

WEB BASED CONTAINER RENTAL INFORMATION SYSTEM

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ABSTRACT

This web-based container rental information system is designed to enhance efficiency and simplify management in the container rental process. The system addresses common challenges in manual operations, such as data recording, container availability monitoring, and transaction handling between renters and service providers. Developed using the waterfall method, the system follows a structured approach through stages of requirements analysis, system design, implementation, testing, and maintenance. This responsive, web-based system is connected to a database, allowing access from various devices, including computers and smartphones. The main features of the system include container searches based on specific criteria, online booking, rental status tracking, and automated notifications via email or SMS. Additionally, the system includes a dashboard that provides financial reports and rental statistics, assisting management in real-time data analysis. Data security is ensured through user authentication and authorization, allowing only registered users to access certain information. Testing results demonstrate that the system effectively minimizes data entry errors, speeds up the rental process, and simplifies inventory management. The implementation of this web-based container rental system is expected to improve service quality for providers and offer users a more convenient, efficient, and secure rental experience. Through these capabilities, the system supports a more structured rental process that aligns with modern service expectations, benefiting both providers and renters alike.

Keyword : Web-based container rental system; Waterfall method; Inventory management

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1. INTRODUCTION

The advancement of data innovation has an impact on human development, this must be seen from how society responds to problems and provides answers to their work. Data innovation is generally used to process, control information, dissect information to produce applicable, fast, clear and precise information or data. Data innovation is generally used in government agencies, private businesses, and various organizations [1]. Technology has also been applied in port services and governance, one of which is in container loading and unloading services.

The use of information technology in the rental process has been widely used, as research conducted by Shiyun, W. (2023) this study developed a mobile application for short-term rental management, using artificial intelligence technology, with an accuracy rate of 99.12% for general data sets and 89.54% for difficult data sets. The use of information technology in the rental system was also carried out by More, G., More, P., Vyavahare, M., & i, P. (2023), where the results of their research concluded that the Vehicle Rental System increases customer retention and simplifies vehicle and staff management, making it user-friendly for admins and customers.

Based on this, innovation is needed so that companies can face the digital era today, so a system is needed that can support rental activities to be more effective and efficient. One of the innovations that can be done is to use a computerized container rental information system. With these various problems,

a system was created that can overcome these problems with the title "*Web-Based Container Rental Information System*".

2. RESEARCH METHOD

This research uses research and development (R&D) methods.



Fig 1. *Research and Development*

The following are the steps of the R&D (Research and Development) method, [4]:

1. **Problem Analysis**
The researcher finds problems that exist in the service at the research location that has been studied previously [5].
2. **Planning Data Collection**
Here planning includes developing research objectives, projecting material needs and deciding how the research will be followed.
3. **Design Development (Design)**
This stage contains the creation of a product design that will be developed. This design development uses php and MySQL programming [6]
4. **Trial**
The product design that has been made will then be tested by the user whether the system is running as planned or not.
5. **Revising Trial Results**
After the product trial, if there is a revision, it will be fixed and if not, the product will then be implemented.
6. **Product Dissemination and Implementation**
Dissemination refers to the act of providing the results of a product development for general or expanded implementation.

3. RESULTS AND DISCUSSION

1. Login Page

In the web-based container rental information system, the login page functions as the main entrance for users to access various services, such as viewing rental status, ordering containers, or managing rental data. Through this page, users such as customers or admins can enter the system by entering the correct login data. On the login page, there is a column to enter an email address or username, a column for a password, and a "Login" button. The system also provides a "Forgot Password" option that makes it easy for users to reset their password if they forget it. Users simply follow the instructions sent via email or SMS to change their password. To maintain the security of user and system data, this login page uses several layers of protection. User data is protected with encryption, and there is also a two-factor authentication (2FA) feature that adds security. With 2FA, after entering a password, users need to enter an additional verification code sent to their mobile phone or email. This login page is designed to be responsive, so it can be accessed comfortably from various devices, such as computers, tablets, or mobile phones. In addition, users can also choose to quickly log in with social media accounts such as Google or Facebook, making the login process more practical. With a secure and easy-to-use login page, the web-

based container rental information system ensures that users can log in and use the service comfortably and safely.

