



Development of A Web-Based Asset Rental Information System in The Inland Water and Ferries Transport Polytecnic of Palembang

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Abstract. The aim of this research is to create an Asset Rental Information System in the SD Palembang Transportation Polytecnic Environment. This information system was developed using the waterfall method. Overall there are four stages of research including (1) analysis of information system needs, (2) information system planning, (3) information system development, (4) information system development. Initial research was carried out to identify problems and find easy solutions to solve these problems. The product prototype testing process is carried out by media expert testing. The data collection process was carried out using a questionnaire which was then analyzed using descriptive and quantitative techniques. The test results show that the prototype has a Validation Test score of 100%. Based on the test results, it can be concluded that the Asset Rental Information System within the SDP Palembang Transportation Polytecnic is suitable for use.

Keywords: Information System, Asset Rental, Web.

1 Introduction

In the current era of industrial revolution 4.0 leading to society 5.0, advances in science and technology have had a big impact and are very much needed for human life. All work that was previously done manually can now be done digitally with increasingly advanced technology. With the development of technology, science has now expanded and spread to various fields of administration and education. Technology and information have a huge impact on every aspect of work. This development cannot be separated from the desire and need to know how to carry out work tasks in such a way that work becomes easier, efficient and effective with the help of existing technology.

Assets are the most important resource for the individual or organization that owns them, because assets are equipment that supports the activities of an organization. Meanwhile, asset leasing is an advanced capability to manage, track and automate financial transactions for leased assets. Meanwhile, the Public Service Agency (BLU) is an agency within the Government which was formed to provide services to the public in the form of providing and/or selling services without prioritizing profit making and in carrying out its activities is based on the principles of efficiency and productivity.

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One of BLU's tasks is to optimize the management of owned assets in generating profits for the institution by renting out owned assets. The Palembang Lake River and Ferry Transport Polytechnic as an institution with BLU status also optimizes asset management by renting out the assets it owns. The assets owned by the SDP Palembang Transportation Polytechnic include a fitness center, futsal field, table tennis, swimming pool, basketball court and so on. Meanwhile, the implementation of asset leasing within the SDP Palembang Transportation Polytechnic is still carried out manually, which has an impact on the process being slow and not well recorded. Information regarding asset leasing is still very difficult for the general public to access, making the asset leasing process vulnerable to manipulation. In addition, reporting on asset rentals to management is still conventional, impacting the transparency of profit measurement on asset rentals.

So far, the process of renting assets at the SDP Palembang Transportation Polytechnic is by coming directly to the location, the renter enters customer data using a notebook, where proof of payment still uses paper which results in the data often being scattered and lost. Loss of rental data results in creating reports that are less accurate and take a lot of time.

A web-based information system is a web-based application that consists of a database, user interface and management of certain business processes in an agency or institution. This web-based information system can make it easier to manage business processes in an agency/institution. one of which is in asset leasing.

With a system that is useful for managing information optimally, the asset rental process within the SDP Palembang Transportation Polytechnic environment can run optimally. Based on this description, the author took the title "Development of a Web-Based Asset Rental Information System within the SDP Palembang Transportation Polytechnic".

2 Theory

2.1 Badan Layanan Umum

Badan Layanan Umum (BLU) is an agency within the Government which was established to provide services to the community in the form of providing goods and/or services for sale without prioritizing profit making and in carrying out its activities is based on the principles of efficiency and productivity. Directorate General of Treasury c.q. The PPK BLU Directorate provides guidance, assistance and consultation in preparing tariffs/tariff patterns, holds discussions on reviewing proposed tariffs/tariff patterns, and submits recommendations to the Minister of Finance regarding the determination of proposed tariffs or tariff patterns for PK BLU agencies. Technical guidance in the form of providing guidance in the context of preparing administrative requirements for work units that will submit proposals to become work units that implement PK BLU and technical guidance for work units that have implemented PK BLU such as making Business Plans and Budgets (RBA), rates and remuneration. The Directorate General of Treasury provides direct guidance including:

- a) Provide direction related to BLU financial management;
- b) Following up on problems faced by BLU work units, by coordinating with related parties;
- c) Organizing a Help Desk as a means for BLU work units to convey various problems related to the implementation of the BLU PK..

