E-ISSN: 2962-6110
P-ISSN: 2964-7843
JSRET
jsret.knpub.com
Journal of Scientific Research, Education, and Technology


# Wedding Organizer Goods And Services Rental System (Case Study: Dina Griya Rias)

**Didik Sukma Putra, Adam Sekti Aji**
Universitas Teknologi Yogyakarata

**ABSTRACT**

Dina Griya Rias, as a wedding organizer service provider, still relies on a manual rental system involving handwritten records, face-to-face communication, and phone calls. These manual processes lead to frequent scheduling errors, delays in order confirmation, difficulties in monitoring item availability, and limited access to accurate information. Such inefficiencies hinder operational effectiveness and reduce customer satisfaction. This study aims to design and develop a web- and mobile-based rental system for wedding goods and services that can be accessed by both administrators and customers. The system integrates real-time item availability monitoring, digital transaction recording, and online booking capabilities. The development process follows the Waterfall method, covering requirements analysis, system design, implementation, and testing. The results demonstrate that the system improves rental management efficiency, reduces human error, and accelerates service delivery. This research contributes a practical digital solution for wedding organizer businesses, offering an integrated platform that enhances accessibility, accuracy, and overall service quality.

***Keywords:*** *Information System, Rental, Wedding Organizer, Web, Mobile*

***Corresponding author***
***Name: Didik Sukma Putra***
***Email: didiksp726@gmail.com***

## INTRODUCTION

Wedding organizers (WO) services play an important role in supporting couples during wedding preparation by providing equipment, decorations, catering, attire, and various supporting services. As one of the active WO service providers in Dompu, Dina Griya Rias manages a wide range of rental products including wedding decorations, bridal attire, documentation, and other essential services. Despite the growing demand for wedding services, the rental management process at this business remains manual. Operational activities such as recording orders, confirming bookings, checking availability, and communicating with clients rely on handwritten notes, WhatsApp messages, and in-person communication. Manual processes create several challenges. First, booking information stored in paper-based notes increases the risk of loss, damage, or misinterpretation. Second, scheduling conflicts frequently occur due to the lack of real-time availability

tracking. Third, communication delays make it difficult for customers to obtain quick and accurate information about available services. Finally, the absence of centralized documentation complicates data monitoring, administrative reporting, and decision-making.

Existing studies highlight the significance of digital transformation in the wedding organizer industry. A responsive web-based information system for wedding organizer package reservations developed using the Extreme Programming method demonstrated that iterative development supports flexibility, improves system functionality, and enhances accessibility for customers through digital ordering without physical visits (Prayoga et al., 2025).

Likewise, another study addressing issues faced by Maharani Pelaminan in Pangkalan Kerinci showed that manual workflows hinder operational efficiency and limit promotional reach. By developing a web-based rental information system using PHP and MySQL with the Prototyping method, the researchers successfully improved service efficiency, enhanced customer experience, and increased business visibility (Ayu et al., 2022). Collectively, these studies reinforce that adopting digital systems significantly streamlines operational processes and strengthens service delivery in the wedding organizer sector.

Another study developed a web-based rental information system for Vivi Rias Pengantin using the Waterfall model, addressing inefficiencies caused by previously manual workflows (Efendi & Karim, 2024). The resulting system offers features such as login, data management, transaction processing, reporting, and business information configuration. Findings indicated that the system increases service efficiency, expands promotional reach, and reduces the manual workload for business owners.

Similarly, research conducted on Irma Wedding in Bogor examined issues in manual record-keeping and administrative processes, which often resulted in data loss risks and retrieval difficulties. Using the Prototyping method, the researchers developed a Java-based information system through NetBeans, supported by observation, interviews, literature review, and documentation. The resulting system enhances administrative efficiency, improves data security, and streamlines monitoring through restricted computerized access (Nazmi et al., 2023).

In addition, the study on CV Pesta also highlights the limitations of traditional data management in wedding organizer services, particularly in handling the large number of clients each month. Using an Object-Oriented System Approach, the researchers developed a computerized information system that improves data processing and overall management performance. Their findings further reinforce the need to adopt digital solutions to support efficient operations in the wedding organizer industry (Aman & Suroso, 2021).

