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Photography Booking and Management System for Karya Kita using Laravel Frameworks

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Abstract

This paper presents the development of a Photography Booking and Management System for Studio by Karya Kita, aimed at addressing operational inefficiencies such as double bookings, missed appointments, and poor payment handling caused by manual processes. The system automates the booking process, integrates payments, and generates QR-based receipts to streamline the operations of the studio. Developed using an object-oriented approach, the frontend of the system was created using Android (with Dart/Flutter), while the backend was powered by Laravel, a PHP framework, facilitating easy management of database interactions. The project employed the Prototyping methodology to allow iterative development based on user feedback. The system is validated through alpha and beta testing to ensure its functionality and user satisfaction. Key findings from user acceptance testing revealed a significant reduction in scheduling conflicts, enhanced operational transparency, and improved client satisfaction. User feedback showed high satisfaction across all areas, with ratings ranging from 88% to 96%. The QR Code feature was the highest-rated at 96%, followed by Ease of Login and Overall Satisfaction at 94%. Other key features like Booking Experience, Admin Calendar, and Payment Upload also scored above 90%, indicating strong system performance and a positive user experience.The solution ensures scalability and continuous service availability, particularly during high-demand events such as convocations, allowing the studio to manage increased bookings without issues. Future recommendations for system improvement include integrating mobile applications for real-time bookings and expanding the payment solution for better scalability during peak periods.

1. Introduction

Photography studios play a vital role in helping individuals and businesses capture significant moments such as weddings, engagements, convocations, and promotional activities. These studios combine creative direction and technical precision to produce professional images and videos [1]. In Malaysia, many studios operate using a mix of traditional and digital methods to manage customer bookings, communications, and deliverables. Studio by Karya Kita, established in 2022 and located in Kuala Pilah, Negeri Sembilan, is one such business providing high-quality photography and videography services for personal and commercial clients. Founded by a young entrepreneur, the studio initially managed bookings and communications manually using tools like WhatsApp,

Google Forms, and Excel spreadsheets [2]. However, as the client base grew, the manual system resulted in inefficiencies such as scheduling conflicts, communication delays, missed appointments, and poor tracking of payments and portfolios.

The current workflow poses multiple operational challenges. Without an automated system, the studio often experiences double bookings and delayed payments due to the absence of a reliable invoicing and receipt system. Managing financial records manually makes it difficult to maintain accurate data and cash flow. Moreover, during high-demand events like convocations, the studio faces long queues and crowding, which negatively affect the client experience. The lack of a collaboration mechanism with freelance photographers also limits the studio's capacity to handle peak bookings effectively, especially when main photographers are unavailable. These limitations hinder the studio's ability to grow, serve its clients efficiently, and ensure consistent service quality.

To address these pressing issues, a Photography Booking and Management System is proposed. This system aims to automate booking operations, streamline payment processing, provide a centralized portfolio, and integrate communication and collaboration tools using an object-oriented approach. Developed using Android technology, the system is intended to enhance both client interaction and internal management. The objectives of this project are threefold: (1) to design a photography booking system using object-oriented principles, (2) to develop the system on an Android platform for mobile accessibility, and (3) to evaluate the system's functionality through alpha and beta testing phases. The scope of the project covers interactions among four main user roles—administrator, staff, clients, and freelance photographers—each with tailored access to booking, calendar, and media features.

The expected outcomes include improved operational efficiency, greater client satisfaction, and better financial tracking. With real-time booking updates, automated reminders, a live queue tracking system for convocations, and digital receipts via QR codes, the system will minimize human error and enhance the service experience. From the administrative perspective, integrated reporting tools and profit tracking will enable more strategic decision-making and business scalability. Clients will benefit from easier booking management, reliable notifications, and access to a personalized picture library enhanced by AI tools like TensorFlow Lite and GPT-based recommendations [3], [4].