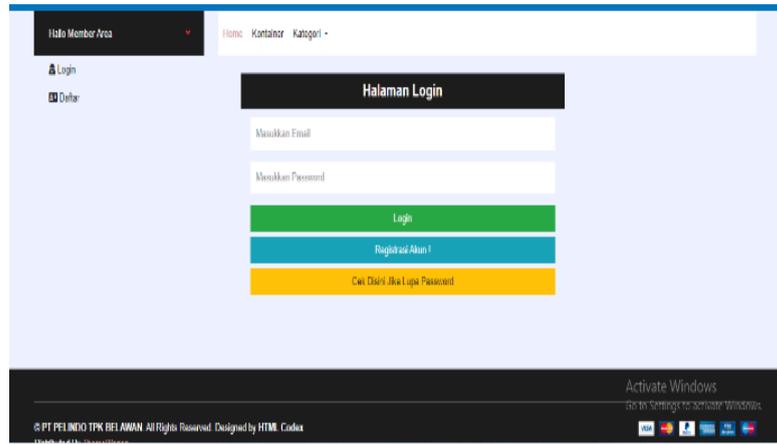


Figure 1. Login Form

2. Customer List Page

The customer registration page on the web-based container rental information system serves as a means for new users to register an account. Through this page, prospective customers input personal data needed to gain full access to services, such as renting containers and monitoring order status. An efficient and informative registration process plays a major role in creating an optimal user experience. In general, this registration page includes several input columns for important data, including full name, email address, telephone number, and password. To minimize errors, the system also often asks for password confirmation. In addition, there are terms and conditions of use that users must read and agree to before continuing registration. In terms of security, the system is equipped with data encryption to protect the confidentiality of user information from unauthorized access. Some platforms implement additional identity verification via email or telephone number, where users are asked to confirm their identity via a link or verification code sent. This step provides an additional layer of protection and ensures the validity of the data entered. The design of the customer registration page is developed to be responsive and adaptive, allowing users to access it easily from various devices, including computers and mobile devices. Thus, the system not only enhances the ease of the registration process, but also supports user security and convenience, which ultimately expands the scope of the customer base and facilitates full access to container rental services.

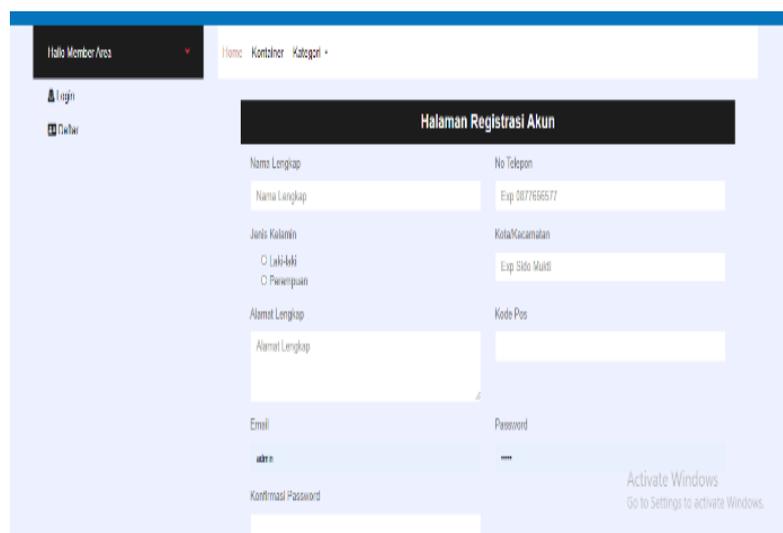


Figure 2. Customer List Page

3. Customer Page

The customer page in a web-based container rental information system serves as a control center for users who have registered and successfully logged in. Through this page, customers can access information and services related to container rental, such as monitoring order status, tracking shipping processes, and updating personal data. This page is intuitively designed to facilitate user navigation in accessing the various features available. In general, the customer page displays user account data, including information such as name, address, and container rental history. With the transaction history, users can review rental history, monitor the status of active orders, and view details of fees charged. Some systems also provide options for customers to update personal information, such as changing shipping addresses or adding payment methods, so that account data remains relevant and accurate. In terms of security, the customer page is equipped with strict authentication and encryption technology to protect users' personal data from unauthorized access. Some systems also implement an automatic logout feature after a period of inactivity as an additional security measure, ensuring that customer accounts remain protected from the risk of unauthorized access. In addition, the customer page is designed to be responsive, allowing optimal access from various devices such as computers and mobile phones. By prioritizing security, ease of use, and flexibility, the customer page becomes a vital component that improves the quality of user experience in managing container rental services independently and efficiently.

