with a 5.0-star rating and an attractive hotel image. The pricing section shows ₱4,826.00 per night with an expandable "Price Breakdown" feature. The detailed summary includes Check-in (Dec 17, 2025), Check-out (Dec 18, 2025), duration (1 night), room configuration (1 room), guest count (1 Adult, 0 Children), and room type (Deluxe Room Standard), with a total of ₱4,826.00 calculated as "₱4,826.00 per night × 1 night × 1 room." Additional pricing information shows "Room Type Pricing" with various room categories including Deluxe (Base price), Premier (+30%), Family Suite (+50%), Executive (+100%), and Presidential (+200%), along with important booking terms stating "Final price includes all taxes, service fees, and resort fees. Free cancellation up to 24 hours before

check-in. All bookings are subject to hotel availability," ensuring complete transparency in pricing and booking conditions.

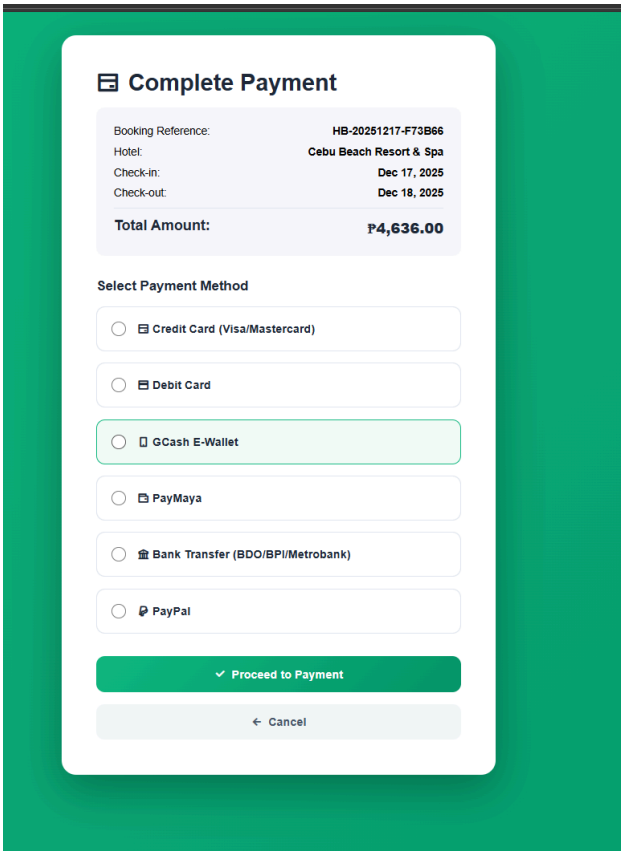

Figure 17: Payment method for hotel booking

Figure 17 shows the "Complete Payment" modal interface in the HABSS (Hospitality Aviation Booking Simulation System) website's hotel booking payment processing functionality. This screen demonstrates the system's secure payment gateway integration, providing users with multiple payment options to finalize their hotel reservation.

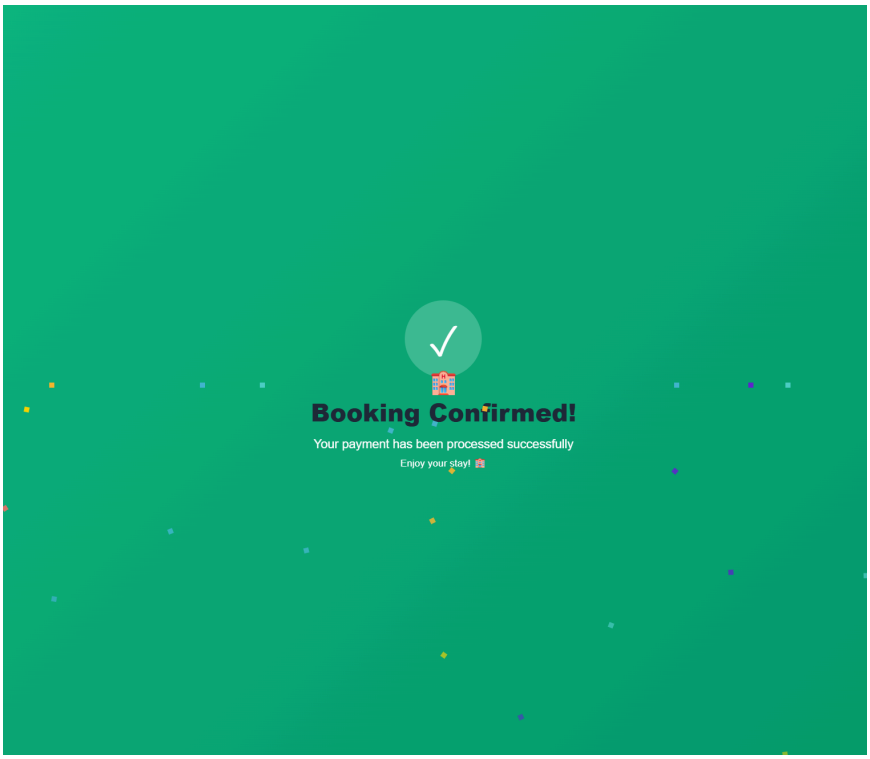

Figure 18 : Booking Confirmation for Hotel

Figure 18 shows the Hotel Booking Confirmation Success Page in the HABSS (Hospitality Aviation Booking System) website, representing the successful completion of the hotel reservation and payment process. This screen demonstrates the system's celebratory confirmation interface, providing users with immediate visual feedback that their transaction has been processed successfully. In addition to a prominent success message, the page typically includes key details of the booking such as reservation number, hotel name, and check-in/check-out dates so users can easily review the specifics of their transaction. Users may also find options to print the confirmation, download a receipt, or proceed to manage their booking directly from this page, ensuring a seamless and reassuring post-booking experience.

