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Designing a Cashier Website for Warkop Disini Aja Using the Laravel Framework with UAT Testing and Usability Testing Checklist Checklist

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Abstrak

Kemajuan teknologi informasi memberikan pengaruh yang signifikan terhadap berbagai sektor, termasuk pada Usaha Mikro, Kecil, dan Menengah (UMKM). Meskipun demikian, sebagian besar UMKM masih belum mengadopsi sistem digital dalam kegiatan operasionalnya. Salah satu contohnya adalah Warkop Disini Aja, yang hingga kini masih menerapkan pencatatan manual pada proses transaksi kasir. Penggunaan sistem konvensional tersebut menimbulkan berbagai kendala, seperti keterlambatan dalam pembuatan laporan, potensi kesalahan pencatatan, serta kesulitan dalam memantau riwayat penjualan. Berdasarkan permasalahan tersebut, penelitian ini bertujuan untuk merancang sistem kasir berbasis web yang mampu menggantikan metode manual menjadi lebih efisien dan terstruktur. Pengembangan sistem dilakukan menggunakan framework Laravel dengan model pengembangan perangkat lunak *waterfall*, yang meliputi tahap analisis kebutuhan, perancangan, implementasi, pengujian, hingga pemeliharaan. Data penelitian diperoleh melalui observasi langsung terhadap proses operasional, wawancara dengan pemilik usaha, serta kajian literatur untuk memperkuat dasar teori. Sistem yang dikembangkan memiliki dua peran utama, yaitu admin dan kasir, yang dilengkapi dengan fitur pengelolaan menu, transaksi penjualan, ekspor laporan dalam format digital, serta pemantauan riwayat transaksi. Berdasarkan hasil pengujian *User Acceptance Testing* (UAT), seluruh fungsi sistem dinyatakan berjalan sesuai kebutuhan pengguna. Selain itu, hasil *Checklist Usability testing* menunjukkan tingkat kepuasan pengguna sebesar 95%, yang tergolong dalam kategori sangat layak. Dengan demikian, sistem kasir berbasis website ini terbukti mampu meningkatkan efisiensi operasional, mempermudah pencatatan transaksi, memperkuat transparansi laporan keuangan, serta mendukung pengelolaan usaha yang lebih modern dan digital.

Kata kunci: Website Kasir, Laravel, UMKM, UAT, Pengujian Kegunaan

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Abstract

Advances in information technology have a significant influence on various sectors, including Micro, Small, and Medium Enterprises (MSMEs). However, most MSMEs still have not adopted digital systems in their operational activities. One example is Warkop Diini Aja, which until now still applies manual recording to the cashier transaction process. The use of the conventional system poses various obstacles, such as delays in making reports, potential for recording errors, and difficulties in monitoring sales history. Based on these problems, this research aims to design a web-based cashier system that is able to replace manual methods to be more efficient and structured. System development is carried out using the Laravel framework with a waterfall software development model, which includes the stages of needs analysis, design, implementation, testing, and maintenance. Research data was obtained through direct observation of operational processes, interviews with business owners, and literature review to strengthen the theoretical basis. The developed system has two main roles, namely admin and cashier,

which are equipped with menu management features, sales transactions, export reports in digital format, and transaction history monitoring. Based on the results of the User Acceptance Testing (UAT) test, all system functions are declared to run according to user needs. In addition, the results of the Usability testing Checklist show a user satisfaction rate of 95%, which is classified as very feasible. Thus, this website-based cashier system has been proven to be able to improve operational efficiency, make it easier to record transactions, strengthen financial report transparency, and support more modern and digital business management.

