

Design and Build a Product Sales Application at PT. Prima Fabian Mandiri Web-Based

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Abstract: The purpose of this research is to create a product sales application that can help and simplify the process of selling to product delivery, and can provide information about the company and the latest stock and prices at PT. Prima Fabian Mandiri Palembang City. Based on the overall results of the application using black box testing by testing the functions of the application clicks and buttons are as expected so that the web-based product sales application is in accordance with what is needed and Based on the results of the validity and reliability test calculated using SPSS 25, all statements are declared valid and reliable so that from five variables indicate that consumers are satisfied with the usefulness of the PT sales product application. Prima Fabian Mandiri. Design/method/approach: The system development method uses the prototype method, while the system modeling uses UML (Unified Modeling Language) in the form of use cases, activity diagrams, sequence diagrams, and class diagrams. The application also conducts testing using black box testing and after that an usability evaluation is carried out using the Use Questionnaire method with a total of 30 respondents. Questionnaires are created and distributed online using google forms. Based on the results of validity and reliability tests calculated using SPSS 25. The results of this study resulted in a product delivery application, and can provide information about the company and the latest stock and prices at PT. Prima Fabian Mandiri Palembang City. The system testing technique used in this study was black box testing, and usability evaluation was carried out using the Use Questionnaire. Based on the results of validity and reliability tests calculated using SPSS 25, all statements are declared valid and reliable so that from the five variables it shows that consumers are satisfied with the usefulness of the PT application. Prima Fabian Mandiri Palembang City. Users of this product sales application are admins, consumers, logistics and company leaders.

Keywords: Unified Modeling Language, Questionnaire, black box testing; usability; validity, reliability.

INTRODUCTION

The rapid development of information technology has an impact on changing organizational or company services (Hartati, Indriyani, & Trianingsih, 2020). Especially in companies engaged in sales, technology is used to support work activities that can produce fast, precise and accurate information (Trisakti & Pratama, 2020). In addition, the impact of the competition aspect is the formation of a level of intense competition that encourages companies to have the ability to adapt to changes that occur (Berlilana, Utami, & Baihaqi, 2020). PT. Prima Fabian Mandiri Palembang is one of the companies engaged in trading as a distributor of electronic products. The company currently focuses on distributing or selling electronic products and spare parts. Where the distribution and sale of products are sold directly in stores and also sell online by registering at several marketplace which are currently very popular both among teenagers and parents.

This is because the current market development is so competitive with very rapid technological and communication advances. In addition, the field of trade as a distributor of electronic products is more promising and more profitable for the company.

PT. Prima Fabian Mandiri provides many types of electronic products, namely home karaoke, tv machines, satellite dish, stabilizer, toa, acr, mixer, equalizer, amplifier, spare parts, microphone, power supply, battery charger, satellite dish, CCTV, hdmi cable and electrical cable. Office of PT. Prima Fabian Mandiri is located on Jalan Veteran No. 757L Kelurahan Kuto Batu, Ilir Timur II District, Palembang City. Product warehouse at PT.

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Prima Fabian Mandiri is located at Pasar 16 precisely on Jalan Beringin Beard No. II, 17 Ilir, East Ilir District. I, Palembang City, South Sumatra 30111, at Toko Irama Baru. Based on an interview with Mrs. Dewi Pinarsi as HRD at PT. Prima Fabian Mandiri, the company does not yet have an online product sales and delivery transaction application used by the company.

Currently, the sales and delivery transaction process is still carried out conventionally, namely consumers come directly to the store and can order via whatsapp. The transaction process for consumers who come directly to the store, usually are subscription consumers and new consumers. Usually every day there are about 20 transaction notes that are stacked first and then stored, but not immediately entered in the report, 3 days to 1 week are just entered into the computer for sales data. However, if done like that, the note will experience a buildup so that it is less effective and efficient because it is prone to loss.

Meanwhile, in sales transactions via whatsapp, the admin will make notes / invoices, 3 copies of street mail and also the use of small records that function as data brought by logistics staff to pick up products in stores is also still less effective and efficient because it slows down the logistics staff to carry out the product delivery process and is vulnerable to work in damage due to paper. Research related to system development is the Office Stationery Sales Application (ATK) on the Web-Based 1001 Store from the journal (Alam, Hamra, & Herlina, 2021).

The application uses UML modeling and was developed using the PHP programming language. As well as the testing process using Balck Box testing. In research the development of this system does not use the evaluation process Another research on system development using the prototype method is the development of a Web-Based Training Information System Using Web Service Technology and the Lavavel Framework from the journal (Somya & Nathanael, 2019).