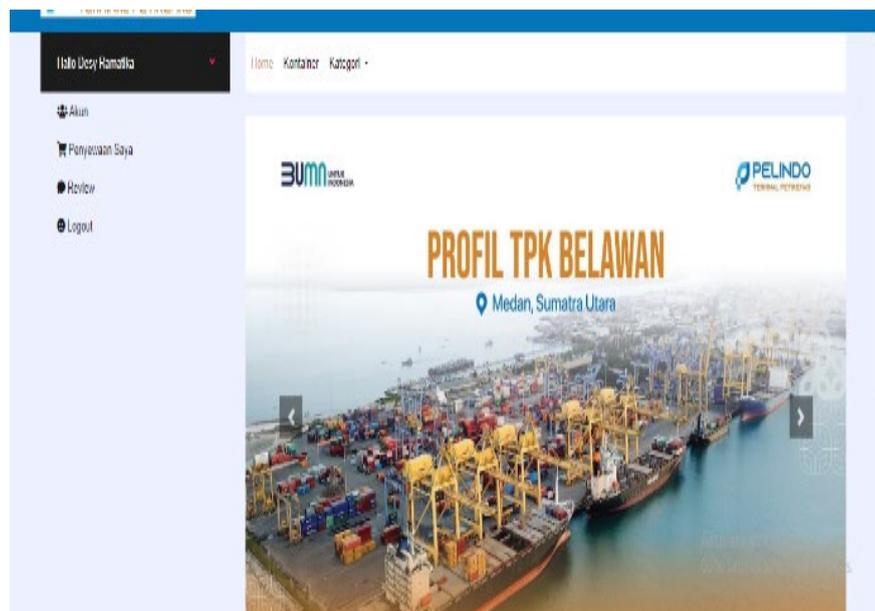


Figure 3. Customer Page

4. Container Product Page

The container product page in a web-based container rental information system serves as a source of detailed information about the various types of containers available for rent. On this page, users can access a product catalog that presents technical specifications, including size, capacity, container type, and rental rates. The purpose of this page is to provide clear and detailed guidance, so that customers can make choices that suit their operational needs. Each container displayed is accompanied by a description that includes complete technical information, as well as images or illustrations that facilitate understanding of the physical characteristics of the product. In addition, information about the availability of containers at a particular location and the rental duration that can be selected is also usually provided, to help customers make the right choice. Some systems also include a product comparison feature, which allows users to compare multiple containers simultaneously based on technical specifications and rental rates. From a design perspective, the container product page is designed with an easy-to-navigate and intuitive interface, allowing customers to search for containers

that match their preferences by filtering by category, size, or price range. This feature aims to improve product search efficiency, so that customers can find the right choice more quickly. In addition, this product page is also equipped with direct booking system integration, which allows customers to add selected products to the shopping cart and continue the rental process directly. Thus, the container product page plays a very important role in providing comprehensive information and facilitating an effective booking experience for customers in the web-based container rental system.