Keywords: *Cashier Website, Laravel, MSMEs, UAT, Usability testing*

1. INTRODUCTION

In today's digital era, advances in information technology have brought major transformations in various aspects of business, especially in the Micro, Small, and Medium Enterprises (MSMEs) sector. One of the forms of business that is growing in this sector is cafes, which are places that provide food and drinks with a relaxed and modern atmosphere, and are often an option for people to gather, work, or relax. In contrast to traditional coffee shops (warkop) which are generally simple and small-scale, modern cafes usually have more diverse services and implement a more structured and complex management system. Warkop Diini Aja is a café that comes with a modern concept and targets the youth market. Even though it carries the name with the word "warkop", operationally and layout, this place is more appropriately categorized as a café, because this place serves a variety of contemporary menus, comfortable places, and an atmosphere that matches current trends. However, in its management, the Warkop Diini Aja café still uses manual methods in recording sales transactions, managing menus, and making financial reports. This often causes various problems such as inaccurate recording, delays in recapitulation of sales data, and difficulties in tracking stock of goods. Therefore, a technology is needed that can help in the transaction process, recording to digital monitoring, one of which is by building a cashier website. Technology is the result of the development of human knowledge that focuses on creating tools, systems, and methods to facilitate various activities and resource management. The term "technology" has a broad meaning and is often understood differently by each individual, depending on the point of view and context in which it is used. In general, technology is present as a solution that can help solve various problems in daily life, including in the field of designing programs to support the efficiency and effectiveness of work. Technology can be in the form of a product or process. Meanwhile, information is something that is the same as data or something that will be conveyed from the source to the audience [1]. One of the innovations from the development of information technology is the implementation of a web-based cashier management system which is useful for improving efficiency and accuracy in managing transactions and employee management. The cashier application is designed to assist cashier in managing sales transaction data more efficiently and precisely, so that the process of recording profits and monitoring stock data becomes more accurate and structured than the previous method[2]. In its use, the laravel framework offers ease of development and maintenance of web-based applications, as well as providing a better user experience. Laravel is an open-source PHP framework based on *the Model View Controller (MVC)* architecture developed by Taylor Otwell. This framework aims to improve the quality of web applications and simplify the process of software development and maintenance[3]. With a payment transaction system that until now is still running manually using calculators and manual recording books, of course, it is very difficult for owners and employees to manage transaction history data. As a result, there are often inconsistencies in the calculation process, defects, sales results in weekly and monthly which can have a negative impact on the smooth operation of the café.

2. RESEARCH METHODS

This study applies a qualitative method with a descriptive approach, focusing on direct observation of cashier's operational activities at Warkop Disini Aja. The results of these observations are then analyzed to design a website-based cashier system that suits user needs.

2.1. Data Collection Techniques

This research collected data through three main methods, namely observation, interviews, and literature studies to obtain the necessary information.

2.2. Observation

Observation is carried out by directly observing the transaction process and recording payments at the Warkop Cashier in Aja to understand each stage that takes place and find parts that need improvement.

2.3. Interview

The interview was conducted directly with the owner of the Warkop café here, namely Hembang Nugraha, to get information about the needs of the system, the problems faced, the expected features, and expectations for the new system

2.4. Literature Studies

This literature study includes a literature review on basic information technology concepts, program design, and various approaches in an effective website-based cashier system. The sources obtained include scientific journals, articles, and information technology standards and guidelines that can provide insight into the implementation of the latest technology-based information technology. The results of this literature study will be used as a basis for designing a program that can improve the efficiency and transparency of the payment transaction process and cashier recording at the Warkop Diini Aja café.

2.5. Software Development Model

This research chose a system software development model that is easy to understand and sequences in process, namely the waterfall software development model. The waterfall method is a system development model that runs each stage gradually and sequentially from one phase to the next[4].

The Waterfall *model* consists of the following steps:

1. System Needs Analysis is the initial stage that aims to identify system needs in cafes. The data obtained through observation and direct interviews is used to determine the features needed so that the transaction and recording process is no longer done manually and is able to display transaction history accurately.
2. System Design: The second stage after analyzing the results of the collected observations. So the writer can design by designing a project that requires several models. The author describes the system using *the UML (Unified Modeling Language) modeling used, namely, Activity Diagram, Use case diagram, class diagram, Deployment Diagram*
3. Code Creation (Implementation): The third stage is the program development process that is designed according to the features that are arranged according to the needs. The implementation stage is the process of changing the system design into program code that can be run by a computer. At this stage, the system begins to be realized and operated so that it can be used according to its function[5].
4. Testing: After the program is designed, testing is carried out to ensure that the program runs according to its function and can be used by the user.