This system also uses the balck box method for the testing process. In this system development research, it also does not use the evaluation process as a reference journal in the preparation of prototyping methods and system design. This research also uses a system development method, namely prototypes. Prototype is the process of creating a simple model of software that allows users to have a basic idea of a program when conducting initial testing (Widiyanto, 2018). Research also evaluates systems using usability, usability is a product used by certain users to achieve certain goals such as effective, efficient, and achieving satisfaction (Brata, Fanani, & Rosalina, 2020).

This template provides authors with most of the formatting specifications needed for preparing electronic versions of their papers for *Sinkron: Jurnal dan Penelitian Teknik Informatika*. The main sections (headings) include Introduction, Literature Review, Methods, Result, Discussion, and Conclusion.

In the introduction, researchers are expected to be able to explain the existing phenomena or background information such as prior work, hypotheses, problems to be discussed. This is followed by a statement of the purpose of the research issue or problem and/or set of questions you attempt to answer in your research.

METHOD

The system development method used in this study is the prototype method. In this research proposal, researchers use a system development technique, namely a prototype. Prototype is a Javascript framework created to facilitate the process of creating web-based applications. The prototype method as a paradigm of developing information systems is not only an evolution of existing information system development methods, but also an evolution in the development of management information systems (Pane, Lase, & Mali, 2020). The stages of the prototype can be seen in Figure 1.

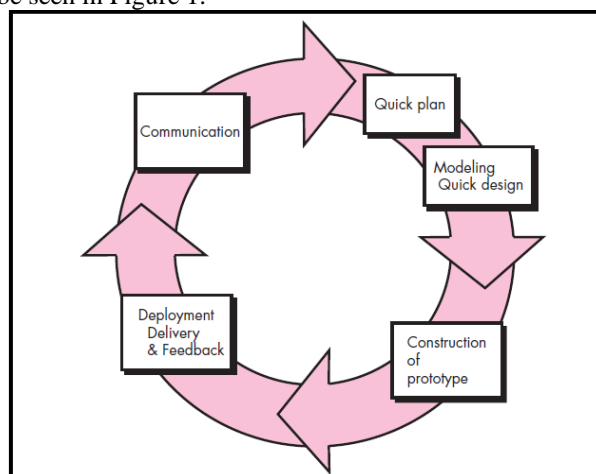


Figure 1. Prototype Model
Source: Pressman deep (Rusdiansyah, 2018).

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Communication

At this stage researchers conduct communication, collection of needs and interviews to identify problems that occur in PT. Prima Fabian Mandiri, describes the documents for the purposes of making the application. Then the researcher makes a running system flow in the form of a flowchart or flowchart and looks for references in previous research journals.

Quick Plan

At this stage, researchers began to build prototyping by modeling the UML (Unified Modeling Language) process in the form of use case diagrams, activity diagrams, squence diagrams and class diagrams admin, logistics, consumers, company leaders.

Modeling Quick Design

At this stage, researchers make database designs and application design designs such as register display design, login, display on consumer pages such as cart menus, checkout menus, my order menus, views on admin pages, logistics and leaders. After that, the researcher will conduct an evaluation after making the UML design and application interface design.

Construction of Prototype

At this stage, researchers do coding to create sales applications according to the interface design that has been evaluated. Then after finishing the researcher conducts system testing with black box testing to minimize if something goes wrong when using the application. And after that, researchers also evaluate usability using a use questionnaire by distributing questionnaires to potential application users, namely admins, leaders, logistics and consumers. Penyerahan sistem atau perangkat lunak kepada user atau pengguna (*Deployment Delivery & Feedback*)

In the last stage, the researcher submits the system that is ready to be used by PT. Prima Fabian Mandiri.

RESULT

The following display results are as follows:

Home view

The initial page view is the home view when accessing the page will display product categories, about companies, orders and accounts, this view can be seen in Figure 2.

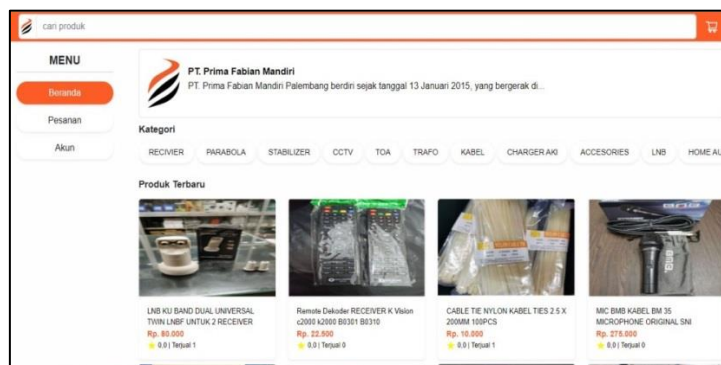


Figure 2. Home view

Profile Page

The profile page is used to display the personal data of consumers in order to be able to buy products directly, this view can be seen in Figure 3.