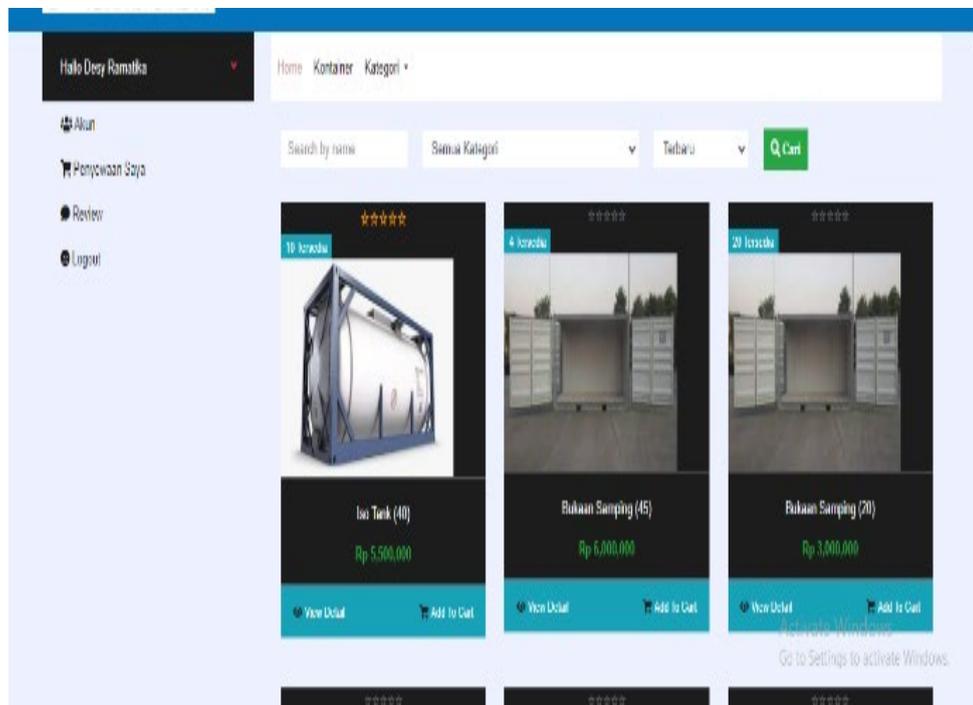


Figure 4. Container Product View

5. Customer Account Page

The customer account page in a web-based container rental information system serves as a central point for managing personal data and account settings for registered users. Through this page, customers are given the convenience of updating their personal information, managing rental preferences, and monitoring the history of transactions that have been made. The design of this page aims to provide customers with comprehensive control over their accounts, allowing for more efficient and secure service management. On the account page, users can access and change personal data, such as full name, address, telephone number, and email address. In addition, customers can verify or review their rental history, which includes information related to orders, payment status, and details of container delivery or return. Some systems also offer the option to change account passwords or activate additional layers of security, such as two-factor authentication, to strengthen account protection. In terms of security, the customer account page is equipped with encryption technology that aims to maintain the confidentiality of personal information and transactions made by users. In addition, this page is designed with a user-friendly and responsive interface, so that customers can access and manage their accounts practically from various devices, be it desktop computers or mobile devices. By providing transparent and efficient access to personal information management and rental preferences, the customer account page plays a central role in creating a more personalized and structured user experience in the web-based container rental system. In addition to enhancing user convenience, this page also serves to strengthen the security of customers' personal data managed on the platform.

The screenshot displays the 'Data Akun Saya' (My Account Data) page. It is divided into two main sections: 'Data Pribadi' (Personal Data) and 'Data Login' (Login Data). The 'Data Pribadi' section includes fields for 'Nama Pelanggan' (Desy Ramatika), 'Jenis Kelamin' (Female), 'Alamat' (Betawan Jl Cibadik Gg 9), 'Nama Kota' (Medan Belawan), and 'Kode Pos'. The 'Data Login' section includes 'Email' (tikaramodesy@gmail.com), 'Email tidak boleh diubah', 'Password Lama', 'Password Baru', and 'Konfirmasi Password Baru'. A 'Ubah Password' button is located at the bottom right of the login section. The page also features a navigation menu on the left with options like 'Akun', 'Penyewaan Saya', 'Review', and 'Logout'.

Figure 5. Customer Account Page

6. Customer Cart Page

The customer cart page in a web-based container rental information system serves as a temporary container for items or services that have been selected by customers, before they proceed to the next stage of the rental process. This page provides a clear representation of the selected containers, complete with relevant cost details, allowing customers to verify their selections before completing the transaction. On the cart page, customers can verify the list of containers that have been entered, along with detailed information about their specifications, including type, quantity, price per unit, and total rental cost. Customers are also given the flexibility to modify the number of containers selected, delete items, or return to the product page to update their selections. To ensure full transparency, additional information about potential costs, such as shipping and taxes, is also clearly displayed. The cart page design was developed with ease of navigation and responsiveness in mind, allowing customers to quickly and efficiently adjust their orders. In addition, the page also provides direct access to proceed to the payment stage, where customers can confirm the order, enter payment details, and complete the transaction. From a security perspective, the cart page is equipped with an encryption mechanism to protect transaction data and customers' personal information during the ordering process. Thus, the customer cart page plays a vital role in creating a transparent, structured and secure booking experience, while giving customers full control over the selection and cost details of container rentals in this web-based system.

The screenshot displays the 'Customer Cart Page' with a table of items. The table has four columns: 'Item', 'Hapus', 'Harga', and 'Sub Total'. The first row shows 'Box Tank (40)' with a price of 'Rp 5.500.000' and a sub-total of 'Rp 5.500.000'. A 'Total' row at the bottom shows a total of 'Rp 5.500.000'. There are 'Lanjutkan Pesanan' and 'Selesaikan' buttons at the bottom of the table.

Item	Hapus	Harga	Sub Total
Box Tank (40)		Rp 5.500.000	Rp 5.500.000
		Total	Rp 5.500.000

Figure 6. Customer Cart Page

7. Customer Checkout Page

The customer checkout page in the web-based container rental information system serves as the final phase in the ordering process, where customers confirm and complete the container rental transaction. The functionality of this page is designed to ensure a smooth transaction by providing all the information needed by customers to complete the ordering process efficiently and securely. On the checkout page, customers are given a detailed summary of the order they have selected, including product specifications, quantity, total price, and any additional costs that may arise, such as shipping costs and taxes. Next, customers are asked to input relevant payment information, such as the selected payment method (e.g. credit card, bank transfer, or other electronic payment services), and verify the shipping address or additional data needed to complete the transaction completely. The checkout page interface design is designed with the principle of ease of navigation and clarity, thus facilitating customers in confirming all transaction details before completing the order. The order confirmation feature is provided to allow for final verification before customers authorize and complete the order. After the confirmation process is complete, the system will provide proof of transaction or a reference number that can be used by customers to monitor the status of their container rental. The security aspect on the checkout page is a top priority, with the implementation of encryption to protect personal data and customer transaction information. To increase the level of protection, some systems also implement additional verification mechanisms, such as two-factor authentication, to ensure that transactions are carried out by authorized parties. Overall, the checkout page plays a crucial role in completing the ordering process systematically, securely and efficiently, ensuring an optimal user experience.