2.2 Website Based Information System

An information system is a system created by humans consisting of components in an organization to achieve a goal, namely presenting information. An information system is a set of interconnected components that function to collect, process, store and distribute information to support decision making and supervision in an organization (Sugara, 2011). One component of this information system is a database. According to Poerwanta et al. (2013), a database is an important component in an information system, because it is the basis for providing information, determining the quality of information (accurate, timely and relevant). Information can be said to be valuable if the benefits are more effective than the costs of obtaining it and the database is able to reduce waste in external storage places. Web-based information systems are applications created on the web. This application also contains a database to manage certain data.

2.3 Asset

State assets in the juridical-normative sense are all goods purchased or obtained at the expense of the state revenue and expenditure budget or originating from other legitimate acquisitions, such as grants or donations, implementation of agreements or contracts, statutory provisions, or court decisions that have been issued. obtain permanent legal force. In the theoretical concept, as stated by J. Prodhou, state assets are assets that are in the public domain (public private), so that their management and accountability are subject to the provisions of public legislation. Juridically-normatively, state assets are divided into three state sub-assets, namely:

- a) What is managed by the government itself is called State Property (BMN), for example land and buildings of Ministries or Institutions, cars belonging to Ministries or Institutions;
- b) Managed by other parties are called separate state assets, for example state capital participation in the form of shares in BUMN, or initial assets in various state-owned legal entities (BHMN) which are declared as separate assets based on the law on their establishment.
- c) Controlled by the state in the form of potential wealth related to the earth, water, air and natural resources contained therein which are controlled by the state as the highest organization, for example, mining, coal, oil, geothermal, ex-foreign nationalized assets and cultural heritage..

2.4 Waterfall

Waterfall is a type of application development model that is included in the classic life cycle, which emphasizes sequential and systematic phases. For the development model, this can be similar to a waterfall, where each step is carried out sequentially from top to bottom. The stages of this system development method are as follows:

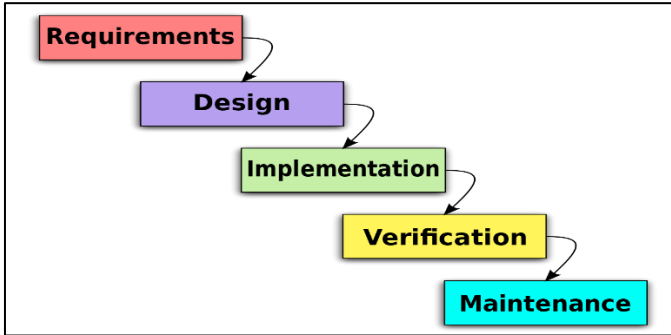


Fig. 1. Waterfall Process.

a) Requirements

This stage the developer must know all the information related to the software requirements such as how to use the software that the user wants and its limitations. This information is often obtained from interviews, surveys or discussions. This information is then analyzed to obtain complete data about user needs for the software to be developed.

b) Design

This stage of design is carried out before the coding process begins. This is intended to provide a complete picture of what needs to be done and what the desired system looks like. So it helps specify hardware and system requirements, as well as defining the overall system architecture that will be created.

c) Implementation

This stage of the code writing process is at this stage. The software created will be broken down into small modules which will later be combined in the next stage. In this stage, a deeper examination will also be carried out on the module that has been created, whether it fulfills the desired function or not.

d) Integration and testing

At this stage, the modules created will be combined. Testing is then carried out to find out whether the software meets the desired design and whether errors still exist.

e) Operation and Maintenance

This stage of operation and maintenance is the final step in the waterfall development method. Here the finished software will be run or operated by the user.

2.5 Research Framework

Based on the literature study, the stages of information system development can be seen in Figure 2, so in this research the author created the following framework:

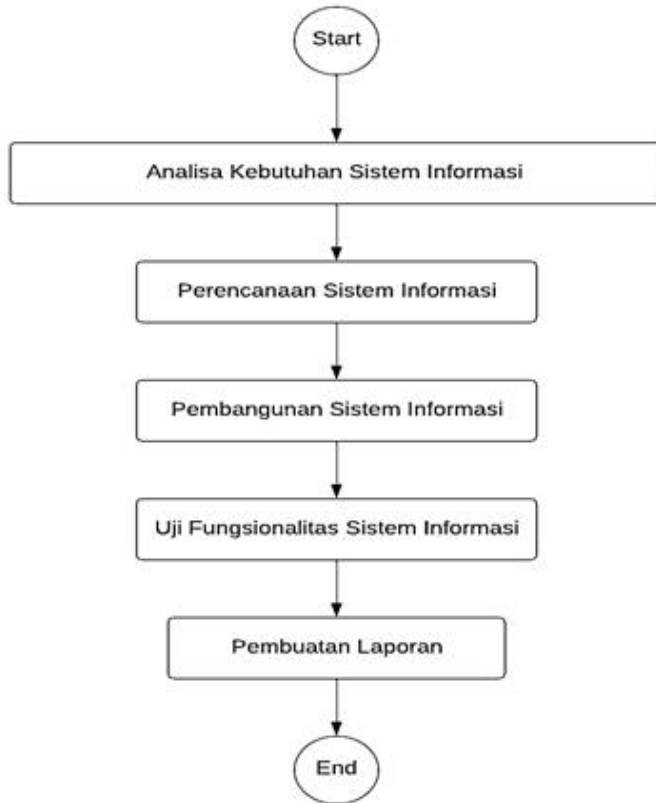


Fig. 2. Research Framework.

3 Analysis and Design

3.1 Research Design

1. Research Time and Location

The time used by researchers in this research was carried out from March 1 2023 to July 1 2023, with the research location at the SDP Palembang Transportation Polytechnic.

2. Research Type

The type of research used to collect data as a reference for this research is qualitative research. Qualitative research is a focused research method

that prioritizes the communication interaction process in the form of sentences or images.

3. Research Instrument

This research uses evaluation research which is part of decision making, namely comparing an event, activity and product with predetermined standards. This research is directed at assessing the success, benefits, usefulness and feasibility of an activity program from a particular unit or institution. Evaluative research can increase knowledge about activities and can encourage further research or development, as well as help leaders to determine policy. The procedures carried out in the research consisted of:

a. Literature Study

The author conducted a study of books, field studies and gathered information from experts or experts in their field to obtain an overview of the problem to be researched, which in this case the author did, namely looking for several references related to the creation of the research as well as carrying out analysis and comparison of the theories obtained.

b. Questionnaire (Questionnaire)

The aim of making the questionnaire is to get a comprehensive picture of the facts and opinions of respondents from each related process domain. The questionnaire consisted of 50 respondents who were asset renters at the SDP Palembang Transportation Polytechnic.

c. Questionnaire Evaluation

Carry out an evaluation by looking generally at the answers given by respondents.

d. Interview

The interview technique is a data collection technique using an instrument in the form of an interview guide. In this research, information data collection through interviews was carried out with the leadership.

e. Calculation and Analysis of Questionnaires

Perform calculations using descriptive measurement techniques and provide questionnaire analysis on the domain. Questionnaire calculations use Microsoft Excel.

3.2 System Analysis

Based on the results of the analysis of information system requirements using waterfall, a use case diagram can be formulated which can be used to model interactions between actors and the information system (Gemino, 2009). In this research, there are 4 (four) actor entities which include users as customers, administrators, payment service providers and management with the interactions between these actors depicted in Figure 3:

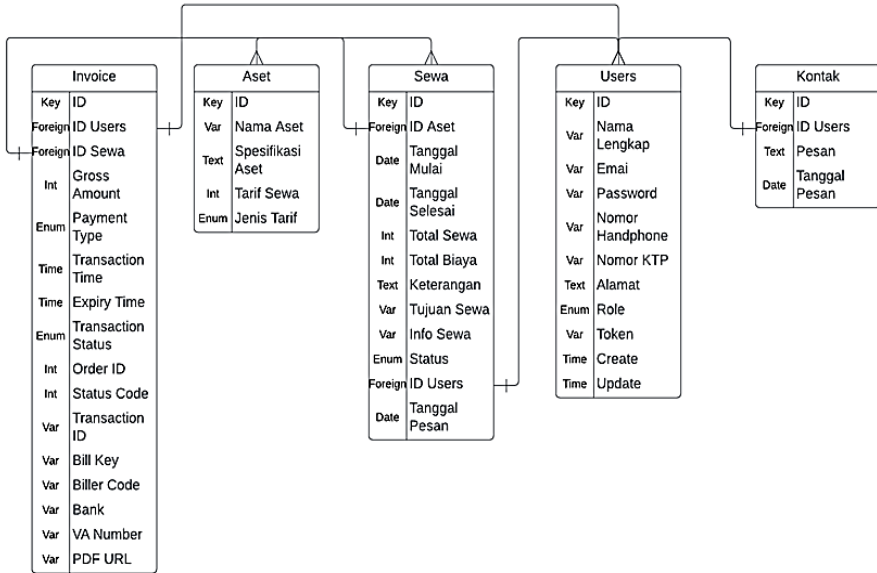


Fig. 4. Entity Relationship Diagram.