The tests used are of two types in this study, namely:

- a. User Acceptance Test (UAT): Based on *The User Acceptance Test of an 'ICT Adoption for Education' Framework*, User Acceptance Test (UAT) is defined as a testing process conducted by users to produce documents as proof that the software developed has met the needs and is acceptable for use[6].
 - b. Checklist *Usability testing*: In this study, the researcher used *Usability testing* involving users, as the object of the research. Because using real-users can produce real problems because it will immediately try to use the program designed in the research.
5. Maintenance: Maintenance is carried out so that the system always functions properly. A software will inevitably undergo changes due to bugs that appear during testing.

2.6. Website Development Technologies and Tools

In the process of developing web-based software, the selection of the right technology and tools is one of the important factors that affect the quality of the system. The technology used functions to build business logic, organize data flows, and provide an interactive interface for users. Meanwhile, development tools play a role in speeding up the process of coding, testing, and maintaining applications. Therefore, in this study, several main technologies were used that support the cashier website design process, including programming languages, frameworks, database systems, and system modeling tools.

1. PHP: PHP is a versatile open source *scripting* programming language, designed specifically for web development, and can be inserted directly into the HyperText Markup Language (HTML) code[7].
2. Relational Database Management System: RDBMS is a software that allows users to create, manage, and utilize data in a relational model, where each table in the database is interconnected through relationships or relationships between tables[8].
3. MySQL: MySQL is an open-source RDBMS that is widely used to manage and store various types of data such as text, numbers, and images. The system supports security, backup, and replication features, and uses the SQL language as the standard for data manipulation[9].

3. RESULTS AND DISCUSSION

At this stage, the researcher will design the structure and relationships between the entities in the design of the cashier program that is being designed, as well as determine the relevant attributes.

3.1. Database

1. Entity Relationship Diagram: is a diagram used to design a database by displaying the relationships between entities and their attributes. ERD serves as the basis for creating relational databases, including the determination of tables, attributes, and relational levels. The right ERD design will result in an accurate and efficient database structure[10].

4. Deployment Diagram: used to describe the configuration of the components as the application runs. This diagram also serves to model the architecture of the system, such as client-server systems or other auxiliary systems, by showing the devices, nodes, and hardware elements involved[13].

Here's an explanation of the Deployment Diagram:

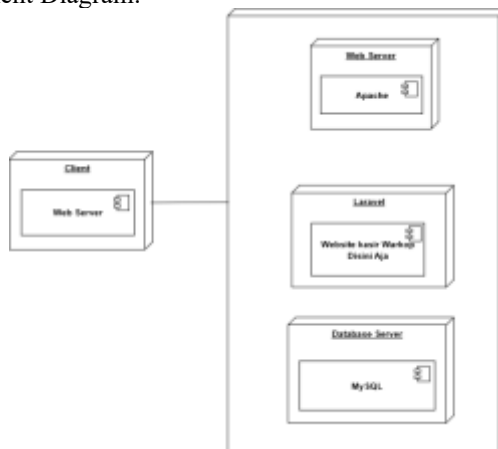


Figure 5. Deployment Diagram

5. Class Diagram: describes the relationships between classes and describes in detail each class in the system design model. This diagram also displays the rules and responsibilities of each entity that affect the overall behavior of the system Here: [14] .



Figure 6. Class Diagram

3.2. Testing

Testing is carried out to ensure that the cashier website system built meets the needs of users and offers an optimal level of ease of use. The testing used consists of two methods, namely *User Acceptance Testing (UAT)* and *Usability testing*.

a. User Acceptance Test (UAT)

is a testing method used to assess whether the developed application has met the needs and expectations of the end user. This test is carried out by testing the main functions of the system based on usage scenarios that reflect the actual conditions. In this study, UAT testing was carried out using the Alpha Testing method, which is a test conducted by the program developers themselves before the system is widely tested. The test is focused on two main parts of the system, namely:

1. Admin Page: used by owners and supervisors to manage data, monitor transactions, and manage menu availability.
2. Cashier Page: used by waiters or cashier staff to conduct transactions with customers directly

Each test scenario is focused on the process of valid input (positive test case) and invalid input (negative test case), so that it can provide a more comprehensive picture of the robustness of the system when used in real life. The results of the test are recorded into the following table, which contains the scenario, test steps, expected results, actual results, and success status.