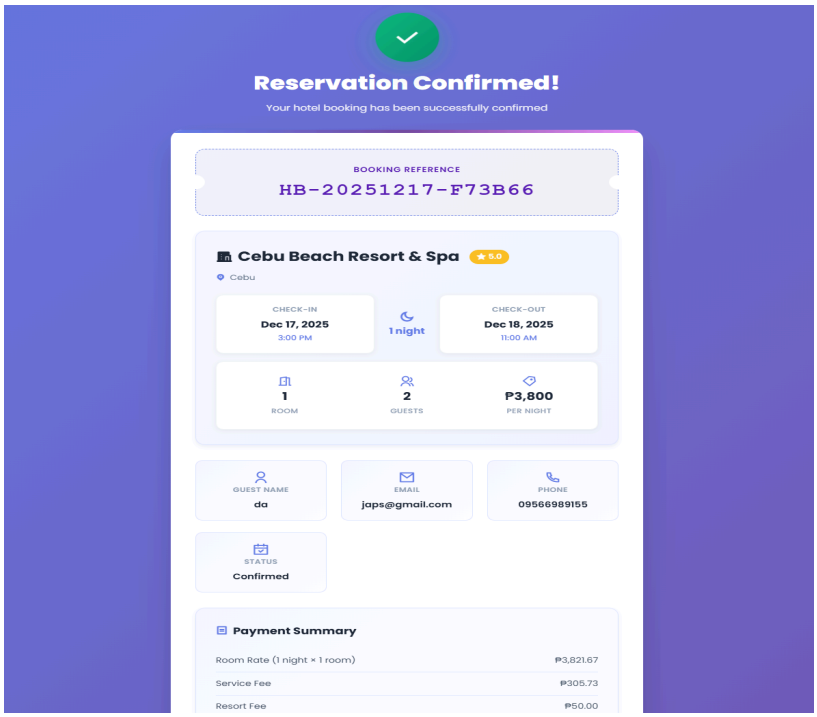

Figure 19 : Confirmation Details for Hotel

Figure 19 shows the Hotel Reservation Confirmation Page in the HABSS (Hospitality Aviation Booking System) website, representing the comprehensive booking confirmation interface following successful payment processing. This screen demonstrates the system's detailed confirmation functionality, providing users with complete reservation details, contact information, and payment breakdown in a professionally designed format. The confirmation page serves as both a receipt and reference document, featuring clear typography and structured sections that allow users to easily verify their booking details and save or print the confirmation for their records.

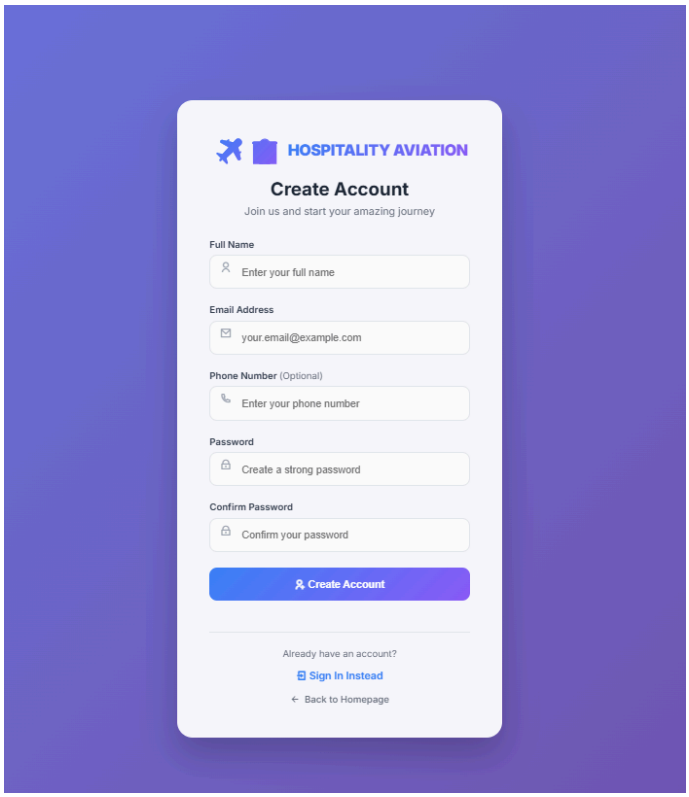

Figure 20: User Registration

Figure 20 illustrates the registration form that users must complete before they can access the booking functionality. In this form, users are required to provide their full name, email address, phone number(optional), and password. Each of these fields is mandatory to ensure accurate identification and secure access to the system.After successful registration, users are granted access to the booking features of the platform. This process helps maintain the security and integrity of user accounts and ensures that only authorized users can make bookings.