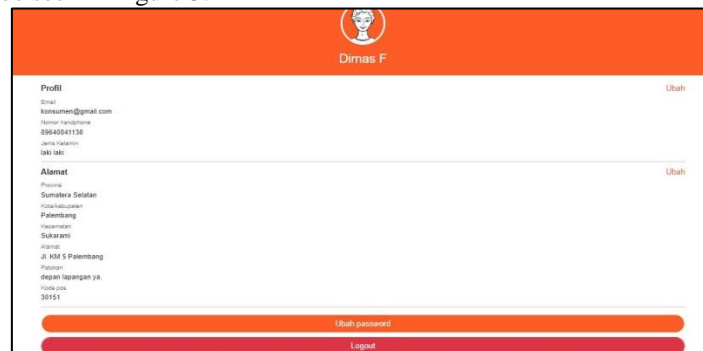


Figure 3. Profile Page

Display Detail Order Page

*name of corresponding author



The detail order page view is used by consumers to view detailed orders that have been checkout which can be seen in Figure 4.

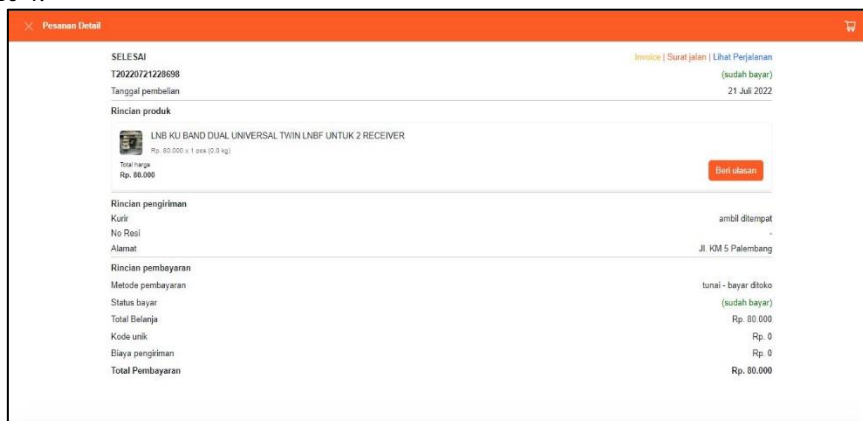


Figure 4. Display Detail Order Page

Login Page View

The login page display is used to enter the menu by entering the registered email and password which can be seen in Figure 5.

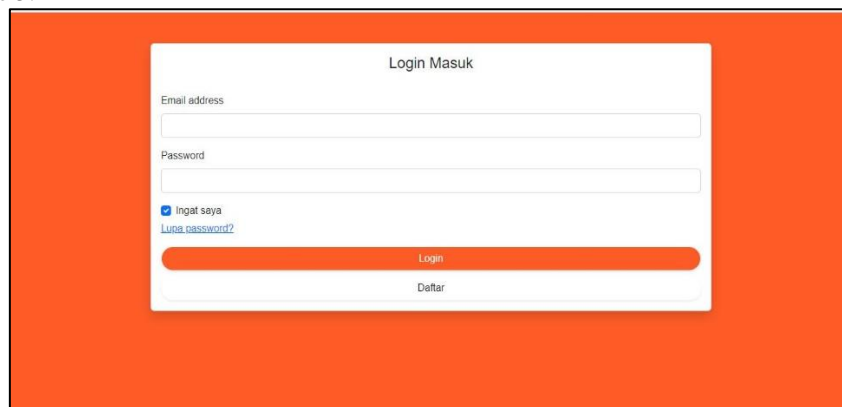


Figure 5. Login Page View

Admin Page View

Admin page views are used to view Admin pages used by admins to manage the purchase transaction process, manage products, manage stock and delivery methods which can be seen in Figure 6.



Figure 6. Admin Page View

Manage Sales Transactions page view

This view of the manage sales transactions page is used by admins to manage incoming and completed sales transactions which can be seen in Figure 7.