A study focusing on Medan residents developed a web-based wedding organizer system aimed at helping prospective couples access WO services more confidently. Prior conditions revealed that information distribution relied heavily on social media and direct communication, making it difficult for customers to receive structured and reliable information. Using the Prototyping method, researchers incorporated user involvement

throughout the design phase to ensure system suitability. Features include roles for admin, service providers, and clients, each with specific functionalities. Black box testing confirmed system reliability, and user feedback indicated high satisfaction with usability, clarity of information, and overall efficiency. The study recommends future development through feature expansion and introduction of a mobile version to improve accessibility (Putri et al., 2023).

These prior works indicate that digital systems significantly enhance operational accuracy, reduce human error, and streamline workflows. However, many existing solutions focus only on web platforms or fail to integrate real-time mobile access for customers. Meanwhile, modern consumers increasingly demand seamless digital access, particularly via smartphones.

## METHOD

The methods used in this research include system development and data collection.

1. System development

   The Waterfall method is a software development model carried out sequentially, where each stage must be completed before proceeding to the next, similar to the flow of a waterfall. This process includes the phases of design, modeling, implementation (construction), and testing. In practice, the Waterfall method consists of several structured stages, namely requirements analysis, system design, coding and testing, program implementation, and maintenance (Wahid, 2020).

   This system was developed using the Waterfall model. The Waterfall method is a software development model carried out sequentially, where each stage must be completed before proceeding to the next, similar to the flow of a waterfall. This process includes the stages of design, modeling, implementation (construction), and testing (Imaduddin, 2022). The Waterfall method is widely used in the design and construction of information systems because its sequential and structured characteristics ensure that each step is clearly defined, minimizing errors during the development process (Hidayati, 2019).

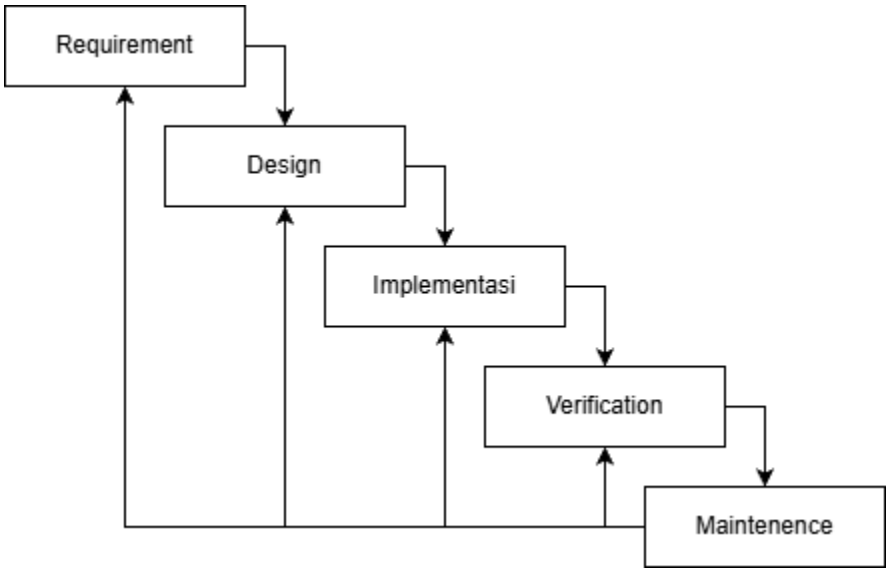


**Figure 1: Waterfall Model**

Explanation of the Waterfall development method:

a. Requirement
   At this stage, the system development process requires intensive communication to explore user needs through interviews, discussions, or direct surveys. The goal is to understand the software desired by the users as well as the existing constraints. The information obtained is then analyzed to produce data that truly matches the users' requirements.
b. Design
   The data obtained from the previous stage is collected and analyzed, then used for system design. This process includes creating workflows, defining relationships between system components, designing tables, and developing the user interface.
c. Implementation
   At this stage, the designed specifications are translated into a programming language that can be understood by the computer. The implementation process is carried out using various tools and programming languages selected according to the system's requirements.
d. Verification
   At this stage, testing is carried out to ensure that the system operates in accordance with the specified requirements and design. The testing process aims to identify errors, validate existing functions, and ensure that the system is ready to be used by users without interruptions.
e. Maintenance
   This stage is carried out after the system is used by the users. Maintenance includes fixing errors that arise, adjusting the system to new requirements, and improving performance to ensure the software continues to run properly and aligns with evolving needs.