Ultimately, the Photography Booking and Management System will replace inefficient manual processes with a comprehensive, secure, and scalable platform that meets the needs of both clients and staff. It will serve as a case study for Studio by Karya Kita, demonstrating how digital transformation in creative businesses can improve service delivery and client engagement. This paper is organized as follows: Section 1 introduces the study, highlighting its background, problems, objectives, scope, expected outcomes, and significance. Section 2 reviews related works. Section 3 outlines the methodology, followed by the results and discussions in Section 4. Section 5 concludes the study with key findings and suggestions for future work.

2. Related Work

This section highlights technologies and existing studies that have influenced the design and development of the proposed Photography Booking and Management System for Studio by Karya Kita. The review focuses on three core areas relevant to the system: booking and scheduling platforms, QR code integration for location access, and freelance photographer collaboration and resource allocation.

2.1 Booking and Scheduling Systems in Creative Industries

Many small to medium-sized photography studios continue to rely on manual systems, such as spreadsheets, emails, and messaging platforms like WhatsApp, to handle client bookings [5]. Although these methods are familiar and accessible, they are prone to operational inefficiencies such as double bookings, missed appointments, and difficulties in managing client data. Modern booking solutions such as *Loominos* [6] and *Booksy* [7] offer automation for appointments, reminders, and payment handling. However, these commercial platforms are often designed for broader use cases and may not cater specifically to the unique workflows of photography studios—such as generating QR-based receipts or managing event-based booking slots.

2.2 Qr Code Integration for Location Access

QR code technology is widely adopted in service-based industries to facilitate seamless client interaction. In photography studios, QR codes can be used for more than just attendance tracking—they can enhance user convenience by linking directly to invoices, session details, or navigation maps. Platforms like *Fresha* and *Zoylee* offer basic QR functionality for confirming bookings, but they lack deep integration with features like map redirection or personalized session details. In the proposed system, every confirmed booking automatically generates a unique QR code. When scanned, it redirects the client to the studio's exact location using Google Maps. This is especially helpful during crowded events such as convocations or walk-in sessions, where quick and

accurate navigation is essential. Unlike generic QR usage, this implementation is built directly into the booking confirmation interface, improving usability and reducing confusion.

2.3 Freelancer Collaboration and Event Resource Allocation

The gig economy has increasingly enabled creative studios to scale operations by collaborating with freelance photographers. Platforms like *Snappr* and *Shutterhub* provide matchmaking between studios and available photographers for specific events or shoots. These systems often include tools like availability calendars, role assignment, and collaborative task management [8]. Inspired by these systems, the Photography Booking and Management System for Karya Kita includes a built-in module for freelance collaboration. Administrators can view the availability of freelance photographers, assign them to events, and track their participation, ensuring continuous service coverage even when the core team is fully booked. This feature is particularly valuable for handling high-demand events without compromising service quality.

2.4 Comparison with Existing Systems

To better understand the advantages of the proposed Photography Booking and Management System for Studio by Karya Kita, it is essential to compare it with existing systems in the photography industry. Platforms such as *Loominos Studio*, *YellowHive*, and *Glance Photography Studio* offer partial functionality for booking and client management. However, they each have notable limitations that affect their usability, especially for studios operating at a larger or more demanding scale.

Loominos Studio, for example, includes a basic booking interface but lacks core modules such as client login, payment integration, and portfolio management. Similarly, *YellowHive* offers user login functionality but lacks both collaboration tools and integrated payment support. *Glance Photography Studio* includes a basic order and booking system but falls short in offering secure user accounts, centralized portfolios, or any freelancer collaboration tools. These limitations reduce their overall usefulness for photography studios handling multiple clients or events.

The proposed Karya Kita Studio Hub is specifically designed to address these gaps. It supports a complete booking system, secure login, payment integration, centralized portfolio management, and collaboration tools for managing freelance photographers. In addition, it introduces a QR code module that allows clients to scan a code and instantly open the studio's location in Google Maps — an essential feature for events like convocations or walk-in photo sessions.

The system offers a comprehensive solution by centralizing all core processes under one platform, improving studio efficiency and client satisfaction. This approach not only eliminates the inefficiencies of manual systems but also enhances professionalism and scalability.