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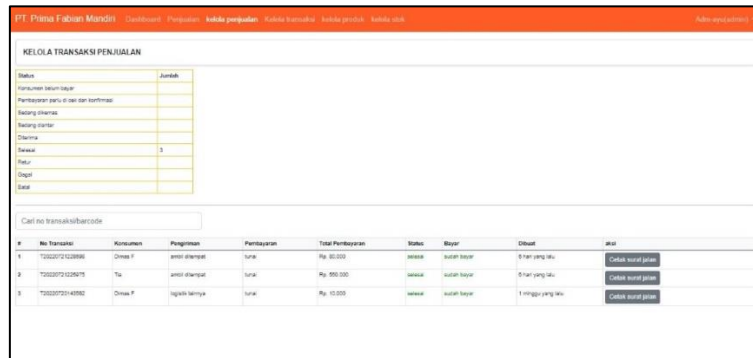


Figure 7. Manage Sales Transactions page view

Logistics Page View

This view is used by logistics to view incoming orders and delivery processes which can be seen in Figure 8.

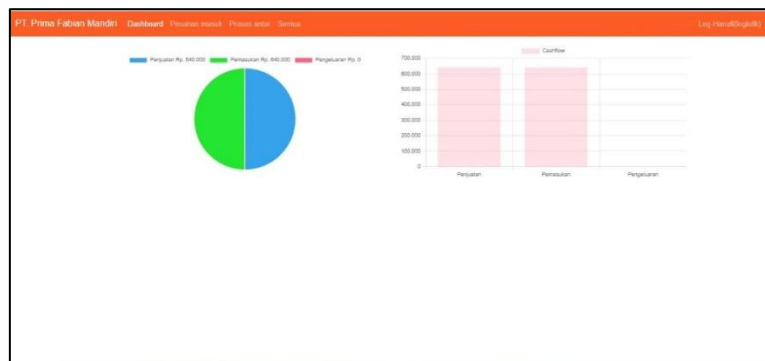


Figure 8. Logistics Page View

Incoming Order Page View

This display of the incoming orders page is used by logistics to view incoming orders which can be viewed in Figure 9.

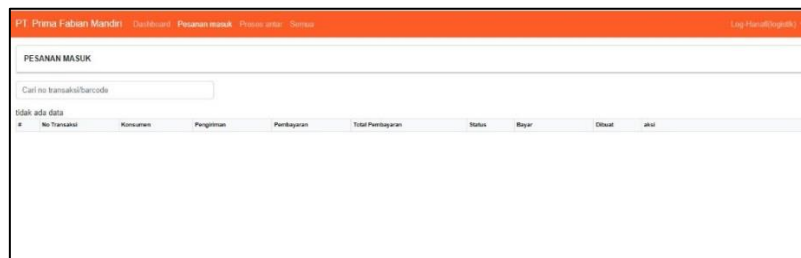


Figure 9. Incoming Order Page View

Leader Page View

This leader page view is used to be able to see the report in the report table which can be viewed in Figure 10.

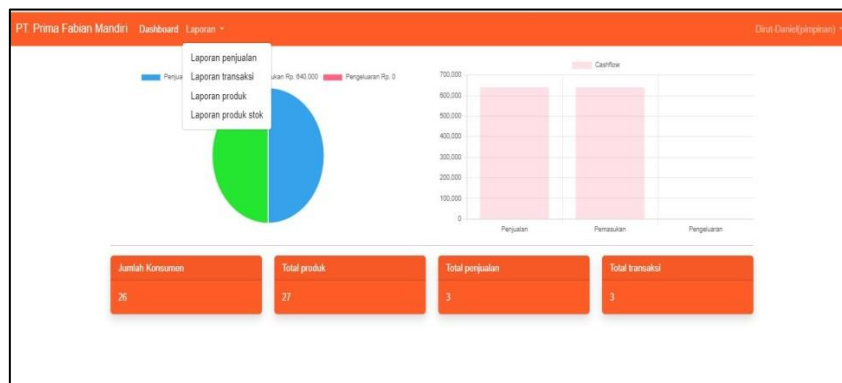


Figure 10. Leader Page View

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Sales Report Page View

This sales report page view is used to be able to view sales reports, leaders can also download reports that can be viewed in Figure 11.