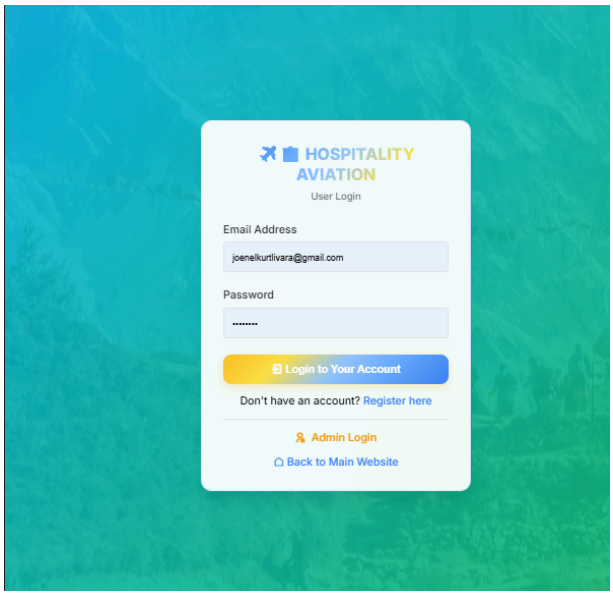

Figure 21: User Log-in

Figure 21 depicts the user log-in interface, where registered users can access their accounts. To log in, users must enter their registered email address and password into the respective fields provided on the form. This authentication step ensures that only users with valid credentials are able to access the platform's features, including booking functionalities and personal account information. For users who do not yet have an account, the interface prominently features a button or link to the registration page, making it easy for new users to sign up and gain access to the system. The clear and straightforward design of the log-in page helps users quickly and securely enter the system.

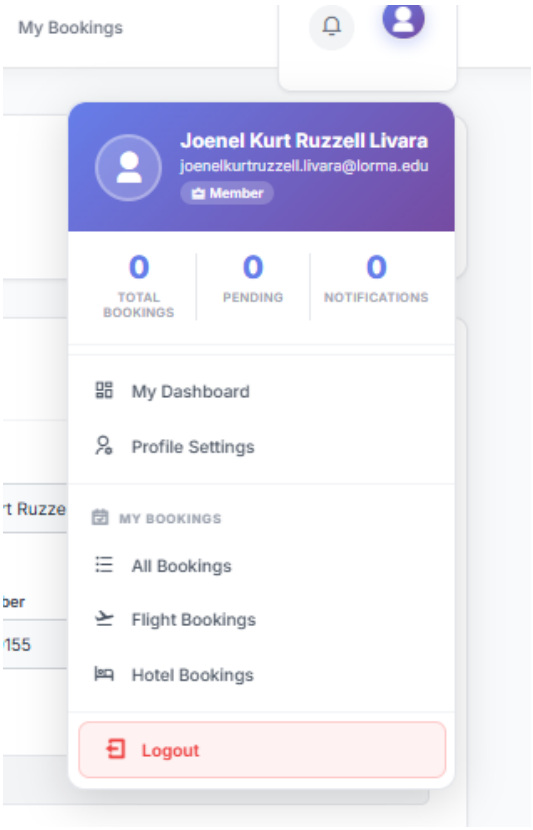

Figure 22: User Profile Tab

Figure 22 presents the user's profile tab, which acts as a central hub for account management and booking oversight. Within this tab, users can quickly access their dashboard for an overview of recent activity and notifications, view all their bookings in one place for easy tracking, and navigate to specific sections for flight and hotel reservations to review, modify, or cancel as needed. Additionally, the profile settings area allows users to update personal information, manage their password, and adjust account preferences. This streamlined layout ensures that users can efficiently handle their bookings and account details from a single, accessible interface.