Table 1: Module Comparison of Photography Booking Systems

Features / System	Loominos Studio	YellowHive	Glance Photography Studio	Studio Karya Kita
Log In	No	Yes	Yes	Yes
Process Order	No	No	Yes	Yes
Payment Integration	No	No	No	Yes
Portfolio Management	No	No	No	Yes
Collaboration Tools	No	No	No	Yes
Booking System	Yes	Yes	Yes	Yes
QR Code with Location Access	No	No	No	Yes

The Photography Booking and Management System for Studio by Karya Kita offers a comprehensive solution that outperforms existing platforms like Loominos Studio, YellowHive, and Glance Photography Studio, which provide basic functionalities but lack essential features. Karya Kita's system integrates a secure login, seamless payment integration, portfolio management, and collaboration tools for freelance photographers, addressing common industry gaps. This enables efficient transactions, organized portfolios, and smooth collaboration, improving both client and photographer experiences.

Additionally, the system features QR code integration, which allows clients to quickly access the studio's location via Google Maps, enhancing convenience during high-demand events such as convocations. Overall, the system streamlines operations, improves user experience, and offers scalability for future growth, making it a professional, efficient, and flexible solution for photography studios.

3. Methodology/Framework

In this section, the paper discusses the methodology used and how it is being implemented in the development of the system as well as the activities that had been carried out in each phase. Figure 1 has an use case diagram and Figure 2 about class diagram. Gantt Chart have shown on appendix A.