2. Data collection Procedure

The data collection methods used in this study are:

a. Literature Study

   The literature Study involved searching, reading, and analyzing relevant scientific literature, journals, academic books, and reliable articles, to establish a theoretical foundation and technical references for system analysis and development. Key references included studies on responsive web systems using Extreme Programming (Prayoga et al., 2025) and web-based WO rental systems using the Waterfall method (Efendi & Karim, 2024), providing context on technology adoption in the WO industry.

b. Interview

   The interview method involved direct engagement with the owner of Dina Griya Rias, to gather primary data on the manual operational process, from initial communication (in-person, WhatsApp, or phone) to recording data. This also included collecting data on current rental records, which are documented manually in handwritten notes, encompassing product details, event dates, deposit payments, and general rental activity.

c. Observation

   Observation is a data collection technique conducted by directly observing the research object, which in this case was carried out at Dina Griya Rias. Through this method, the data obtained includes information about the wedding packages and the prices offered.

## FINDING AND DISCUSSION

### RESEARCH RESULT

The development results of the web and mobile applications for managing wedding organizer rentals at Dina Griya Rias show that the system was successfully built using the Waterfall method. The development was carried out through five main stages, namely requirements analysis, system design, implementation, testing, and maintenance. The resulting system provides an integrated platform accessible through a web interface for administrators and a mobile application for renters. These development results are presented in four main components: system requirements analysis, logical design, user interface implementation, and testing.

**1. System requirements analysis**

System requirements analysis was carried out to identify the functional needs that must be fulfilled by the rental application for goods and services in the Wedding Organizer. These requirements include the inputs, processes, and outputs produced by the system.

**a. Input Requirements.**

Input requirements refer to the data or actions provided by users to operate the system's functions. In this application, the renter as the user can perform several activities, including:

a. Logging in to access the application.
b. Registering an account before being able to log in.
c. Inputting rental requests for goods or services based on the available schedule.
d. Modifying requests before the down payment is made.
e. Canceling rental requests before the down payment is made.

**b. Process Requirements**

Process requirements describe the data processing performed by the system after the user provides the input. The process requirements in this application include:

a. The system stores registered account data into the database.
b. The system performs validation when the renter logs in to prevent data misuse.
c. The system processes and sends rental requests to the admin and stores them in the database.
d. The system disables the request editing feature once the renter has made the DP payment.
e. The system updates the request status according to conditions, such as being processed, accepted, rejected, or DP paid.

**c. Output Requirements**

Output requirements represent the information generated by the system as a response to the processes carried out. In this application, the outputs include:

a. A list of available goods and services that can be viewed by both admin and renters.
b. Sales reports that can be accessed by the admin.
c. A list of rental requests that can be viewed by the admin.
d. Detailed rental information is accessible by renters and admin, including schedule, total price, status, and other information.

**2. logical design**

**a. Model Architecture**

The system architecture model presented in Figure 2 illustrates a cloud-based client–server structure in which all components communicate through backend services connected to the internet. This architecture comprises five main elements: the mobile application used by renters, the Web Admin interface, admin users, the Midtrans API service, and the Firebase backend responsible for authentication and NoSQL data management.

Each component performs a specific role, with mobile and web applications functioning as client layers, while Firebase serves as the centralized backend that manages real-time data processing and user authentication. This design follows cloud

computing principles, where data operations and application logic are executed on remote servers to ensure scalability, reliability, and seamless real-time access .The use of Firebase Cloud Firestore as a distributed NoSQL database also aligns with the characteristics of cloud-based systems, providing dynamic scalability, remote accessibility, and efficient data synchronization (Saptadi & Marwi, 2015).