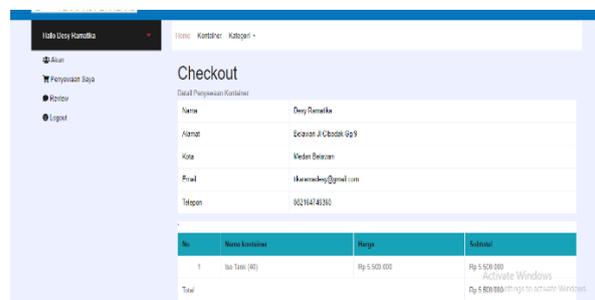


Figure 7. Customer Checkout Page

8. Customer Payment Confirmation Page

The customer payment confirmation page in the web-based container rental information system serves to confirm that the payment transaction made by the customer has been successfully processed and received by the system. This page allows customers to verify the details of the payment that has been made, as well as provide valid proof of transaction completion, before proceeding to the next stage in the rental process. On the payment confirmation page, customers can access the details of the payment that has been processed, including the total amount paid, the payment method used, and the time and date of the transaction. If there are any discrepancies or errors in the payment information, customers can be given the option to make corrections or repeat the payment process. In addition, this page includes information regarding the payment status, which indicates whether the payment has been successfully received or if there are any obstacles that need to be followed up. The design of the payment confirmation page is designed with high precision, providing clear and structured information so that customers can gain a comprehensive understanding of their payment status. This page also generally includes a transaction reference number or digital proof of payment that customers can use for further tracking or transaction confirmation. In terms of security, the payment confirmation page is equipped with optimal protection, such as data encryption and authentication mechanisms that ensure that customer payment information is well protected. Some systems also provide additional verification via email or text message to ensure the validity of the customer's identity. By ensuring accurate verification of the payment status, the payment confirmation page plays a fundamental role in completing the container rental transaction process with high transparency and security, while providing assurance to customers that the transaction has been processed legally and in accordance with procedures.

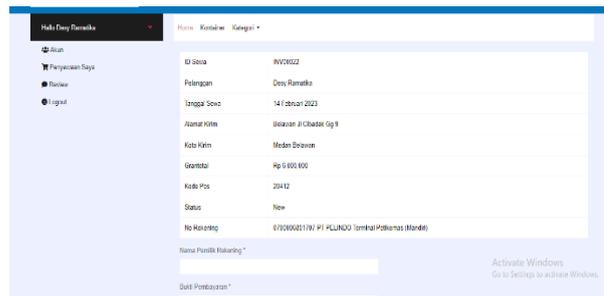


Figure 8. Customer Payment Confirmation Page

9. Customer Order Data Page

The customer order data page in the web-based container rental information system functions as a container that presents detailed information regarding the status and details of each order that has been made by the customer. This page provides a comprehensive representation of all stages in the rental process, from the initial order to the status of the delivery or return of the container, allowing customers to systematically monitor the progress of their orders. On this page, customers can access a detailed list of all orders they have made, which includes complete specifications regarding the type of container rented, the number of units, the rental duration, and the total cost paid. In addition, this page also contains up-to-date information regarding the status of the order, whether it is still in the processing stage, has been shipped, or has been completed, along with additional relevant information, such as estimated delivery time or special instructions regarding the container return procedure. The design of this order data page is designed with the aim of facilitating accessibility and clear understanding for customers of their order information. The well-organized interface allows users to easily identify and access the necessary order details. In addition, this page can also include an option to access previous order history, providing an opportunity for customers to evaluate past transactions and adjust their preferences in future orders. From a security perspective, the booking data page is equipped with adequate data protection protocols, including encryption, to maintain the confidentiality of customer transaction and shipping information. This page can also be integrated with a notification system that sends updates on the status of the order via email or text message. Overall, the customer booking data page plays a very important role in providing transparency and easy access to information for customers to track the status of their orders, while ensuring a smooth and secure, well-structured container rental experience.