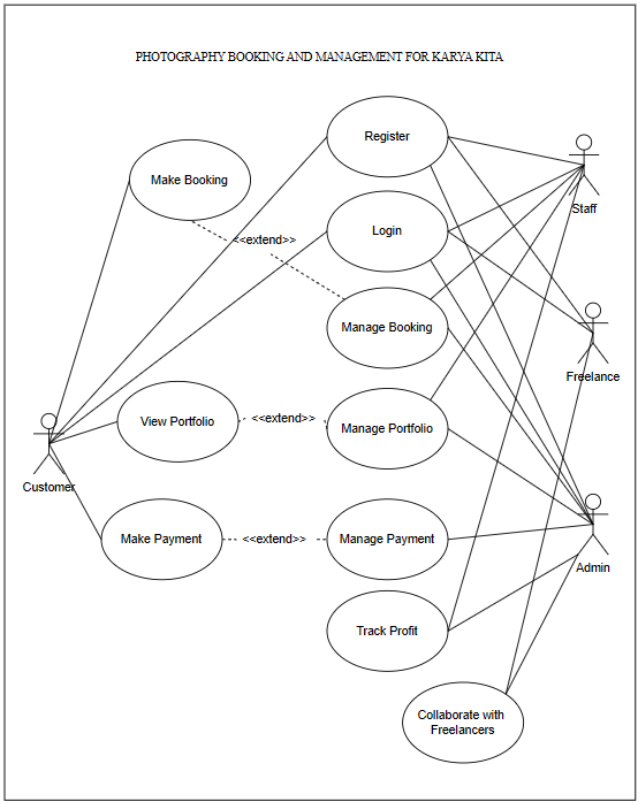


Fig. 1 Use Case Diagram

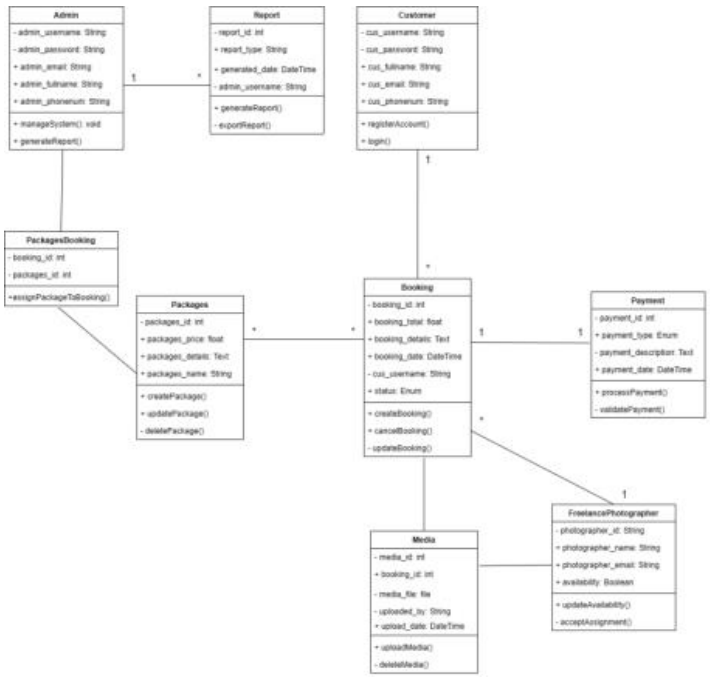


Fig. 2 Class Diagram

3.1 Prototyping Model

Applied Information Technology and Computer Science Vol. 7 No. 1 (2026) p. 897-910

The Photography Booking and Management System for Studio by Karya Kita was developed using the Prototyping Model, an iterative software development approach that focuses on building early versions of a system to collect feedback and refine functionality accordingly. This model is particularly beneficial when system requirements are not clearly defined from the outset. By involving users early and continuously throughout development, the approach ensures that the final product meets actual user needs and reduces the risk of delivering an ineffective solution. The Prototyping Model emphasizes active stakeholder engagement, which is critical in creative service industries like photography, where workflows and user preferences can vary widely.

The model consists of five interconnected phases: requirements gathering, quick design, prototype development, prototype testing, and refinement like on Figure 3. In the requirements gathering phase, the project team identifies user expectations, stakeholder needs, and the overall system scope. Activities such as stakeholder interviews, document analysis, and observation were conducted to obtain a clear picture of the existing problems, particularly the inefficiencies of the manual booking and payment systems previously used by Studio by Karya Kita. The quick design phase involves sketching the system's interface and planning its basic structure. This includes drawing mock-ups and UI wireframes, which were later validated with users for early feedback.

In the prototype development phase, a low-fidelity prototype of the system is constructed. This prototype integrates the initial interface with simulated data and basic functionalities like booking forms and portfolio galleries. Feedback collected during this phase guided iterative improvements. The prototype testing phase follows, in which a more complete version of the system is tested internally and externally. Test cases target functional modules such as booking, login, payment integration, and QR code generation for location access via Google Maps. User Acceptance Testing (UAT) is conducted to ensure the system works in real-world contexts.

Finally, the refinement phase incorporates suggestions and bug fixes resulting from the testing phase. The system is finalized with enhancements to UI design, database performance, and user flow. The cyclical nature of the prototyping model ensures ongoing feedback and refinement, resulting in a system that effectively streamlines booking processes, enables collaborative scheduling with freelance photographers, and improves overall client engagement.

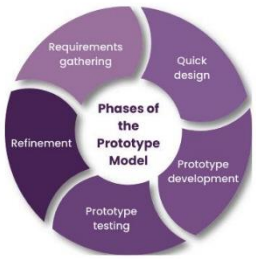


Fig. 3 Phases *of Prototyping Model [9]*

3.2 Software Development Activities

The software development process was broken into phases, mapped to two main iterations, from planning through refinement. Each phase included specific tasks and expected deliverables to guide project execution like table 2 software development activities and their tasks.

Table 2 *Software development activities and their tasks*

Phase	Task	Output
Requirements Gathering	- Propose the project- Determine schedule, activities, and output- Gather and specify requirements	- Project proposal- Gantt chart- Use Case Diagram- Use Case Specification- Activity Diagram- Sequence Diagram- Class Diagram- Requirement Definition
	Iteration 1	
Quick Design	- Design interface wireframes and layout ideas	- Interface mockups and UI sketches
Prototype Development	- Create basic prototype functionality	- Prototype 1
Iteration 2		
Interface Design	- Design actual user interfaces	- Refined interfaces
Prototype Design	- Convert designs into working front-end components	- Final UI implemented
Backend Development	- Build server-side logic and database integration	- Working booking system
Prototype Refinement	- Fix issues from feedback and smooth user flow	- Stakeholder feedback
Testing	- Validate components through unit testing, UAT, and functional tests	- Testing report
Implementation	- Deploy final prototype to web hosting environment	- Deployed working system

4. Result and Discussion

This chapter presents the results obtained during the development and testing of the Photography Booking and Management System for Studio by Karya Kita. The results are discussed in the context of the system's main objectives: to streamline the photography booking process, facilitate payment integration, and support efficient portfolio and freelance management. Testing was conducted in phases to ensure the system fulfilled its functional and non-functional requirements. The findings presented here are based on feedback from stakeholders during the User Acceptance Testing (UAT), as well as internal performance validations.