An interface design (mockup) was also carried out which can be used as a basis for developing an asset rental information system interface.

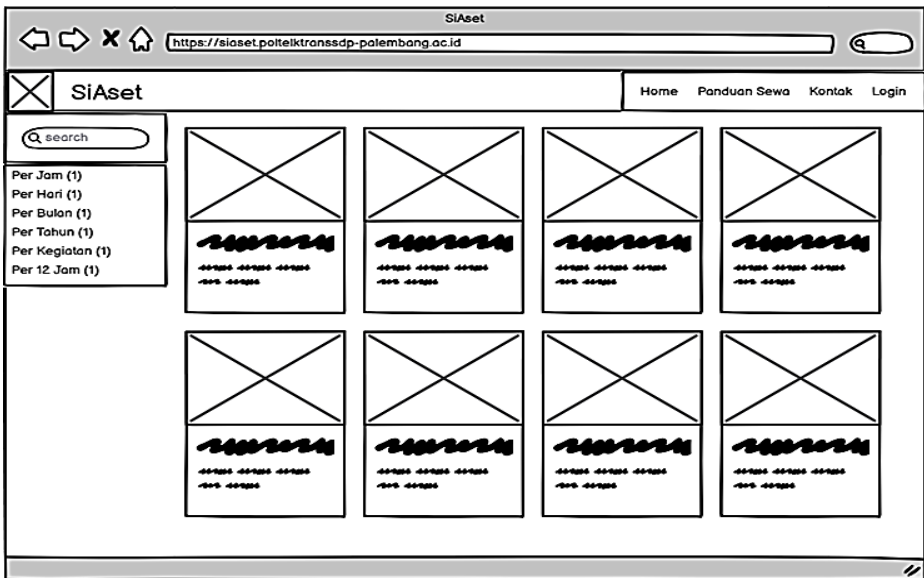


Fig. 5. Mockup.

User interface mockups are created to be used as a reference in building user interfaces for information systems. Where the home page user interface mockup is depicted in Figure 5.

4 Result and Discussion

4.1 Environment

Based on the results of the analysis and design that have been achieved, by implementing the development process of the main components of an information system that has been displayed, an implementation needs to be created. Because implementation is used as a benchmark or test and analysis of the program that has been created. System implementation is also a process of creating and implementing a complete system both in terms of software (Software) and hardware (Hardware), namely:

a) Software (Software)

Software on computers is generally used to control more basic hardware such as operating systems and programming languages. The software used is Windows 7 Ultimate, Microsoft Word 2007, Rational Rose Enterprise Edition, Macromedia Dreamweaver MX 2004, XAMPP and MySQL, PHP, Mozilla Firefox.

b) Hardware (Hardware)

Hardware (Hardware) has an important role in making programs and processing data, because to be able to implement the information system that has been designed, hardware is needed that is compatible with the proposed information system. The software used is Acer laptops, Processor Intel(R) Core(TM) i3 CPU M370 @2.40GHz, 6GB RAM memory, Wifi, Toshiba 16GB flash disk, Canon IP 2770 printer, Wireless Mouse.

4.2 Interface

Based on the planning that has been carried out, the implementation of the development of an asset rental information system was obtained, which is shown in Figure 6, which is the front page which displays a list of assets that are leased at the SDP Palembang Transportation Polytechnic:

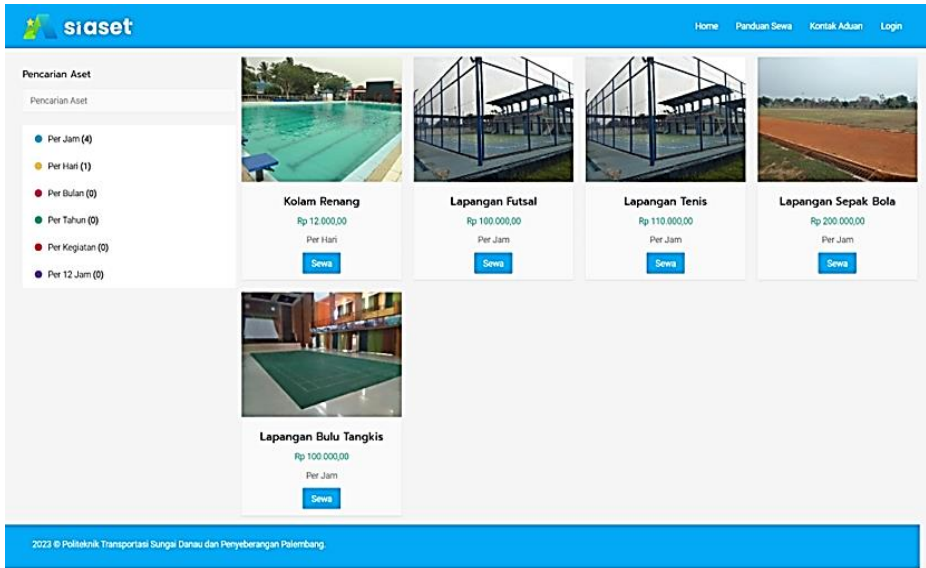



Fig. 6. List of Asset Page.

Next in Figure 7 is a page for filling out the rental form which includes the rental date, rental duration, rental purpose and sources of information regarding asset rental at the SDP Palembang Transportation Polytechnic.

siaset Home Panduan Sewa Kontak Admin Login

Pelanggan! Isikan form yang tersedia dengan benar, setelah berhasil submit anda dapat memilih metode pembayaran yang diinginkan.

Kolam Renang



Keterangan

Harga Sewa : Rp 12.000,00

Spesifikasi : Kolam renang menggunakan standar internasional dengan panjang 50 meter, lebar 25 meter dengan kedalaman minimum 1,35 meter, dimulai dari 1,0 meter pada lintasan pertama hingga paling sedikit 6,0 meter dihitung dari dinding kolam renang yang dilengkapi dengan balok start. Adapun kedalaman minimum pada bagian lainnya yaitu 1,0 meter.

Jenis Tarif : Per Hari

List Masih Disewakan

#	Tanggal Mulai	Waktu Mulai	Tanggal Selesai	Waktu Selesai

Data Penyewa

Nama Lengkap : Administrator

Telepon : 082125664810

Alamat : Palembang

Form Penyewaan

Tanggal Mulai Sewa

Tanggal Mulai Sewa

Waktu Mulai Sewa

23:30

Tarif Sewa

Rp 12.000,00 Per Hari

Lama Sewa (Per Hari)

Total Biaya Sewa

Keterangan

Keterangan

Tujuan Sewa

Seminar

Info Sewa

Media Sosial

Submit

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Fig. 6. Rental Form Page.

After filling in the rental form, the user can then see details of the rental fees that must be paid as in Figure 7.

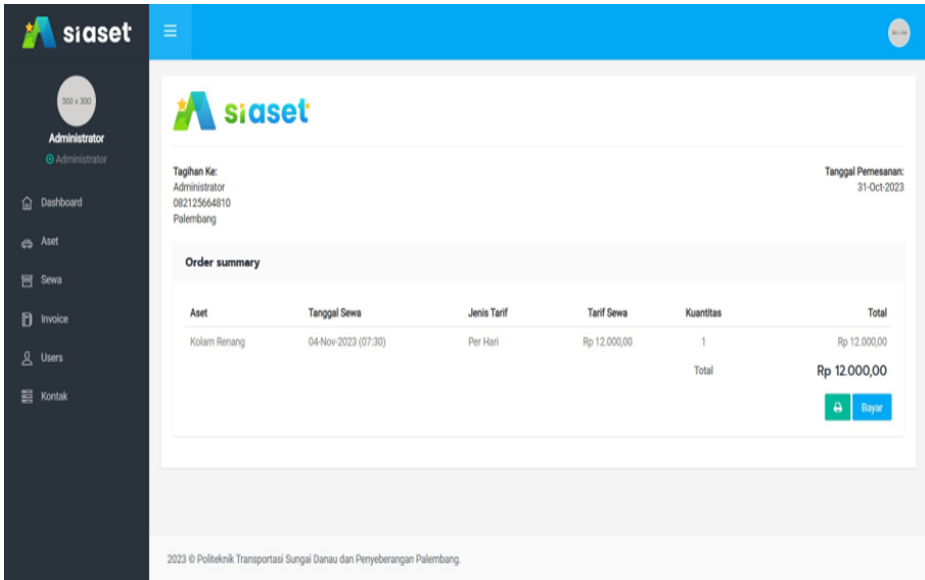


Fig. 7. Transaction Detail.