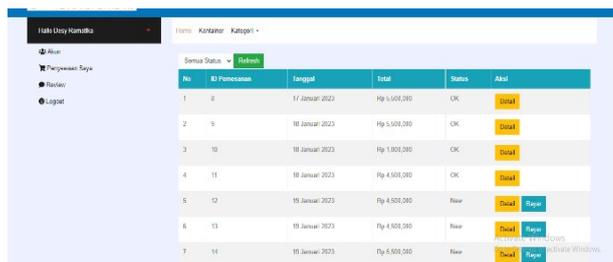
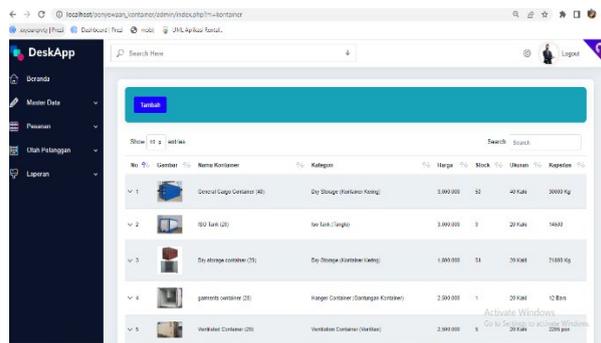


Figure 9. Customer Order Data Page

10. Admin Order Data Page

The admin order data page in the web-based container rental information system serves as a means for comprehensive management and monitoring of all rental transactions made by customers. This page allows the administration to access comprehensive information about each order, including transaction status, payment details, and information related to container delivery and return. The main purpose of this feature is to provide full control to the admin in monitoring and managing the rental operational process effectively. On this page, the admin can review the entire list of orders that have been processed, with details including the type of container rented, quantity, rental duration, and the amount paid by the customer. This page also presents the current status of each order, whether it is still in the processing

stage, has been sent, or has been completed, along with updates regarding container delivery or return. In addition, the admin can monitor the payment status, ensure that all transactions have been completed correctly, and manage problems or order cancellations if necessary. The design of the admin order data page was developed to support efficiency in order management. The neatly structured interface allows the admin to quickly access and manage order data, either by using category, date, status, or other relevant parameters. Some systems also provide deeper search features or filters to make it easier for admins to find and group orders according to certain criteria. In terms of security, this page is equipped with strong data protection protocols, including encryption and role-based access control settings, to ensure that only authorized individuals can access sensitive information related to customer transactions. In addition, the system can include an automatic notification feature that notifies admins of changes in order status or issues that require immediate attention. Overall, the admin order data page plays a very vital role in providing organized and transparent control over the entire transaction flow, as well as supporting container rental management with optimal security and reliability.

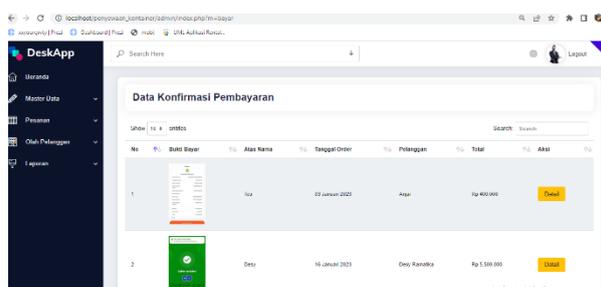


No	Gambar	Nama Kontainer	Kategori	Harga	Stok	Ukuran	Kapasitas
1		General Ledger Container (40)	Dry Storage (Hafidun-Kong)	3.000.000	52	40'Kaki	30000 Kg
2		55' Tank (20)	Sew Tank (Tanjung)	3.000.000	9	20'Kaki	15000
3		Dry Storage Container (20)	Dry Storage (Kontainer (Kong))	1.000.000	14	20'Kaki	7000 Kg
4		garment container (20)	Halogen Container (Daratgas Kontainer)	2.000.000	1	20'Kaki	12 Boks
5		Vertical Container (20)	Vertical Container (Kontainer)	2.000.000	9	20'Kaki	2000 per

Figure 10. Admin Order Data Page

11. Admin Payment Page

The admin payment page in the web-based container rental information system functions to manage and verify payment transactions made by customers. This page gives admins the ability to monitor the payment status of each order, ensuring that payments have been processed correctly in accordance with applicable procedures. On this page, admins can access detailed information about payments made by customers, including the amount paid, the payment method used, and the completion status of the transaction. Admins can ensure whether the payment has been successfully processed or if there are any problems that need to be addressed, such as transaction failures or unconfirmed payments. Additional features such as updating payment status or manual confirmation of payments can also be available to ensure the accuracy of transaction recording. The admin payment page design is made to facilitate efficient payment management and verification. A clear and organized interface allows admins to easily search for transactions based on criteria such as date, payment method, or transaction status. This page can also include reporting features to help admins generate reports related to transactions and financial analysis. In terms of security, the admin payment page is equipped with strong protection, such as encryption and role-based access control, to ensure that only authorized admins can access customer payment data. These security measures are intended to prevent unauthorized access and maintain the confidentiality of transaction information. Overall, the admin payment page plays a vital role in ensuring the accuracy and security of payment transactions, supporting transparency and operational efficiency in the web-based container rental system.