The implementation of the system was evaluated through multiple perspectives: system functionality, user feedback, booking workflow validation, and technical reliability. Users were involved during the testing phase to ensure the prototype fulfilled real-world expectations. The results were organized by modules including login, event booking, payment, QR code generation, calendar schedule, and freelance collaboration.

4.1 Functional Testing Results

Functional testing was conducted to validate each module developed in the system on Table 3 functional testing results for major modules. The goal was to ensure that all features performed as expected without errors. The test cases were created based on user stories and system requirements collected during the analysis phase.

Applied Information Technology and Computer Science Vol. 7 No. 1 (2026) p. 897-910

Table 3 *Functional Testing Results for Major Modules*

Module	Test Description	Expected Result	Actual Result	Status
Login / Registration	Users enter credentials or register new account	Successful login or registration	Functioned correctly	Passed
Booking System	Users book an event session with details	Event saved and listed under user profile	Booking recorded	Passed
QR Code for Map Location	Client scans QR code from booking receipt	Redirects to Google Maps studio location	Map opened in browser	Passed
Calendar Scheduling (Admin)	Admin views event schedule on calendar	Events appear on appropriate dates	Events displayed	Passed
Freelance Assignment	Admin assigns available freelance photographer	Assignment saved in system	Role displayed in event	Passed

4.1.1 Login Module

The login module is the entry point of the system, where users such as clients, admins, and freelance photographers authenticate themselves. The login page is designed to validate user input and ensure secure access to personalized dashboards. Figure 4,5 shows the login page interface which users must pass through before being redirected to their homepage.

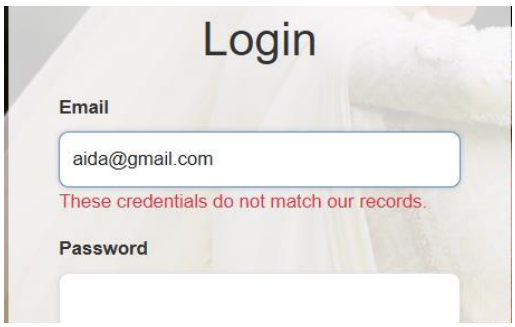


Fig. 4 displays the code snippet used to implement the login logic, including session handling

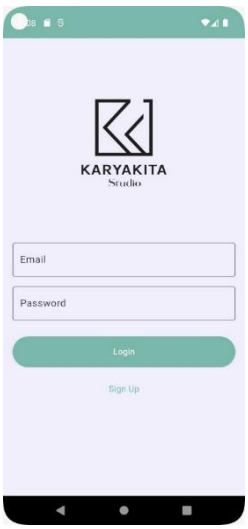


Fig. 5 Login Page Application

4.1.2 Slot Booking Module

The slot booking module allows users to view available and unavailable time slots before proceeding to a booking. Fig. 16 shows the interface where users can select their desired slot, while Figure 6 displays the backend code that dynamically filters and displays available slots from the database.

Fig. 6 Interface User

4.1.3 Payment Module

Once bookings are confirmed, users proceed to the payment page to upload proof of payment. Fig. 18 shows the payment interface where users upload their transaction receipt. Figure 7 contains the code snippet that processes the uploaded file and links it to the specific booking ID.