After pressing the pay button, the user can then choose the desired payment method as in Figure 8.

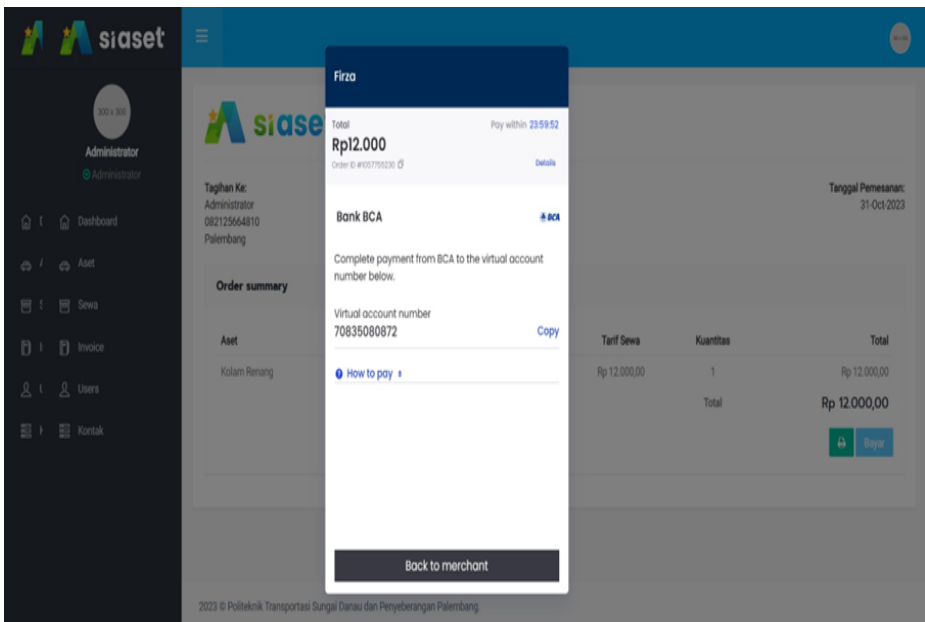


Fig. 8. Payment Method Selection.

Meanwhile, at the final stage, users can print proof of payment as in Figure 9.

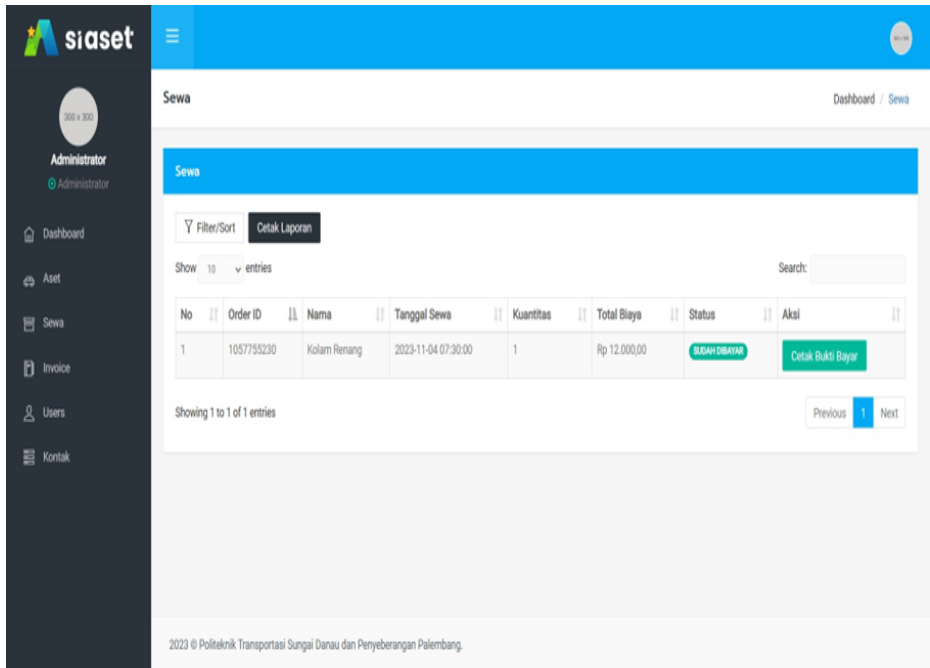


Fig. 9. Proof of Payment Page.