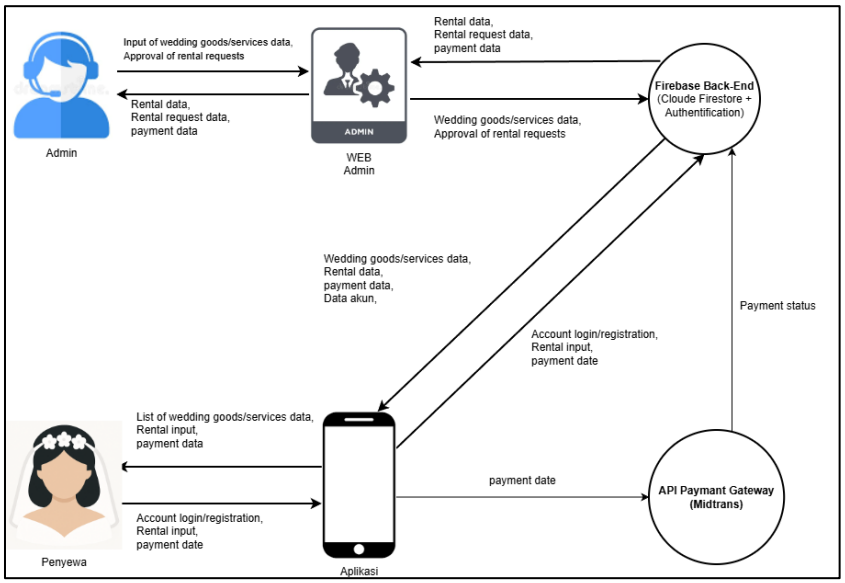


**Figure 2: Architecture Model**

## b. Use Case Diagram

A use case diagram is a type of diagram within the Unified Modeling Language (UML) used to illustrate the relationships and interactions between actors and the system being developed. This diagram visualizes the system's main functionalities from the user's perspective, making it easier for developers to understand the overall system requirements (Voutama, 2022).

In this wedding organizer goods and services rental system, administrators manage all operational processes through a web interface, while renters access the services through an Android-based mobile application to submit rental requests. The provided use cases include several features such as checking the status of rental requests—whether they are still being processed or stock is available—income and expense reports, and management of detailed information on available items.

The system design adopts a UML approach by utilizing use case diagrams to model the interactions between the administrator and the renter. The use case diagram of the proposed system can be seen in Figure 3.

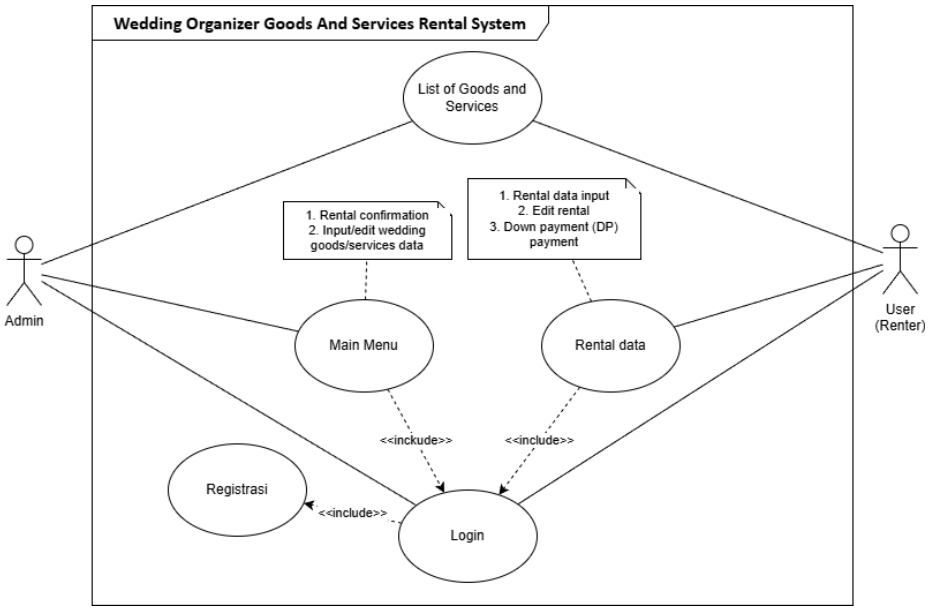


**Figure 3: Use Case Diagram**

**c. Database Design**

As the core of the system's backend, this application uses Firebase, a platform known for its capabilities in designing and developing monitoring systems that require real-time data access for Android applications (Furqon et al., 2019). Data is transmitted and managed over the internet to enable real-time monitoring and control, which is essential for tracking item availability and rental status across both mobile and web clients.

The database used is Firebase Firestore, a NoSQL solution that supports real-time data synchronization. Firestore, a flexible and scalable database, stores data using a collection–document structure, providing the high performance needed for dynamic data exchange in a rental environment (Ilhamsyah & Fathurrahman, 2024). The NoSQL database design of this system is shown in Figure 4.