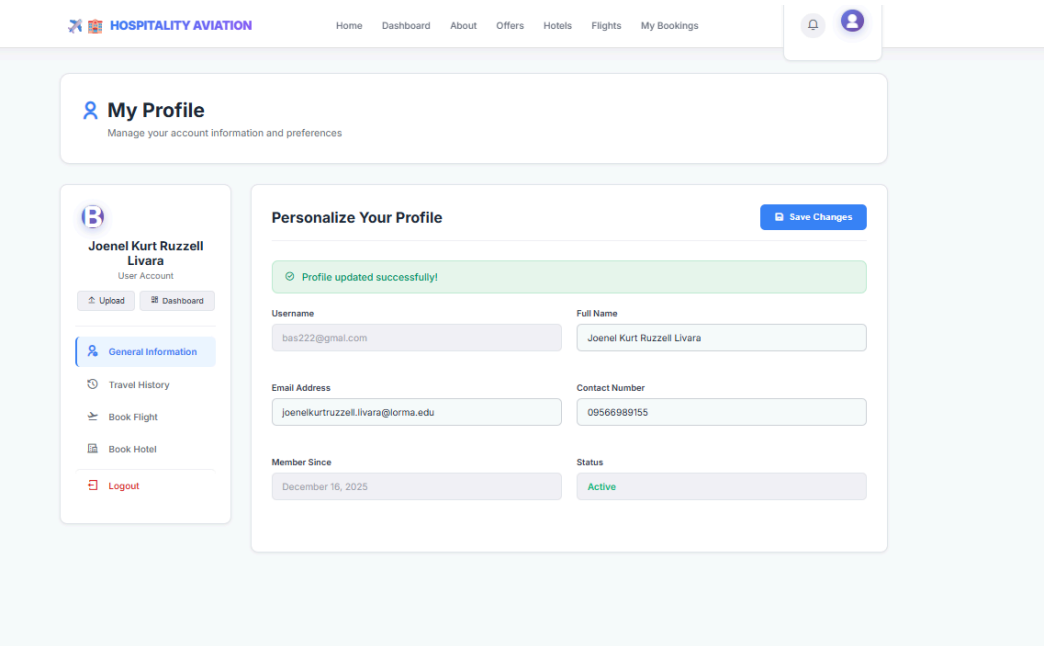

Figure 23: Users My Profile Tab

Figure 23 displays the user's profile tab, focusing specifically on the section that allows users to manage and update their personal information. Within this area, users have the ability to change their username, ensuring it reflects their current preferences or identity. They can also update their full name, email address, and contact information, such as their phone number. This functionality is essential for keeping account details accurate and up to date, which helps maintain effective communication and account security. By providing a straightforward interface for making these changes, the profile tab empowers users to take control of their personal information and ensure that their account is always current and reliable.

Evaluated the effectiveness and usability of the developed system HABSS that is Web-based using System Usability Scale(SUS).

Respondent ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	RAW SCORE	AVG. SCORE
1	5	5	5	5	5	5	5	5	5	5	50	5
2	5	5	5	5	5	5	5	4	5	5	49	4.9
3	5	5	5	5	5	5	5	5	5	5	50	5
4	4	4	3	4	4	2	4	1	3	5	34	3.4
5	5	5	5	5	5	5	5	5	5	5	50	5
6	5	5	5	5	4	3	5	4	4	5	45	4.5
7	5	5	5	5	5	5	5	5	5	5	50	5
8	4	5	3	4	3	5	5	5	5	4	43	4.3
9	5	4	4	4	4	4	4	4	4	5	42	4.2
10	4	5	4	4	4	4	5	4	4	5	43	4.3
11	1	1	1	1	1	1	1	1	1	1	10	1
12	5	5	4	5	4	5	5	4	4	5	46	4.6
13	5	4	5	3	4	4	4	3	5	5	42	4.2
14	4	4	4	4	4	4	4	4	4	4	40	4
15	5	5	5	5	5	5	5	5	5	5	50	5
16	5	5	5	5	5	5	5	4	5	5	49	4.9
17	4	5	4	5	4	3	5	4	3	5	42	4.2
18	5	5	4	4	5	5	5	4	5	5	47	4.7
19	4	4	5	5	4	4	5	3	5	3	42	4.2
20	5	5	5	5	5	4	5	5	5	5	49	4.9
21	5	5	5	5	5	5	5	4	3	5	47	4.7
											AVERAGE:	92

Figure 24: SUS Computation

Figure 20 shows the comprehensive tabular analysis of the System Usability Scale evaluation conducted with 21 respondents comprising 3 instructors and 17 College of Business students, demonstrating the methodical calculation process that resulted in the exceptional overall SUS score of 92. The computation table systematically displays each respondent's individual responses to the ten standardized SUS questions (Q1 through Q10) rated on a 5-point Likert scale, followed by their calculated raw scores and final average scores that contribute to the overall system evaluation. The data reveals consistently high ratings across all participants, with most responses clustering around 4s and 5s on the Likert scale, indicating overwhelmingly positive user experiences with the Hospitality and Aviation Booking Simulation System. The scoring methodology is transparently demonstrated by converting raw responses into adjusted scores using the established SUS calculation formula: odd-numbered questions are scored as response minus 1, even-numbered questions are scored as 5 minus

response, and the sum is multiplied by 2.5 to produce the final 0-100 scale score. Individual participant scores range predominantly between 85-100, with raw scores typically falling between 34-40 points, confirming that the exceptional average of 92 represents genuine consensus rather than statistical outliers. This detailed computation validates the reliability and authenticity of the Grade A "Excellent" classification, demonstrating that both academic instructors and business students found the educational booking platform remarkably intuitive, efficient, and conducive to learning real-world travel industry processes without the complexity barriers that might otherwise impede educational objectives.

Table 2: Overall SUS Result

OVERALL SUS SCORE	GRADE	ADJECTIVE	Acceptable
92	**A**	**Excellent**	**Acceptable**

The System Usability Scale (SUS) evaluation of the Hospitality and Aviation Booking Simulation System (HABSS) demonstrates exceptional user acceptance and usability performance among the academic participants. The 20 respondents, comprising three (3) instructors and sevente(17) College of Business students, collectively provided feedback that resulted in an outstanding overall SUS score of 92 out of 100. This score translates to a Grade A rating and is classified as "Excellent" in terms of usability quality, while also being deemed "Acceptable" according to established SUS interpretation standards.