No	Bukti Bayar	Alan Nama	Tanggal Order	Pembayaran	Total	Aktif
1		Ira	19 Januari 2023	Agar	Rp 400.000	Ya
2		Devi	16 Januari 2023	Devi Ramella	Rp 5.000.000	Ya

Figure 11. Admin Payment Page

12. Rental Income Report Print Page

The rental income report print page in the web-based container rental information system is designed to generate and print reports that present information related to income obtained from container rental transaction activities. This page allows administrators to obtain comprehensive and structured financial reports, including total income, details of costs incurred, and relevant transaction-related data, which can be used for financial performance evaluation and more precise operational strategy planning. Through this page, admins can access income reports for various customizable time periods, such as daily, weekly, monthly, or yearly reports. The report includes detailed information about the income generated from each rental transaction, including additional cost components such as shipping costs, taxes, and other costs related to the rental transaction. In addition, admins are also given the option to customize the report with filters that can focus on certain categories, such as container type, payment method, or transaction status. The facility to export reports into various file formats, such as PDF or Excel, is also available, allowing admins to document and conduct further analysis of income data. The design of this income report print page is optimized to improve efficiency and accuracy in the report generation process. The simple and organized user interface facilitates admins in selecting the desired reporting period and filtering relevant data according to analytical needs. The search and filter features provided allow admins to access information with high precision, thereby generating highly specific reports. From a security perspective, the income report print page is equipped with advanced layers of protection, including data encryption and authorization-based access control, to ensure that only authorized admins can access and print sensitive financial reports. In addition, this page is also equipped with a notification mechanism that notifies admins when the income report has been completed or if there is an update to the related financial data. Overall, the rental income report print page serves as a crucial tool in creating transparency in financial reporting. It supports efficient financial management and planning by providing detailed and accurate data for further analysis, thereby improving operational efficiency and decision-making in the web-based container rental system.

No	ID Penyewaan	Tanggal	Pelanggan	Inputan	Total
1	Jan0001	01 Januari 2023	Ajgar	Akses 1 hari	Rp 100.000
2	Jan0002	02 Januari 2023	Jalur	P2 Sisa Kena	Rp 400.000
3	Jan0003	04 Januari 2023	Dary Ramadha	P2 Hanaa Cipta	Rp 5.500.000
4	Jan0004	04 Januari 2023	Dary Ramadha	P1 Hanaa Cipta	Rp 1.500.000
5	Jan0005	04 Januari 2023	bagas	P2 Hanaa Cipta	Rp 3.000.000
6	Jan0006	04 Januari 2023	bagas	P1 Hanaa Cipta	Rp 1.000.000
7	Jan0007	05 Januari 2023	bagas	P2 Angga Perdana	Rp 4.500.000
8	Jan0008	05 Januari 2023	Dary Ramadha	P2 Angga Perdana	Rp 5.500.000
9	Jan0009	04 Januari 2023	Dary Ramadha	P1 Angga Perdana	Rp 1.500.000
10	Jan0010	05 Januari 2023	Dary Ramadha	P2 Angga Perdana	Rp 2.500.000
11	Jan0011	05 Januari 2023	Dary Ramadha	P2 Hanaa Cipta	Rp 4.500.000
12	Jan0012	05 Januari 2023	Dary Ramadha	P2 Angga Perdana	Rp 4.500.000
13	Jan0013	05 Januari 2023	Dary Ramadha	P1 Angga Perdana	Rp 2.500.000
14	Jan0014	05 Januari 2023	Dary Ramadha	P2 Angga Perdana	Rp 5.500.000
15	Jan0015	05 Januari 2023	Dary Ramadha	P2 Angga Perdana	Rp 5.500.000
Total					Rp 55.000.000

Media, 19 January 2023
Vantage

Figure 12. Rental Income Report Print Page

4. CONCLUSION

The conclusions of this study are as follows:

1. This study shows that a web-based container rental information system can improve the efficiency and quality of container rental management. This system helps automate data recording, container stock monitoring, and rental transactions, thereby reducing errors that often occur in manual management. Features such as container search, online booking, status tracking, and automatic notifications make it easy for users to access services quickly.
2. This system also supports decision making for management through financial reports and rental statistics presented in real-time on the dashboard. With authentication and authorization, user data becomes more secure because only registered users have access.
3. Overall, this system not only improves the quality of service for providers, but also provides a faster, easier, and safer experience for tenants. With increased efficiency, security, and accessibility, this system is expected to be a practical solution for container rental companies in the digital era.