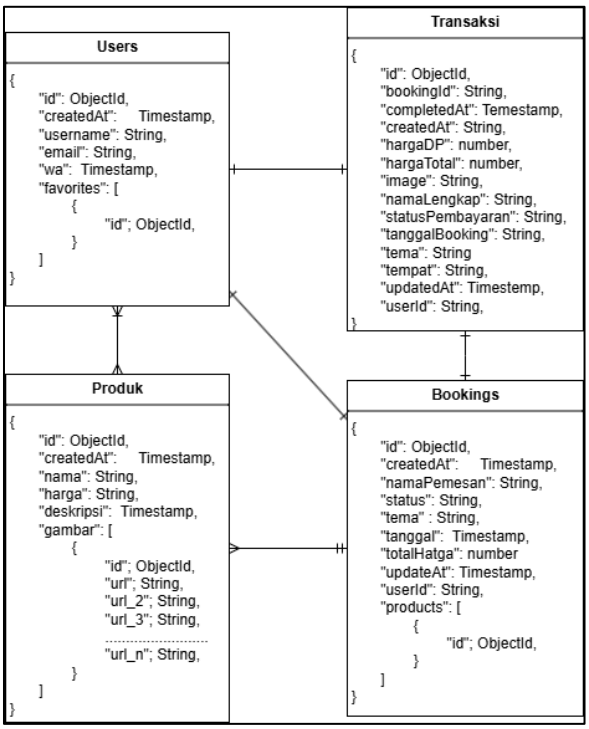


**Figure 4: NoSQL Database Design**

## 3. User Interface Implementation

The development of the user interface in this system was carried out using Flutter, an open-source framework from Google that enables the creation of high-performance applications with consistent interfaces and cross-platform capabilities through a widget-based approach. Flutter uses the Dart programming language and provides features such as hot reload, responsive animations, and efficient state management, thereby accelerating the application development process (Gunawan, 2024).

### a. Mobile Application Implementation (Renter)

a) Mobile Authentication

Authentication is an essential feature to ensure that only authorized users can access the rental system. The authentication process in the mobile application includes account registration, login, logout, OTP (One-Time Password) verification via WhatsApp, and storing user data into Firestore. All of these processes are designed to maintain account security and provide an efficient user experience. The implementation of the authentication interface is shown in Figure 5.

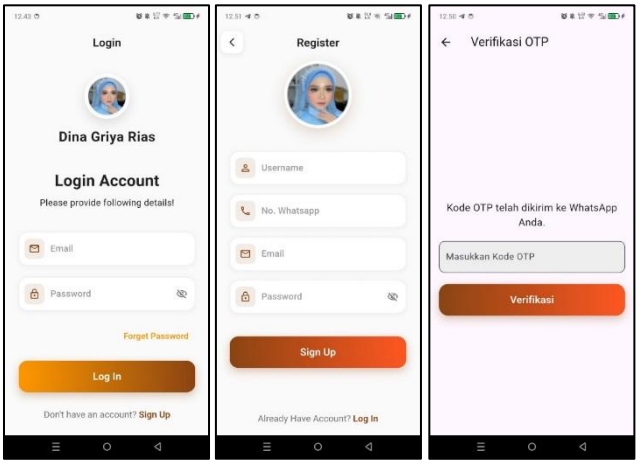


**Figure 5: Authentication page**

b) Mobile Homepage

As shown in Figure 6, the display of wedding service products presents various packages. This page is designed with a search feature at the top to make it easier for users to find the desired services. Each product is displayed in a card format containing an image, product name, and price formatted in Indonesian Rupiah.


**Figure 6: Mobile Home Page**

c) Mobile Product Details Page

As shown in Figure 7, the product detail page displays product information such as images, price, and product description. There is also a like button to mark the product as one that the user wants to order.


**Figure 7: Mobile Product Details Page**

d) Mobile Schedule Page

As shown in Figure 8, the schedule calendar page displays a monthly calendar with a marker on the 25th, indicating an existing schedule.


**Figure 8: Mobile Schedule Page**

e) Mobile Booking Page

As shown in Figure 9, the 'Order Product' page allows users to place orders for products they have marked as favorites. This interface displays a list of favorite products with checkboxes to select the items to be ordered, along with an order form that includes the name of the customer-automatically retrieved from the username of the currently logged-in user-the date, and the event location.

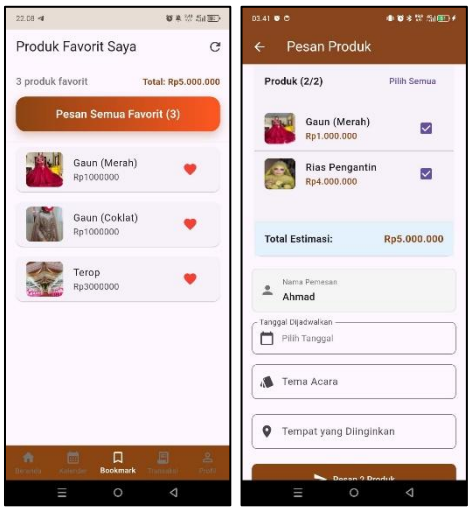


**Figure 9: Mobile Booking Page**

f) Mobile Transaction Page

As shown in Figure 10, the transaction list display in the application is designed to present complete information for each transaction in an easy-to-read card format. Each card displays important data such as event location, customer name, order date, payment status, down payment amount, and total cost. The transaction methods used in the system include uploading proof of payment and integration with the Midtrans payment gateway.