The achievement of a 92 SUS score is particularly significant as it places the HABSS system well above the industry benchmark of 68, which represents

average usability. This exceptional score indicates that both the instructors and COB students found the booking simulation system remarkably intuitive, efficient, and user-friendly. The high score suggests that the educational platform effectively eliminates common usability barriers that might otherwise impede learning, allowing students to focus on mastering booking procedures rather than struggling with interface complexity.

For the academic context, this result validates that the HABSS system effectively serves its educational purpose by providing an accessible learning environment where students can practice real-world travel booking scenarios without encountering the technical difficulties often associated with complex software systems. The unanimous positive response from both instructors and students demonstrates that the system meets the diverse needs of academic users, from educators who require reliable teaching tools to students who need intuitive interfaces for skill development in hospitality and aviation booking processes.

Furthermore, the system's comprehensive functionality enables instructors to create realistic case studies and practical exercises that mirror industry standards, allowing students to gain hands-on experience with multi-step booking workflows, payment processing simulations, and customer service scenarios that are directly applicable to their future careers in the hospitality and aviation sectors.

CHAPTER IV

CHAPTER IV

CONCLUSION AND RECOMMENDATION

This chapter presents the conclusions of the study in creating HABSS: Hospitality and Aviation Simulation System helps the students of College of Business students in Lorma Colleges CLI San Juan, La Union Campus. Moreover, recommendations are made for further improvement of the project.

Conclusion

The implementation of the Hospitality and Aviation Booking Simulation System HABSS demonstrates a significant improvement in providing an accessible, user-friendly environment for simulating travel bookings. By allowing users to practice booking flights, hotels, or bundled itineraries without relying on real-time APIs or actual payment processing, HABSS effectively familiarizes students with industry-standard booking workflows while reducing the anxiety commonly associated with live commercial systems. The results indicate that users were able to complete simulated bookings with ease, navigate the interface intuitively, and clearly understand the sequence of typical reservation processes, thereby increasing their confidence and competence in travel and hospitality operations.

In relation to the first objective, which aimed to develop a web-based booking simulation interface capable of accepting comprehensive travel requirements, the findings confirm that HABSS successfully supports all

necessary inputs, including destination, travel dates, passenger details, lodging preferences, and bundle selection. Users scored that the input forms were logically structured and easy to complete(see Appendices B), demonstrating that the interface effectively translates theoretical concepts into an interactive, real-world-like experience. The system's responsiveness and clear validation messages further reinforce proper data entry practices, which are essential in actual booking environments.

With respect to the second objective, focused on generating a confirmed itinerary summarizing flight details, accommodation information, and booking status, HABSS consistently produces clear and well-organized itineraries upon successful simulation. These itineraries consolidate key information such as flight schedules, hotel check-in and check-out dates, and reservation status into a single output, closely mirroring documentation used in industry practice. This feature enables learners to review their booking decisions, understand how individual inputs contribute to the final reservation, and identify areas for improvement in future simulations.

Addressing the third objective, which evaluated the effectiveness and usability of HABSS using the System Usability Scale (SUS), the system achieved a high usability score of 92, corresponding to an Excellent rating. This result reflects strong user acceptance, ease of learning, efficiency, and overall coherence of the system's design. Qualitative feedback further revealed that users found the simulation sufficiently realistic to prepare them for actual

booking platforms while remaining safe and forgiving for experimentation. Collectively, these findings validate HABSS as an effective, student-centered instructional tool for teaching travel and hospitality booking processes.

Recommendations

Future enhancements to HABSS can expand its scope and immersion, addressing evolving needs in tourism education. The following prioritized list outlines key upgrades:

1. Integrate additional travel services: Add car rentals, restaurant reservations, and local tour packages to create a holistic travel-planning simulation that mirrors comprehensive platforms like Expedia.

2. Incorporate visual enhancements: Implement 3D aircraft seat maps, interactive cabin layouts, and hotel room previews to boost user engagement and realistic decision-making.

3. Enable dynamic datasets and APIs: Support optional real-time API integrations for live availability simulations while preserving a controlled, risk-free learning environment.

4. Enhance analytics and reporting: Develop instructor tools for tracking student performance, usage patterns, and learning outcomes to facilitate data-driven pedagogy.

5. Add administrators that can handle the booking process and check the statistics and user information, verifications, travel history.