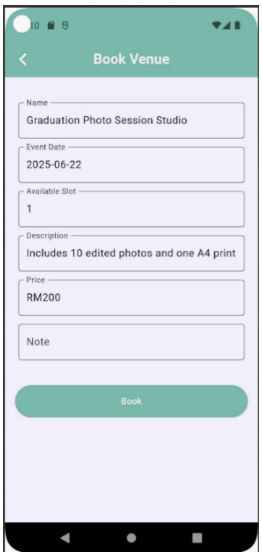


Fig. 7 Payment Page

4.1.4 Qr Code Location Module

The system generates a unique QR code upon successful payment confirmation. This QR code, when scanned, redirects the user to Studio by Karya Kita's exact location on Google Maps. Figure 8 shows the generated QR code linked to the booking receipt.

Applied Information Technology and Computer Science Vol. 7 No. 1 (2026) p. 897-910

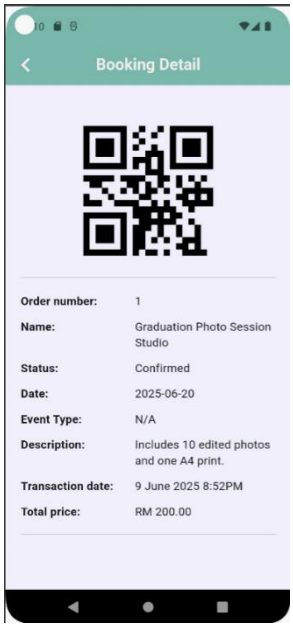


Fig. 8 QR Code Location Page

4.1.5 Admin Calendar View

To manage scheduling efficiently, the admin can view all bookings on a calendar interface. Figure 9 shows the calendar displaying event dates, times, and client names.

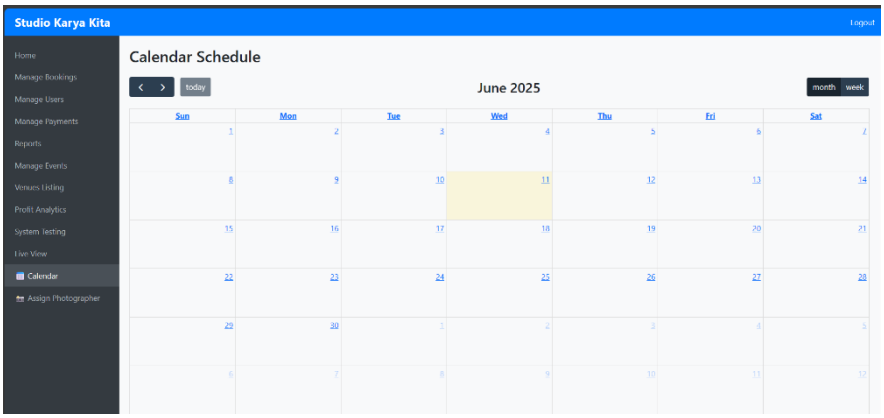


Fig. 9 Admin Calendar View

4.2 Functional Testing

Functional testing was conducted to ensure each module of the system performs according to its intended design and requirements. The testing focused on verifying the core features such as login, booking, payment processing, report generation, user management, picture library, QR code functionality, and calendar access for administrators. Tables 4 and 5 present the outcomes of functional testing for key system modules. All test cases across both tables achieved a 100% pass rate, confirming that features such as Login, Booking, Payment, Report Generation, User Management, Picture Library, QR Code, and Admin Calendar are operating correctly without any failures. This successful result reflects the system's overall functional stability and readiness for deployment.

Table 4 *Functional Test Case Results*

Test Cases	Number of Test Cases	Total Test Cases Passes	Total Failed
Tc_100 Login	4	4 (100%)	0
Tc_200 Booking	7	7 (100%)	0
Tc_300 Payment	4	4 (100%)	0
Tc_400 Report Generation	1	1 (100%)	0
Tc_500 User Management	3	3 (100%)	0
Tc_600 Picture Library	4	4 (100%)	0

Table 5 *Functional Test Case Results*

Module	Total Test Cases	Total Passed	Total Failed
Login	3	3	0
Booking	3	3	0
Payment	2	2	0
QR Code	1	1	0
Calendar (Admin)	1	1	0

4.3 User Acceptance Testing (UAT)

User Acceptance Testing (UAT) was conducted with users representing different roles: clients, admin staff, and freelance photographers. Each respondent answered questions based on various criteria such as ease of use, system responsiveness, interface design, and overall satisfaction on Table 6 UAT feedback summary. The feedback provided valuable insights into the system's performance and usability, and it was used to refine the system to better meet the needs of its users.