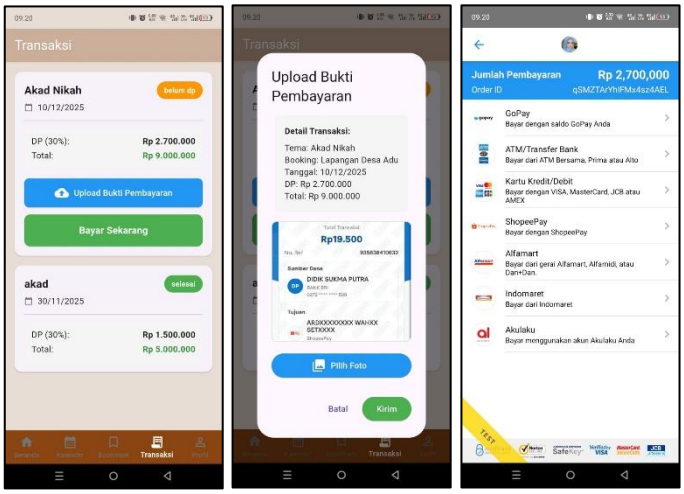


**Figure 10: Mobile Transactions Page**

**b. Website Implementation (Admin)**

a) Autentifikasi Page

As shown in Figure 11, the login page of the application is designed with a simple and intuitive interface. Users are required to enter their email and password in the provided form, then press the 'Sign In' button to access the system.


**Figure 11: Authentication**

b) Requests Page

As shown in Figure 12, the booking calendar display in this application is designed to provide a clear visualization of date availability and the status of bookings that have been made. This process is carried out through a dialog that provides a dropdown for selecting the status and a field for entering the reason whether the request is approved or rejected.

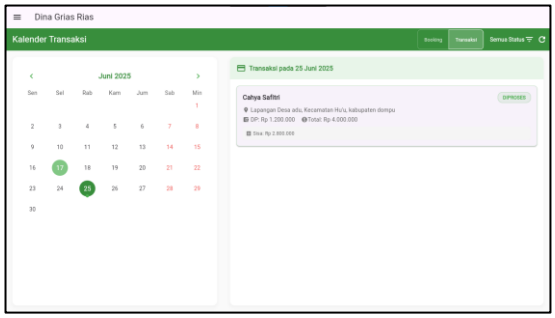


**Figure 12: Authentication**

c) Transaction Page

As shown in Figure 13, the transaction calendar display in the application is designed to provide a clear visualization of the booking schedule and the transactions that have taken place

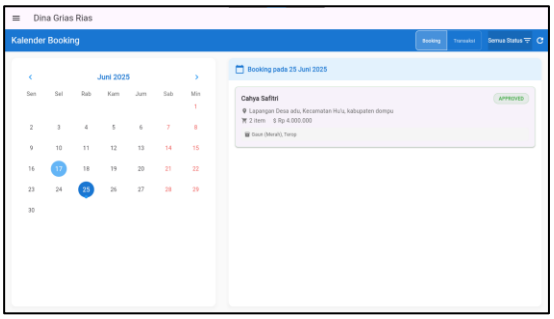


**Figure 13: Authentication**

d) Products Page

As shown in Figure 14, the application provides a product catalog page that allows users to view the available products. The system also includes a 'Add New Product' modal form that enables administrators to add new products to the catalog. In addition, users can update product details as well as add or replace product images as needed.

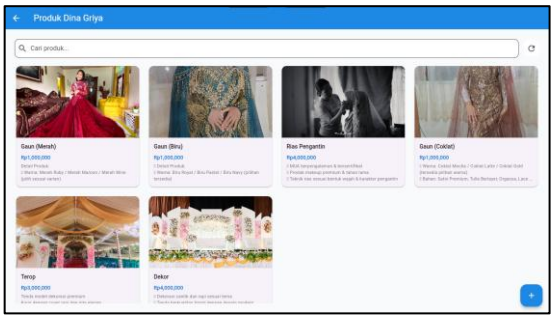


**Figure 14: Authentication**

## 4. Testing

This study employs an application testing approach using the black-box testing method. Software testing is the process of running a program or application that has been developed by a programmer. The primary goal of software testing is to identify issues such as bugs in order to ensure the application's overall quality. Conducting software testing is crucial because, in the development of any application, there are often overlooked elements. Therefore, testing the software becomes an essential step to ensure its reliability and proper functionality (Shadiq et al., 2021).