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APENDICES

Appendices A

SUS Questionnaire for HABSS Capstone Project

1. I consider this booking system to be straightforward and easy to comprehend. *

1	2	3	4	5
○	○	○	○	○

2. The functionalities for booking flights and hotels were intuitive and simple to operate. *

1	2	3	4	5
○	○	○	○	○

3. I was able to locate the information or options I required without difficulty. *

1	2	3	4	5
○	○	○	○	○

4. The system behaved consistently and operated as I anticipated. *

1	2	3	4	5
○	○	○	○	○

5. I felt at ease while using the booking simulation system. *

1	2	3	4	5
○	○	○	○	○

6. Completing a booking was a straightforward process with minimal errors. *

1	2	3	4	5
○	○	○	○	○

7. The booking steps were well-defined and easy to follow. *

1	2	3	4	5
○	○	○	○	○

8. I did not require assistance or guidance to use the system effectively. *

1	2	3	4	5
○	○	○	○	○

9. The system responded promptly to my inputs and actions. *

1	2	3	4	5
○	○	○	○	○

10. The visual design and layout of the system are appealing and well-organized. *

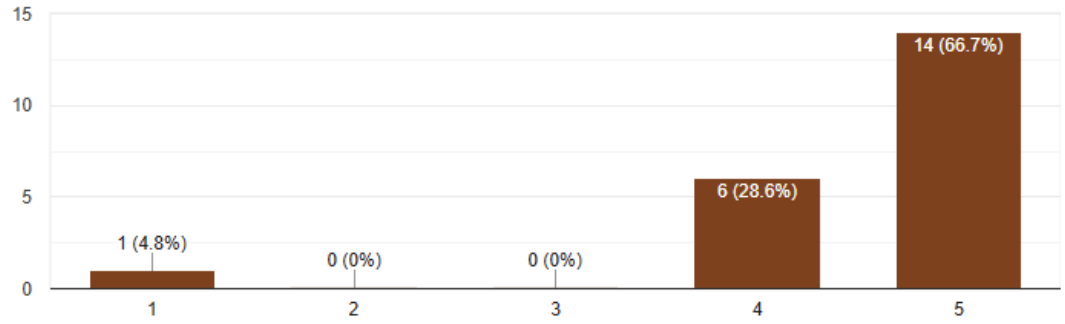
1	2	3	4	5
○	○	○	○	◉

Appendices B

Transcript of the SUS Questionnaire for HABSS

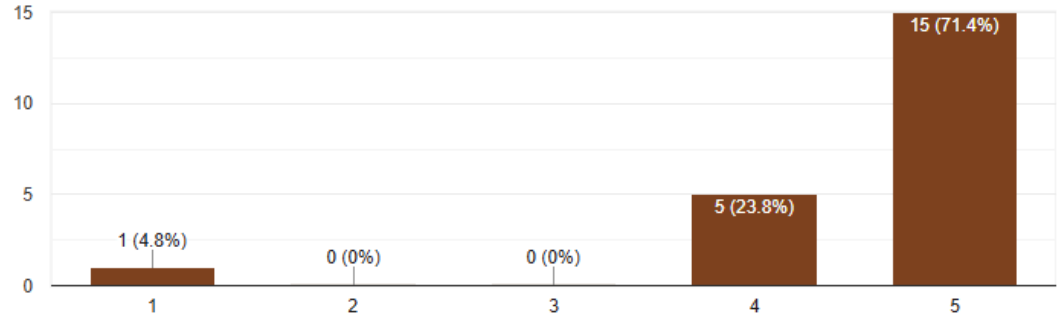
1. I consider this booking system to be straightforward and easy to comprehend. Copy chart

21 responses



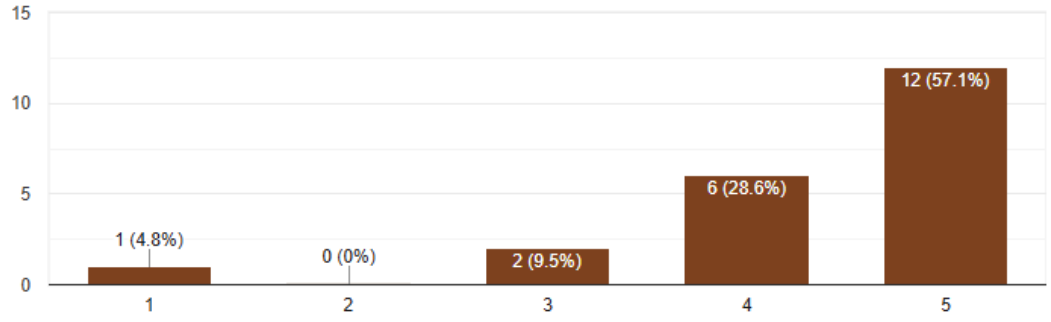
2. The functionalities for booking flights and hotels were intuitive and simple to operate. Copy chart