Table 6 *UAT Feedback Summary*

Criteria	Average Rating (1-5)
Ease of Login	4.7
Booking Experience	4.6
Payment Proof Upload	4.5
QR Code Usefulness	4.8
Admin Calendar Accessibility	4.6
System Speed	4.4
Overall Satisfaction	4.7

The results from the UAT indicate a high level of satisfaction, particularly in areas such as QR Code Usefulness and Ease of Login, which received the highest ratings. While the System Speed received a slightly lower rating, it still indicates a positive user experience overall on figure 10,11 and 12.

Applied Information Technology and Computer Science Vol. 7 No. 1 (2026) p. 897-910

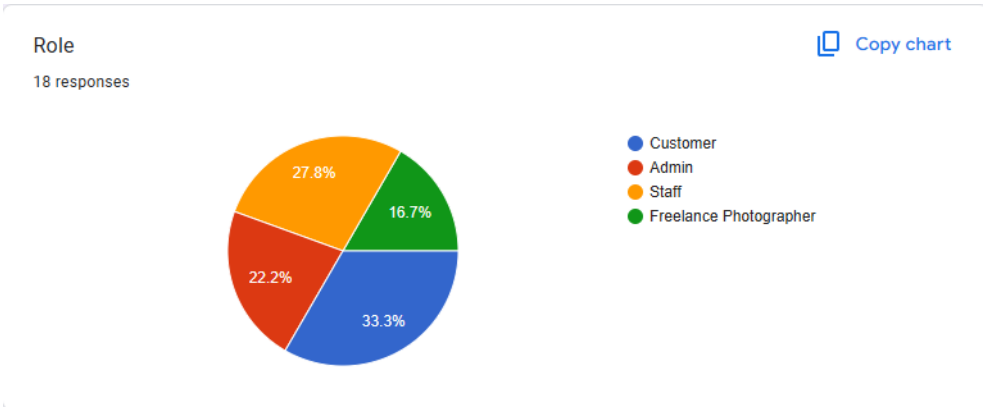
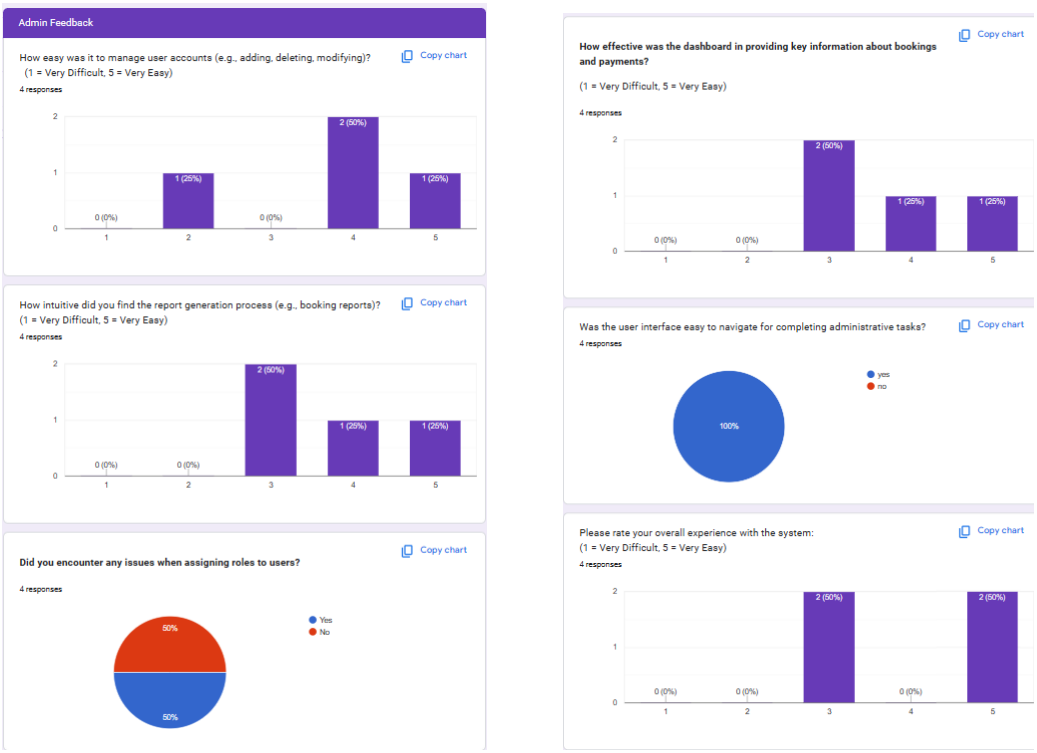
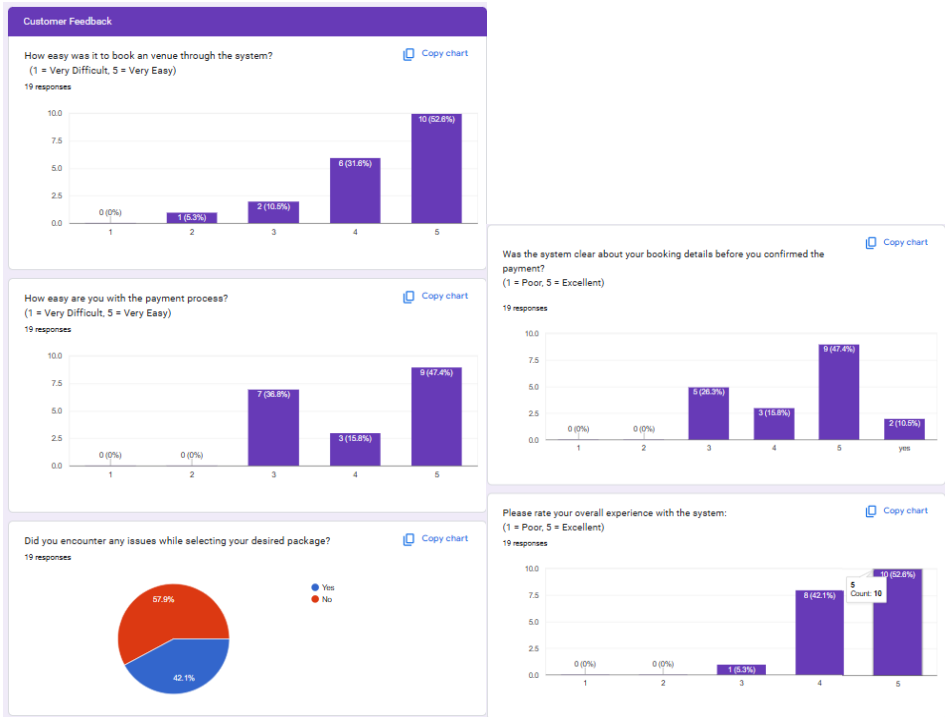


Fig. 10 User Acceptance Role Result



(a) (b)

Fig. 11 (a)(b) Admin Acceptance Role Result



(a) (b)

Fig. 12 (a)(b) Customer Acceptance Role Result

5. Conclusion

In conclusion, the Photography Booking and Management System for Studio by Karya Kita was developed to address the inefficiencies of manual booking methods previously used by the studio. The system successfully streamlines the end-to-end process of photography service management, from event booking and slot selection to payment confirmation and QR-based location access. The integration of features such as freelance collaboration, admin calendar view, and client dashboard significantly enhances user experience and operational control.

The results from functional and user acceptance testing show that the system meets user expectations, particularly in terms of usability, responsiveness, and clarity. By minimizing booking conflicts and offering a centralized platform for all user roles, the system improves client satisfaction, strengthens internal coordination, and supports better service delivery.

For future work, the system can be expanded with payment gateway integration, SMS-based reminders, and advanced reporting analytics for business growth tracking. The system not only provides technical value to Studio by Karya Kita but also offers a scalable framework that can be replicated for other service-based creative industries.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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Appendix A: Gantt Chart