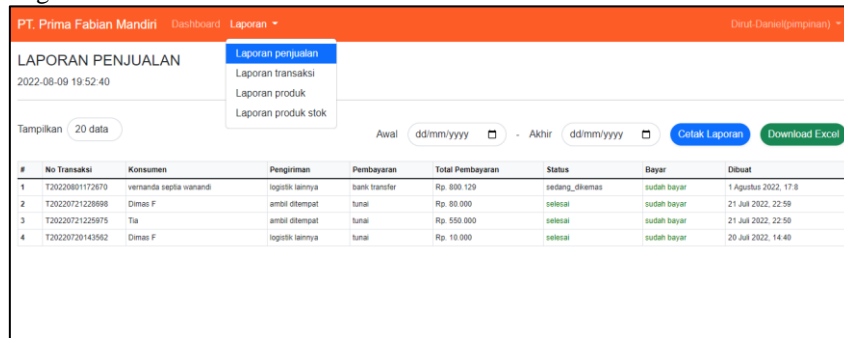


Figure 11. Leader Page View

As for the Black Box test results

Researchers use system testing with black box testing methods. The black box testing method is one of the software testing techniques that focuses on the functional specifications of the software (Yordani & Sudaryanto, 2021). Researchers perform testing by testing incorrect or missing functions in the application. Testing on the click and tompol functions of the application can be seen in table 1 and table 2.

Table 1. Tested System List

No	Tested Systems	Expected results
1	Login Form	All users can do the login process
2	Consumer Page	Runs correctly and no errors occur
3	Admin Page	Admin can login and all menus work
4	Administrator Page	The company menu appears and the edit menu also works
5	Logistics Page	Incoming orders appear when there is something that needs to be delivered
6	Leadership Page	The reports on the lead page all work and display the corresponding data
7	Download Invoice and Surat Jalan menu	Successful download process
8	Menu Search	Product search successfully runs correctly
9	Sales and Product Reports	Report saved and downloaded successfully
10	Income and Expenditure Graph	Income and expense graphs appear

Table 2. Test Results

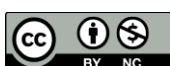
No	Tested Systems	Test Results	Conclusion
1	Login Form	As expected	Succeed
2	Consumer Page	As expected	Succeed
3	Admin Page	As expected	Succeed
4	Administrator Page	As expected	Succeed
5	Logistics Page	As expected	Succeed
6	Leadership Page	As expected	Succeed
7	Download Invoice and Surat Jalan menu	As expected	Succeed
8	Menu Search	As expected	Succeed
9	Sales and Product Reports	As expected	Succeed
10	Income and Expenditure Graph	As expected	Succeed

The results of the blackbox testing consisted of 32 test scenarios on each user page with a total of 111 test cases briefly described at 10 points in the table above and all tests were in line with expectations and all were successful.

DISCUSSIONS

The results of system evaluation using usability evaluation

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At this stage, researchers design statements to create questionnaires using use questionnaires to measure learnability, efficiency, memorability, errors and satisfaction. After the application is ready, the questionnaire will be distributed to 30 respondents including employees at PT. Prima Fabian Mandiri by providing answer choices with a range of 1-4 using a likert scale that is strongly disagree (STS) is worth 1, disagree (TS) is worth 2, agree (S) is worth 3, and strongly agree (SS) is worth 4 (Sugiyono, 2017). Then the researcher calculated the results of the answers filled in by the respondents using SPSS version 25. It then performs validity and reliability tests up to the interpretation of values based on questionnaire statement items.

Questionnaire Design

This questionnaire is filled out by product application users, namely 4 admin staff, 5 logistics staff, 1 PT leader. Prima Fabian Mandiri and 20 consumers as respondents. The questionnaire design was created using the USE questionnaire to measure learnability, efficiency, memorability, errors and satisfaction using a likert scale for the calculation of the results. The distribution of the questionnaire is carried out directly by spreading the questionnaire online using google form with 15 choices and 2 (two) description questions: <https://forms.gle/RwphKPWAZcXgA8U66>.

Respondent Description

Described about the data of respondents who are application users at PT. Prima Fabian Mandiri Palembang and several application consumers, respondent data are grouped by age.

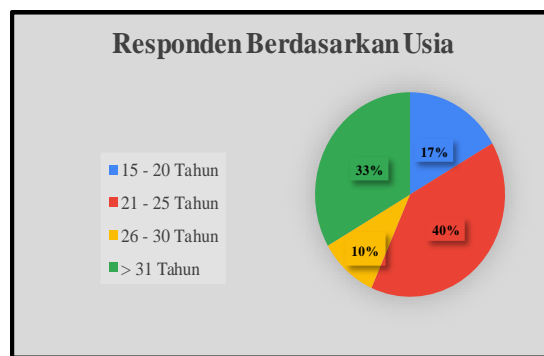


Figure 12. Distribution of Respondents by Age

From figure 12 above, the distribution of respondents by age can be seen that as many as 33% of respondents are over 30 years old, 10% of respondents are 25 - 30 years old, 40% of respondents are 21 - 25 years old and 17% of respondents are aged 15-20. This indicates that most of the respondents to PT. Prima Fabian Mandiri Palembang is 21 – 25 years old. Described about the data of respondents who are application users at PT. Prima Fabian Mandiri Palembang and several application consumers, respondent data are grouped by gender.