Here are the UAT test results on the Warkop cashier website here:

Table 1. UAT Admin Page

Yes	Scenario	Tests Performed	Testing Steps	Expected Results	Status
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1	Admin login was successful	Input username : hembang Copyright © 2019 hembang123. All Rights Reserved.	Enter the correct username and password	Successfully logged in to the admin dashboard page	Valid
2	Admin login failed	Input username : hembang Password: Hembang234	Username input is correct but Password is incorrect	An error message appears "Username or password is incorrect"	Valid
3	Login admin username is empty	Input username :- Copyright © 2019 hembang123. All Rights Reserved.	Log in without entering your username but still enter your password	The message "please fill out this field" appears	Valid
4	Login admin password blank	Input username : hembang Password:-	Login without entering your password but entering your username	The message "please fill out this field" appears	Valid
5	The admin dashboard displays the stats of warkop	-	See the number of employees, registered menus	Statistical data according to the database	Valid
6	Staff Data input is successful	Input id : WKP 001 Name : nopi Powered by nopi Copyright © 2019 nopi123. All Rights Reserved.	Add new staff via staff data input form	Data is stored and displayed in the staff list table	Valid
5	Input Empty username staff data	Input id : WKP 001 Name : nopi Powered by E-Mail Copyright © 2019 nopi123. All Rights Reserved.	Add staff without username input	The message "please fill out this field" appears	Valid
6	Blank staff form data input	-	Click save without filling in all the data in the staff form	A notification appears "Please fill out this field"	Valid
7	Input staff data blank password	Input id : WKP001 Powered by nopi Password:-	Input staff data but not enter password on the form	A notification appears "Please fill out this field"	Valid
8	Admin data input was successful	Enter name : zahra Powered by Username : Zahra Copyright © 2019 zahra123. All Rights Reserved.	Input admin data by filling in all data correctly	The data is successfully saved and appears in the admin list table	Valid
9	Blank name admin data input	Input Name:- Powered by Username : Zahra Copyright © 2019 Zahra 123. All Rights Reserved.	Input admin data without filling out the name form	A notification appears "Please fill out this field"	Valid
10	Input admin data is empty username	Input Name : zahra Powered by E-Mail Copyright © 2019 Zahra 123. All Rights Reserved.	Input admin data without filling in the username form	A notification appears "Please fill out this field"	Valid
11	Input admin password data is blank	Input Name : zahra Powered by Username : Zahra Password:-	Input admin data without filling in the password form	A notification appears "Please fill out this field"	Valid
12	New menu input succeeded	Enter name : Nasi uduk Type : Food Price : 13.000 Image: attached	Input a new menu into the menu list by filling out all forms and clicking save	Menu data was successfully added, and it appeared on the menu list page	Valid
13	Input Menu empty menu name	Name input : - Type : Beverage Price : 10.000 Image: attached	Input a new menu name menu is not filled	Menu data is not saved and the message "Please Fill out this field"	Valid
14	Input Menu blank menu type	Enter name : cireng Kind:- Price : 5.000 Image: attached	New menu input but food type form is not filled in	Menu data is not saved and the message "Please Fill out this field"	Valid

15	Empty menu price input	Enter name : es doger Type : Beverage Price:- Image: attached	New menu input but price form is not filled in	Menu data is not saved and the message "Please Fill out this field"	Valid
16	Transaction History & Deposits	-	Opening the Transaction History Page	Complete transaction history along with total income	Valid
17	Transaction History Filter	Click the period filter button	Filter periods by date, daily, to monthly	Transaction data according to filters	Valid
18	Export excel file transaction history	Click the excel download button	Click the "Download Excel" button	The excel file was successfully downloaded and opened	Valid