21 responses



3. I was able to locate the information or options I required without difficulty. Copy chart

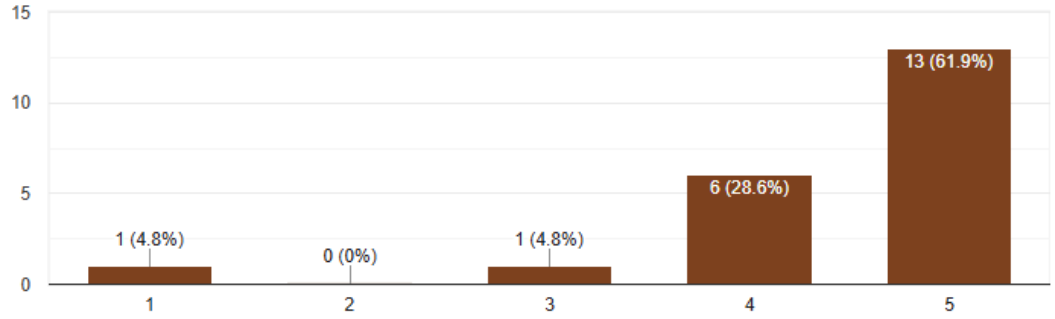
21 responses



4. The system behaved consistently and operated as I anticipated.

Copy chart

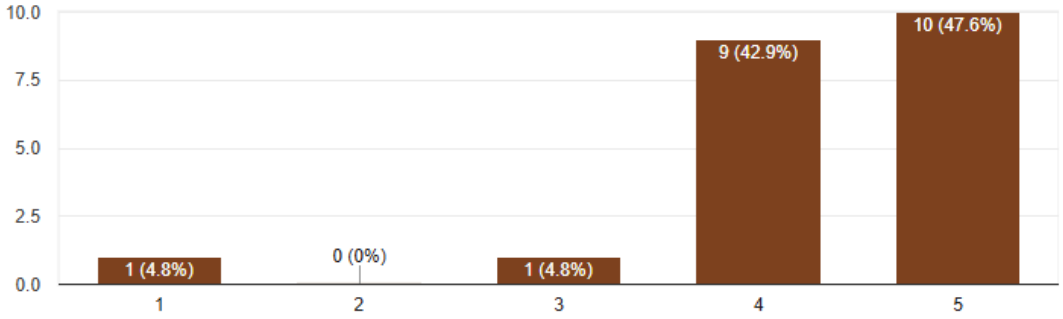
21 responses



5. I felt at ease while using the booking simulation system.

Copy chart

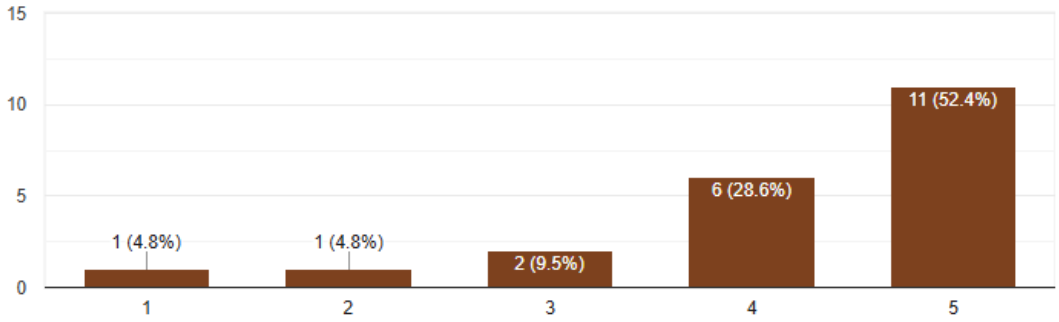
21 responses



6. Completing a booking was a straightforward process with minimal errors.

Copy chart

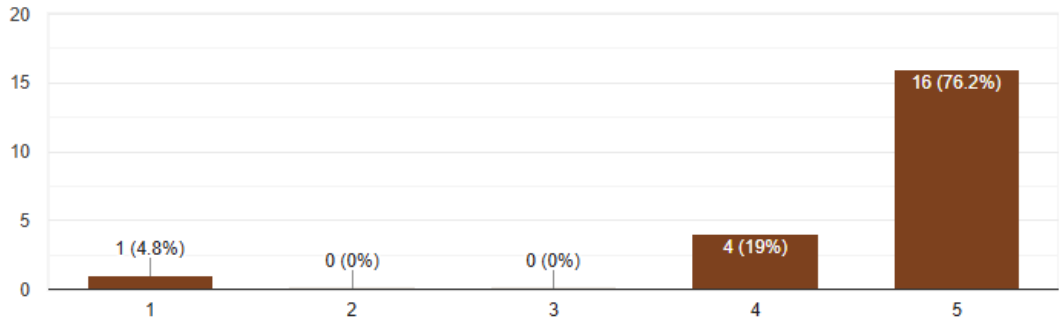
21 responses



7. The booking steps were well-defined and easy to follow.

Copy chart

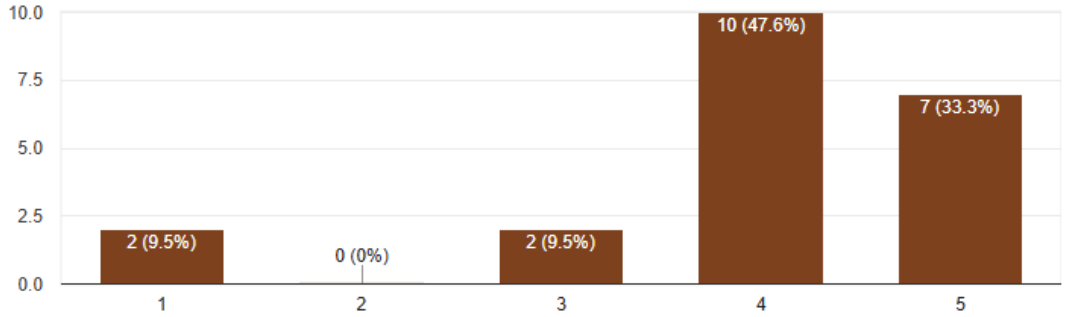
21 responses



8. I did not require assistance or guidance to use the system effectively.

Copy chart

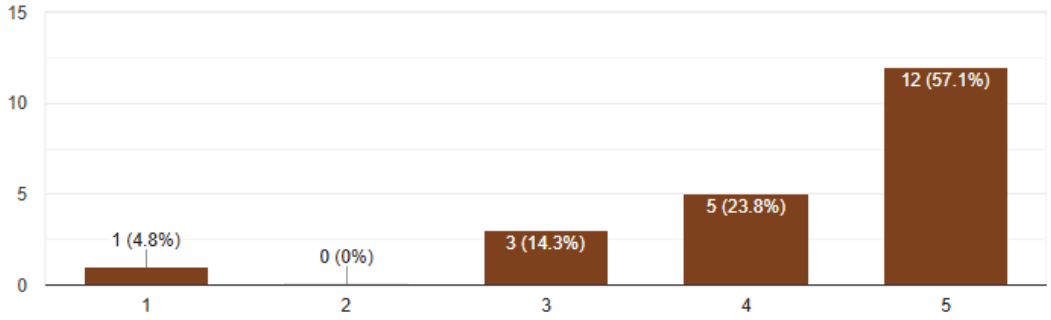
21 responses



9. The system responded promptly to my inputs and actions.

Copy chart

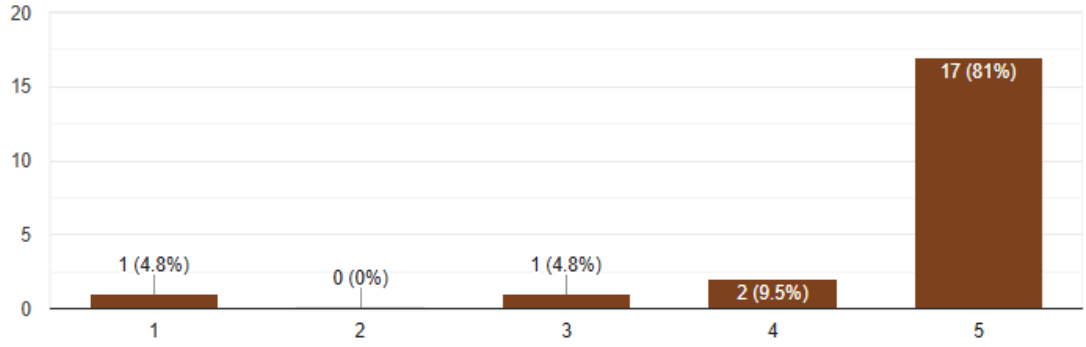
21 responses



10. The visual design and layout of the system are appealing and well-organized.

Copy chart

21 responses



Appendices C

SUS Score Ranges & Meaning

SUS Score	Interpretation
90-100	Best Imaginable
85-89	Excellent
80-84	Good
70-79	Acceptable
50-69	Marginal
Below 50	Poor

Letter Grade Equivalent

SUS Score	Grade
A	80.3-100
B	68-80.2
C	53-67
D	38-52
F	Below 38

CURRICULUM VITAE

Galvan, John Patrick S.

I. PERSONAL INFORMATION

Address	: Santiago Norte, San Fernando City, La Union
Contact Number	: 09959846122
Email add	: johnpatrick.galvan@lorma.edu
Date of Birth	: August 30, 2000