4.3 Testing

Testing and evaluation of the information system was carried out using the black box method, where the test respondents were stakeholders who were directly involved in the asset rental information system business process at the SDP Palembang Transportation Polytechnic. Meanwhile, the test scenario instruments are listed in Table 1.

Table 1. Testing Instrument and Evaluation.

Unit Pengujian	Hasil
The program can display dashboard pages according to user roles.	Success / Error
The program can display the number of assets, rentals, users and income on the dashboard page.	Success / Error
The program can add asset rental data.	Success / Error
The program can be integrated with payment service providers.	Success / Error
The program can register new users.	Success / Error

Based on the tests carried out, the results obtained were 100% of the functional information system running smoothly while no functional systems were found that were not running.

5 Conclusion

Based on the research results that have been presented, the following conclusions can be drawn:

- a) Based on the results of an audit using the waterfall method on the readiness to develop an asset rental information system at the SDP Palembang Transportation Polytechnic, it is necessary to develop a website-based information system that can manage the asset rental process.
- b) Based on the results of functionality testing, it can be concluded that the asset rental information system at the SDP Palembang Transportation Polytechnic is suitable for operation.
- c) Designing an information system using the waterfall audit method in readiness for developing an asset rental information system at the Polytechnic can be used to develop a similar asset rental information system and have good functional test results.

Based on the conclusions that have been presented, suggestions can be given, namely that the asset rental information system at the SDP Palembang Transportation Polytechnic should only be limited to auditing the readiness of information system development, so that in further research an audit of the effectiveness of the information system that has been developed can also be carried out.

References

1. Putri, N. A., & Amaliyah, A. (2023). Rancang Bangun Sistem Reservasi Ruang Rapat Berbasis Website. *IKRAITH-Teknologi*, 7(2), 22-34.
2. D.Suryani, M.J. Linda, J.Yuwan. D.Suryani, M.J. Linda, J.Yuwan. Analisis Dan Perancangan Sistem Informasi Manajemen Aset Tetap Pada PT. Metis Teknologi Corporindo. *JUST IT*: 9(1): 81-91.
3. D. Y. Sari, Analysis of Car Rental Information System at CV. BCD. *Jurnal Mantik*: 6(3): 2685-4236.
4. Sri Wahyuni, S. E., et al. *Pengantar Manajemen Aset*. Nas Media Pustaka, 2020.
5. Hendrawan, Ronny, and Endang Kiswara. Analisis Penerapan PSAK No. 45 Tentang Pelaporan Keuangan Organisasi Nirlaba Pada Rumah Sakit Berstatus Badan Layanan Umum (Studi kasus di RSUD Kota Semarang). Diss. Universitas Diponegoro, 2011.
6. Nasutio, N., & Hasan, M. A. (2017). Aplikasi Sistem Informasi Penyewaan Fasilitas Di Universitas Lancang Kuning Berbasis Online. *INOVTEK Polbeng-Seri Informatika*, 2(2), 198-204.
7. Sugiyono. 2007. *Metodologi Penelitian*. PT. Gramedia, Jakarta.
8. Siregar, V. M., Sugara, H., & Purba, G. A. (2019). Aplikasi Pencatatan Laporan Penjualan Kita-Kita. *Net Berbasis Web. Jurnal Tekinkom (Teknik Informasi dan Komputer)*, 2(1), 80-86.
9. Masson, J., Sagne, C., Hamon, M. E., & El Mestikawy, S. (1999). Neurotransmitter transporters in the central nervous system. *Pharmacological reviews*, 51(3), 439-464.
10. Shihab, E., Jiang, Z. M., Ibrahim, W. M., Adams, B., & Hassan, A. E. (2010, September). Understanding the impact of code and process metrics on post-release defects: a case study on the eclipse project. In *Proceedings of the 2010 ACM-IEEE international symposium on empirical software engineering and measurement* (pp. 1-10).

11. Gemino, A., Alter, S., Batra, D., Browne, G., Siau, K., & Khatri, V. (2009). Systems Analysis and Design Research: Past, Present and Future. AMCIS 2009 Proceedings, 88.

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