**Table 1. Black box testing results summar**

| User Role | Total Tests | Success Rate | Key Function Tested |
|---|---|---|---|
| Admin | 12 | 100% | Login, booking confirmation, transaction confirmation, add product, edit product, delete product. |

| | | | |
|---|---|---|---|
| Renter | 12 | 100% | Login, register, logout, booking, cancel booking, payment via payment gateway, upload transaction proof. |
| Total | 58 | 100% | All functional requirements validated successfully |

**DISCUSSION**

The implementation of the Wedding Organizer (WO) goods and services rental system for Dina Griya Rias has proven effective in resolving inefficiencies found in the previous manual system, as demonstrated by the 100% success rate in black-box testing. The key strength of the system lies in the integrated platform consisting of a mobile application for renters and a web application for administrators. The mobile application significantly enhances customer experience by enabling real-time availability checks and online booking submissions without requiring renters to visit the location. Meanwhile, for administrators, the web application successfully centralizes the management of rental requests and transactions. This centralization is crucial for reducing the high potential for human error that previously occurred due to manual record-keeping.

The findings of this study align with previous research emphasizing the importance of adopting digital systems in the WO industry to enhance operational efficiency and data accuracy. However, this research offers notable differences and advantages in terms of platform accessibility and database technology compared to earlier studies.

From a platform perspective, previous studies—such as those conducted by Nazmi et al. (2023) and Ayu et al. (2022)—primarily developed desktop-based systems (using Java NetBeans), which limited remote access and mobility. Meanwhile, studies by Efendi & Karim (2024), Prayoga et al. (2025), and Aman & Suroso (2021) focused on web-based platforms. The advantage of this study is the implementation of a hybrid system (Mobile and Web) using the Flutter framework, specifically providing a mobile application for renters. This approach directly addresses the recommendation for mobile system development suggested by Putri et al. (2023), aligning closely with modern market demands for convenient and mobile-oriented digital access.

From a methodological and technological standpoint, this research utilizes the structured Waterfall model, similar to Efendi & Karim (2024), but differs from the Prototyping approach (Nazmi et al., 2023; Putri et al., 2023) and the Extreme Programming model (Prayoga et al., 2025). Technically, the system uses Firebase Firestore (NoSQL) as its database, ensuring real-time data synchronization and high scalability (Furqon et al., 2019). This NoSQL advantage is crucial, especially for real-time inventory monitoring, placing this system technologically ahead of earlier web-based systems that relied on conventional RDBMS technologies (PHP/MySQL) as identified in studies by Prayoga et al. (2025) and Efendi & Karim (2024).

Although the system is fully functioning, several limitations can be improved in future development. First, the current transaction process still requires renters to manually upload proof of payment. While this is more reliable than verbal confirmation, it remains susceptible to delays caused by manual verification by administrators. Second, although the system collects location input, it is not yet integrated with a Map API to determine the event

location accurately, which could lead to potential logistical issues for the WO during event preparation.

The successful implementation of this integrated system may serve as a model for other small- to medium-scale WO businesses seeking to digitize their rental operations, indicating the potential for significant time and cost savings. For future research and development, it is recommended to implement a Payment Gateway to automate transaction confirmation and integrate a Map API (such as Google Maps) to ensure precise event location data, thereby mitigating potential logistical errors.

## CONCLUSION

For renters, the developed mobile application provides complete functionalities, starting from viewing the product catalog, monitoring schedule availability in real time, making bookings, to tracking order and transaction statuses. These features offer easy access to information and simplify the rental process without the need to visit the location directly. Meanwhile, for administrators, the web-based system enables centralized management of product data, order verification, and transaction monitoring. Thus, Dina Griya Rias can manage business operations more efficiently, accurately, and in a well-documented manner, while also reducing manual workload.