Place of Birth	: Bauang, La Union

II. EDUCATIONAL BACKGROUND

Tertiary

- Lorma Colleges | 2019 - Until Present

Secondary

- Sacred Heart School, Bauang, La Union

Primary

- Saints Peter and Paul Learning Center Bauang, La Union

III. AWARDS/CITATIONS/RECOGNITIONS RECEIVED

- Academic Dean's Lister Grantee 07/15/19

IV. WORK EXPERIENCE: N/A

V. ELIGIBILITY : N/A

VI. SEMINARS ATTENDED

- National Conference on Computing Education and Business (NCCEB) | 2024
- Global Conference on Robotics and Artificial Intelligence Technologies (GCRAIT) |

VII. INVOLVEMENT IN RESEARCH/RESEARCHES CONDUCTED

- HABSS: Hospitality and Aviation Booking Simulation System

CURRICULUM VITAE

Livara, Joenel Kurt Ruzzell R.

I.PERSONAL INFORMATION

Address : Dal - Lipaoen, Naguilian, La Union

Contact Number : 09566989155

Email add : joenelkurtruzzell.livara@lorma.edu

Date of Birth : June 19, 2000

Place of Birth : Pocal - Pocal, Alaminos City, Pangasinan

II. EDUCATIONAL BACKGROUND

Tertiary
- Lorma Colleges | 2019 - Until Present

Secondary
- Naguilian National High School - Naguilian, La Union

Primary
- Philex Mines Elementary School - Padcal, Tuba, Benguet

III. AWARDS/CITATIONS/RECOGNITIONS RECEIVED : N/A

IV. WORK EXPERIENCE: N/A

V. ELIGIBILITY : N/A

VI. SEMINARS ATTENDED

- National Conference on Computing Education and Business (NCCEB) | 2024
- Global Conference on Robotics and Artificial Intelligence Technologies (GCRAIT) | 2024

VII. INVOLVEMENT IN RESEARCH/RESEARCHES CONDUCTED

- HABSS: Hospitality and Aviation Booking Simulation System