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REFERENCES

- [1] D. Andrian, "Implementation of Waterfall Method in Designing Web-Based Project Monitoring Information System," J. Inform A. D. Herianto, K. Widya Kayohana, L. Ode, and A. Wahid, "Development of Goods Inventory Management Information System on ARJ88 Distro Using the Waterfall system development method," *JoMI J. Millenn. Informatics*, vol. 1, no. 1, p. 35, 2023.
- [2] A. Manurung, H. G. Santoso, R. Yustanto, T. Susiani, and A. Afrisawati, "Decision Support System in Selecting the Best Palm Oil Fruit Using the Moora Method," *J-Com (Journal Comput.*, vol. 3, no. 2, pp. 78–84, 2023, doi: 10.33330)
- [3] Bakale, S. (2023). MERN STACK-BASED CAR RENTAL WEBSITE DEVELOPMENT. *International Journal of Advanced Research in Computer Science*. <https://doi.org/10.26483/ijarcs.v14i2.6971>.
- [8] Buradkar, K., Kori, S., Ruikar, S., Galfat, V., Patil, D., & Nasare, R. (2022). Property Rental Management System. *International Journal of Computer Science and Mobile Computing*.
- [4] Darmalaksana Wahyudin, *How to Write a Research Proposal*, 1st ed. Bandung: Faculty of Ushuluddin UIN Sunan Gunung Djati Bandung, 2020.
- [5] Irianto, Sudarmin, and Afrisawati, "Implementation of Customer Relationship Management Methods in Azzahra Clothing Store Sales," *J. Sci. Soc. Res.*, vol. 4, no. 2, p. 191, 2021, doi: 10.54314/jssr.v4i2.584.
- [6] Kalbande, M., Sarkar, S., Farkase, S., & Verma, P. (2023). Design and Development of Smart House Rental Management System. 2023 International Conference on Sustainable Computing and Smart Systems (ICSCSS), 710-715. <https://doi.org/10.1109/ICSCSS57650.2023.10169613>.
- [7] L. Setiyani, "System Design: Use Case Diagram," in *Proceedings of the National Seminar on Innovation and Technology Adoption (INOTEK)*, 2021, vol. 1, no. 1, pp. 246–260.
- [8] L. Y. Siregar and M. I. P. Nasution, "Information Technology Development Towards Increasing Online Business," *HIRARKI J. Ilm. Manaj. and Business*, vol. 02, no. 01, pp. 71–75, 2020.
- [9] M. M. Sulaiman, "Design of Expert System Prototype for Diagnosing Toyota MPV Type Car Damage Using Forward and Backward Chaining Methods Based on Android," *J. Artif. Intell. Innov. Appl.*, vol. 1, no. 1, pp. 6–11, 2020.
- [10] Mohite, V., Murkute, P., & Kakade, S. (2022). Online Car Rental system using Web Technology. *International Journal for Research in Applied Science and Engineering Technology*. <https://doi.org/10.22214/ijraset.2022.42798>.
- [11] More, G., More, P., Vyavahare, M., & i, P. (2023). Vehicle Rental System. *International Journal of Advanced Research in Science, Communication and Technology*. <https://doi.org/10.48175/ijarsct-12156>.
- [12] Pradhan, D., Deshpande, A., Dhumal, Y., Jadhav, K., & Bagal, G. (2023). Decentralized Storage Rental System. *International Journal for Research in Applied Science and Engineering Technology*. <https://doi.org/10.22214/ijraset.2023.56790>.
- [13] Rashmi, V., Reshma, G., Chandana, B., Nitish, B., & Rajesh, G. (2022). Web Portal Based On Car Rental System. *International Journal of Advanced Research in Science, Communication and Technology*. <https://doi.org/10.48175/ijarsct-7593>.
- [14] S. Fransisca and R. N. Putri, "Utilization of RFID Technology for School Inventory Management with the (R&D) Method," *J. Mhs. Apl. Technol. Comput. and Inf.*, vol. 1, no. 1, pp. 72–75, 2019.
- S. Mulyani, *Analysis Method and System Design*. Abdi Sistematika, 2017.
- [15] S. Rabiah, "Use of Research and Development Method in Indonesian Language Research in Higher Education," no. April 2015, pp. 1–7, 2018, doi: 10.31227/osf.io/bzfsj.
- [16] Suhardi, A. H. Lubis, A. Aprilia, and I. A. Ningrum, "Application of Simple Multi Attribute Rating Technique Method in Selecting Favorite Cafe," *Decision Support System with App.*, vol. 2, no. 1, pp. 1–11, 2023, doi: 10.55537]