## REFERENCES


Aman, M., & Suroso. (2021). Pengembangan Sistem Informasi Wedding Organizer Menggunakan Pendekatan Sistem Berorientasi Objek Pada CV Pesta. *Jurnal Janitra Informatika Dan Sistem Informasi*, *1*(1), 47–60. https://doi.org/10.25008/janitra.v1i1.119

Ayu, D. P., Pravitasari, N., & Marlia, R. (2022). Perancangan Sistem Informasi Penyewaan Wedding Organizer Berbasis Java Netbeans. *Jurnal Unitek*, *15*(2), 133–140. https://doi.org/10.52072/unitek.v15i2.401

Efendi, M. M., & Karim, M. N. (2024). SISTEM INFORMASI PENYEWAAN WEDDING ORGANIZER DI VIVI RIAS PENGANTIN BERBASIS WEB. *Jurnal Rekayasa Sistem Informasi Dan Teknologi*, *2*(1), 380–389. https://doi.org/10.59407/jrsit.v2i1.1021

Furqon, A., Prasetijo, A. B., & Widianto, E. D. (2019). Rancang Bangun Sistem Monitoring dan Kendali Daya Listrik pada Rumah Kos Menggunakan NodeMCU dan Firebase Berbasis Android. *Techné : Jurnal Ilmiah Elektroteknika*, *12*(2), 93–104. https://doi.org/10.31358/techne.v18i02.202

Gunawan, A. (2024). *Mobile Programming Menggunakan Flutter dan Visual Studio Code Untuk Pemula* (Edisi Pertama). PT. Literasi Nusantara Abadi Grup. www.penerbitlitnus.co.id

Hidayati, N. (2019). Penggunaan Metode Waterfall Dalam Rancang Bangun Sistem Informasi Penjualan. *Generation Journal*, *3*(1), 1–10. https://doi.org/10.29407/gj.v3i1.12642

Ilhamsyah, M., & Fathurrahman, M. (2024). RANCANG BANGUN APLIKASI ANDROID MYSMARTFISHFEEDING MENGGUNAKAN FLUTTERFLOW DAN FIREBASE

FIRESTORE. *Jurnal Informatika Dan Teknik Elektro Terapan*, *12*(3S1), 4114–4122. https://doi.org/10.23960/jitet.v12i3s1.5269

Imaduddin. (2022). *SISTEM INFORMASI MANAJEMEN Dr. Imaduddin, ST.,MM PENERBIT CV. EUREKA MEDIA AKSARA* (Yan Herdianzah, Ed.; Cetakan Pertama). CV.EUREKA MEDIA AKSARA.

Nazmi, R., Herlinda, & Astuti, L. S. (2023). SISTEM INFORMASI PENYEWAAN JASA ORGANIZER PADA IRMA WEDDING. *Seminar Nasional Riset Dan Inovasi Teknologi*, *7*(1), 613–618. https://doi.org/10.30998/semnasristek.v7i1.6389

Prayoga, D. A., Firjatullah, E., Hidayati, N., & Fadlia, H. E. (2025). Rancang Bangun Sistem Informasi Berbasis Web Responsif Untuk Pemesanan Paket Wedding Organizer Menggunakan Metode Extreme Programming. *Jurnal Multimedia Dan Teknologi Informasi*, *07*(1), 38–49. https://doi.org/10.54209/jatilima.v7i01.984

Putri, H. A., Zakir, A., & Elhanafi, A. M. (2023). Medan Wedding Organizer Berbasis Web. *Journal Of Social Science Research*, *3*(4), 9686–9702. https://j-innovative.org/index.php/Innovative

Saptadi, N. T. S., & Marwi, H. C. (2015). SERVICES PERFORMANCE EVALUATION INTERFACE MODEL OF CLOUD COMPUTING BASED ARCHITECTURE TO BUILD STRATEGIC IT GOVERNANCE. *Seminar Teknologi Dan Rekayasa*, *SENTRA*, 193–199.

Shadiq, J., Safei, A., & Loly, R. W. R. (2021). INFORMATION MANAGEMENT FOR EDUCATORS AND PROFESSIONALS Pengujian Aplikasi Peminjaman Kendaraan Operasional Kantor Menggunakan BlackBox Testing. *Information Management for Educators and Professionals*, *5*(2), 97–110. https://doi.org/10.51211/imbi.v5i2.1561

Voutama, A. (2022). Sistem Antrian Cucian Mobil Berbasis Website Menggunakan Konsep CRM dan Penerapan UML. *Komputika : Jurnal Sistem Komputer*, *11*(1), 103–111. https://doi.org/10.34010/komputika.v11i1.4677

Wahid, A. A. (2020). Analisis Metode Waterfall Untuk Pengembangan Sistem Informasi. *Jurnal Ilmu-Ilmu Informatika Dan Manajemen STMIK*, *1*(1), 1–5.