Table 2. UAT Cashier Page

Yes	Scenario	Tests performed	Testing Steps	Expected results	Status
1	Successful cashier login	Input Powered by nopi Copyright © 2019 nopi123. All Rights Reserved.	Enter the username and password that the admin has created into the login page	Successfully log in to the cashier dashboard page	Valid
2	Empty username cashier login	Input Powered by E-Mail Copyright © 2019 nopi123. All Rights Reserved.	Log in without filling in the username form	A message appears "Please Fill out this field"	Valid
3	Login cashier username is incorrect	Username : zahra Copyright © 2019 nopi123. All Rights Reserved.	Log in by filling in the username form, but the username is wrong	A "wrong password or username" message appears	Valid
4	Cashier login incorrect password	Enter username : nopi Copyright © 2019 hembang123. All Rights Reserved.	Log in by filling in the password form, but the password is wrong	A "wrong password or username" message appears	Valid
5	Blank password cashier login	Enter username : nopi Password:-	Log in with a username but the password is not filled in	A message appears "Please Fill out this field"	Valid
6	Cashier Dashboard	-	View the number of menus listed and the number of employees	Statistical information is displayed according to the database.	Valid
7	Transaction process, click print receipt without entering the menu quantity	Trying to click the print receipt button without menu input	Click the print receipt button	The system will reject and the button cannot be clicked	Valid
8	Input the customer's money with the correct amount	Input Money : 50,000 Total orders : 50,000	Input the Nominal Amount of Customer Money with the correct and appropriate amount	The system will automatically calculate the total order, and if the money is in change it will not be calculated automatically	Valid
9	Input customer money with change	Input Money : 100.000 Total orders : 50,000	Input of the customer's nominal money with an amount greater than the total existing order	The system will automatically calculate customer change	Valid
10	Less customer money input	Input Money : 20,000 Total orders : 30,000	Input of nominal customer money with less than the total order	The print receipt button cannot be clicked, and the cashier staff must re-enter it correctly	Valid
11	Click the print receipt button	Click the print receipt button	Click the print receipt button with the condition of the order number, total order, nominal money is appropriate	The receipt display appears with full details (menu name, price, total, customer money, and change)	Valid
12	Transaction History	-	Go to the cashier transaction history page	List of transactions displayed by time	Valid

b. Checklist Usability testing

Usability *testing* is carried out to determine the level of interface feasibility and user experience of the system that has been designed, in this case the cashier website which consists of two main pages, namely the admin page and the cashier page. The method used in this test is a questionnaire-based *Checklist Usability testing* with a Likert scale. The range of likert scale values used from 1 to 5 are:

Table 3. Likert Scale Range

Value	Information
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly agree

The Usability test was carried out by selecting respondents by purposive sampling where the researcher selected the research subject based on criteria that were in accordance with the research objectives.

In this study, respondents were asked to give a score to each statement that had been prepared based on usability aspects, such as ease of use, navigation efficiency, clarity of appearance, and satisfaction with the available features. The data obtained is then calculated using the following formula:

$$Presentase\ Kepuasan = \left(\frac{\sum \text{Nilai Jawaban Positif}}{\text{Total Responden} \times \text{Nilai Maksimal}} \right) \times 100\%$$

Where:

Answer Value = Number of Answers on a scale of 4 + 5

Total Respondents : 14

Maximum Score : 8

Table 4. Usability test calculation results

Yes	Question	Value					Respondents
		5	4	3	2	1	
1	P1	5	9	0	0	0	14
2	P2	7	6	1	0	0	14
3	P3	6	8	0	0	0	14
4	P4	4	9	1	0	0	14
5	P5	8	6	0	0	0	14
6	P6	7	6	1	0	0	14
7	P7	8	5	1	0	0	14
8	P8	10	3	1	0	0	14
Positive Answer Value		107					

Table 5. Interpretation of Qualifying Score

Presentation Range	Category
85% – 100%	Highly Worth It
70% – 84%	Proper
50% – 69%	Quite Decent
< 50%	Not Eligible

Based on the results of the usability testing carried out, the average user satisfaction level with the cashier website is 95%. This result is obtained by summing the positive values (categories 4 and 5) for each statement, then comparing it with the total maximum score obtained. These results show that the designed system is well received by users with a satisfaction rate above 80%[15].

4. CONCLUSION

Based on the results of research and implementation, the development of the cashier website at Warkop Diini Aja using the Laravel framework successfully overcame various obstacles that arise from the manual recording system. This system is able to speed up transactions, reduce recording errors, and make it easier for business owners to monitor transactions and revenue digitally. The application of the waterfall development model makes the design process more systematic, starting from the needs analysis to the testing stage. The test results using the User Acceptance Testing (UAT) method show that all functions run according to user needs, while the results of the Usability Checklist test show a satisfaction rate of 95% with the very feasible category. Thus, this website-based cashier system not only improves operational efficiency and accuracy, but also plays a role in encouraging the digitalization of MSMEs to be more modern, transparent, and competitive.

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