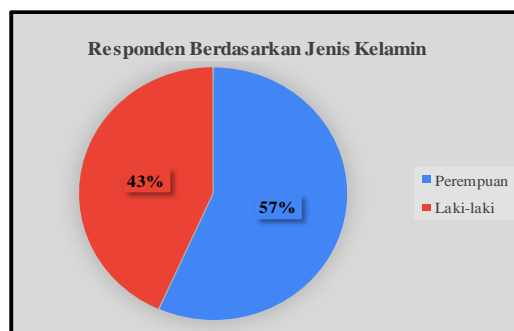


Figure 13. Distribution of Respondents By Gender

From figure 13 above, the distribution of respondents by gender can be seen that as many as 57% of respondents are female and 43% are male. This indicates that most of the respondents to PT. Prima Fabian Mandiri Palembang is female. Described about the data of respondents who are application users at PT. Prima Fabian Mandiri Palembang and several application consumers, respondent data are grouped based on the latest education.

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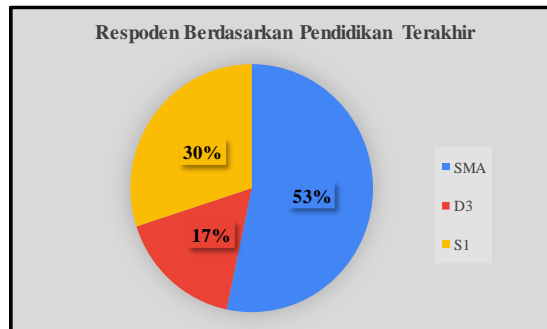


Figure 14. Distribution of respondents based on recent education.

From figure 14 above, the distribution of respondents based on the last education can be seen that as many as 53% of respondents have a high school education, 30% of respondents have an S1 education and 17% of respondents have a D3 education. It is concluded that most of the respondents are PT. Prima Fabian Mandiri Palembang had his last high school education. Described about the data of respondents who are application users at PT. Prima Fabian Mandiri Palembang and several application consumers, respondent data are grouped by division / position.

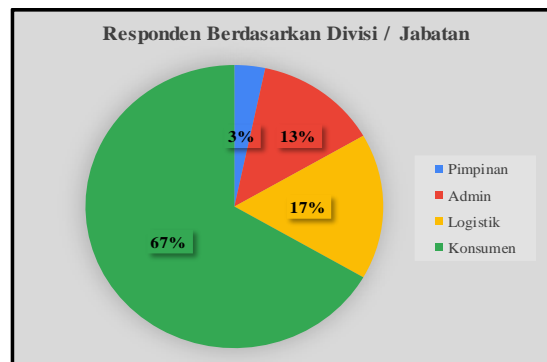


Figure 15. Distribution of Respondents By Division / Position

In figure 15 describes the distribution of respondents by division / position. It can be seen that as many as 67% of respondents to divisions or positions as consumers, 17% of admin respondents, 13% of logistics respondents and 3% of leadership respondents. It is concluded that most of the respondents are PT. Prima Fabian Mandiri Palembang is a consumer.

Validity Test Results

The validity test is used to measure whether or not a questionnaire is valid for using. In determining validity, researchers used SPSS version 25 by looking at the output results in the Corrected Item Total Correlation column. The criteria that must be met for a statement item to be said to be valid is $R_{count} > R_{tabel}$ (Putri, Herawati, & Sari, 2021).

In this study, researchers used a significant level of 1% (0.01), and used the degree of freedom (df) formula to calculate the r_{tabel} , the following is the degree of freedom (df) formula:

$$Df = n - k$$

With the above caption "n" is the number of samples/observations that make up the regression, and "k" is the number of variables (free + bound) (Nugroho, 2020). With a sample number of 30 people and the variables used there are 5 variables, then enter it into the degree of freedom (df) formula:

$$Df = n - k$$

$$Df = 30 - 5 = 25$$

After getting the results, then look at the table of distribution of r_{tabel} values at the signification level = 1% (0.01) calculated using SPSS 25 and obtained the r_{tabel} value of (0.450). The validity test results for each statement can be seen in table 3 as follows:

Table 3. The Validity Test Results

Variable	Code	r_{tabel}	Corrected Item- Total Correlation	Status
Learnability	L1	0,450	0,718	Valid
	L2	0,450	0,623	Valid

*name of corresponding author



Variable	Code	rtabel	Corrected Item- Total Correlation	Status
	L3	0,450	0,687	Valid
Efficiency	EF1	0,450	0,656	Valid
	EF2	0,450	0,738	Valid
	EF3	0,450	0,657	Valid
Memorability	M1	0,450	0,522	Valid
	M2	0,450	0,630	Valid
	M3	0,450	0,521	Valid
Errors	ER1	0,450	0,658	Valid
	ER2	0,450	0,670	Valid
	ER3	0,450	0,723	Valid
Satisfaction	S1	0,450	0,756	Valid
	S2	0,450	0,629	Valid
	S3	0,450	0,752	Valid

As per the table above, of the 15 statements made, all statements are declared valid, because the result of the Corrected Item- Total Correlation > the table's r value is 0.450 so there are no unused statement items.

Reliability Test Results

Reliability testing in this study was used to determine the consistency level of a questionnaire that researchers use. To find out the level of reliability of a statement item can be seen in table 4 as follows: Table 4. Description of Reliability Level

Value Alpha Cronbach	Information
0,00 – 0,20	Lack of reliability
0,20 – 0,40	Somewhat reliable
0,40 – 0,60	Quite reliable
0,60 – 0,80	Reliable
0,80 – 1,00	Very Reliable

Source: (Athur, 2019)

On reliability testing, according to (Athur, 2019) The research statement is said to be reliable using the Cronbrach Alpha technique, if the reliability coefficient at the signification level is 1% > 0.6, then the statement is considered reliable and vice versa if the value is smaller. Then to find out the results of data calculations in trust and consistency or reliability on SPSS can be considered in the Reliability Statistics table (Janna, 2021). The test results can be seen in table 5 as follows:

Table 5. Reliability Test Results

No	Variable	Cronbach's Alpha		Status
		Standard	Result	
1.	Learnability	0,6	0,742	Reliable
2.	Efficiency	0,6	0,803	Very Reliable
3.	Memorability	0,6	0,731	Reliable
4.	Errors	0,6	0,763	Very Reliable
5.	Satisfaction	0,6	0,889	Very Reliable

It can be seen that the results of the questionnaire reliability test in each statement above > 0.6, so that all variables are declared reliable.

Interpretation of values based on questionnaire statement items

After calculating the distribution of answers from respondents, then calculating the interpretation of values based on questionnaire statement items to see the level of usefulness of product sales applications in PT. Prima Fabian Mandiri by using the percentage formula as follows:

$$IS = \frac{\text{total skor keseluruhan}}{\text{skor tertinggi}} \times 100\%$$

Information:

IS : Score Interpretation

*name of corresponding author



Total overall score : Respondent's answer x weight of value (1-4)

Highest score : Highest score scale (4) x number of respondents (30)

Interpretation is obtained by comparing item scores based on the answers of 30 respondents who use product sales applications on PT. Prima Fabian Mandiri. It is exemplified as follows the total research score = 96 divided by the highest score = 120 then multiply 100%, the result is 80%. Then the calculation result of the percentage of each statement item, will be interpreted based on the respondent's answer obtained on each statement item. After that, the criteria for interpretation of the score / number that have been determined based on the results of the calculation are seen. The criteria for interpretation of the score can be seen in the following table 6:

Table 6. Score Interpretation Criteria

Persentase (%)	Interpretation Criteria
0% - 20%	Very Weak
21% - 40%	Weak
41% - 60%	Enough
61% - 80%	Strong
81% - 100%	Very Strong

Source : (Athur, 2019)

If based on the assessment and interpretation of user satisfaction with each variable in the questionnaire, after being calculated using the formula described above, the results can be seen in table 7 as follows:

Table 7. Interpretation of Questionnaire Statement Items

Variable	Code	Question	Value	Interpretation
<i>Learnability</i>	L1	How to use this application is easy to learn and the product information you are looking for is easy to find.	85,00%	Very Strong
	L2	The menus or symbols in the application are easy to understand.	86,67%	Very Strong
	L3	In the application I found the search menu or download menu.	79,17%	Strong
<i>Efficiency</i>	EF1	The application can be accessed anywhere and I found no difficulty in finding the information needed.	85,83%	Very Strong
	EF2	At the time of search, the searched product is immediately displayed.	84,17%	Very Strong
	EF3	When moving around my yard there was no difficulty.	82,50%	Very Strong
<i>Memorabilty</i>	M1	The appearance of the application has a consistent layout so it is easy to remember.	80,00%	Strong
	M2	The absence of errors in reiterating the process.	81,67%	Very Strong
	M3	The appearance of the application gives a distinctive feature to the coloring, image size and layout so that it is easy to remember.	67,50%	Strong
<i>Errors</i>	ER1	There is a menu that cannot be clicked while using the application.	85,00%	Very Strong
	ER2	There is a menu that cannot be clicked while using the application.	83,33%	Very Strong
	ER3	In the application there is a menu that cannot provide a response.	83,33%	Very Strong
<i>Satisfaction</i>	S1	Overall I am very satisfied using this app.	85,83%	Very Strong
	S2	I would like to recommend to my friends regarding this application.	85,00%	Very Strong
	S3	I am satisfied with the information contained in the application and would like to return to visit the application to buy the product.	85,83%	Very Strong

*name of corresponding author



A description of the interpretation values for each variable can be seen in figure 16:

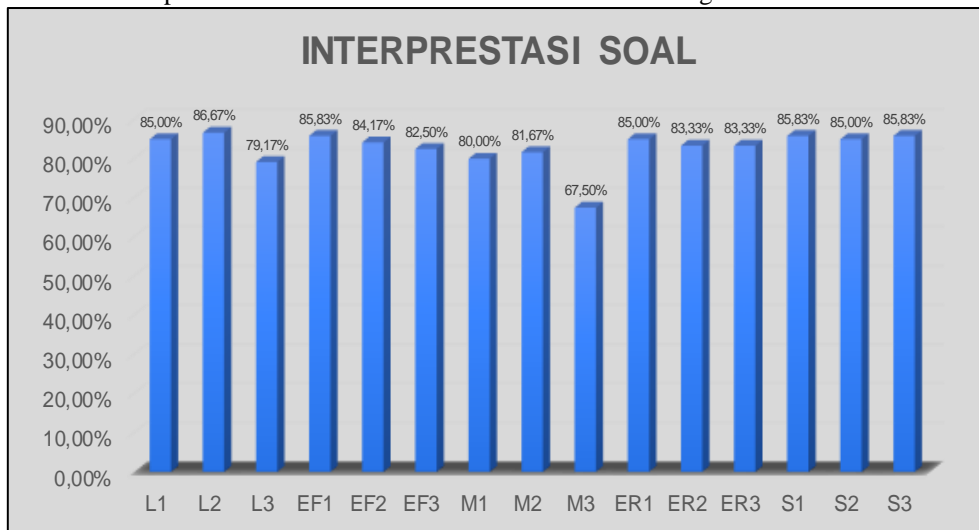


Figure 16. Interpretation Value Graph

Based on the picture above, the results of measuring the quality of the POPCORN application with the following information:

1. The learnability variable in the L2 code indicator got the highest score of 86.67% with the score interpretation criteria in a very strong position. In conclusion, the average respondent strongly agrees that the application of symbols is easy to understand and the way the application is used is very easy to understand.
2. The efficiency variable in the EF1 code indicator received the highest score of 85.83% with the score interpretation criteria in a very strong position. In conclusion, the average respondent agreed that it did not find any difficulty in finding information.
3. The memorability variable on the M2 code indicator got the same value of 81.67% with the berda score interpretation criterion in a very strong position. In conclusion, the average respondent agrees that when restarting the application re-process, no errors occur.
4. The error variable on the ER1 code indicator got the highest score of 85.00% with the score interpretation criteria in a very strong position. In conclusion, the average respondent agrees that the application does not crash and all menus can function properly.
5. The satisfaction variables on the S1 and S3 code indicators got the same value of 85.83% with the score interpretation criteria in a very strong position. In conclusion, the average respondent is very satisfied with using the application and wants to recommend to other consumers.

CONCLUSION

The research produced a web-based product sales application that can make it easier for companies to manage product data, sales transactions to product delivery and provide consumers with the convenience of finding information about the company and making sales transactions online. Based on the overall results of the application using black box testing by testing the functions of the application clicks and buttons are as expected so that the web-based product sales application is in accordance with what is needed and Based on the results of the validity and reliability test calculated using SPSS 25, all statements are declared valid and reliable so that from five variables indicate that consumers are satisfied with the usefulness of the PT sales product application. Prima Fabian Mandiri. The suggestions from this study are:

1. It is hoped that in the next research can be added again menus or features related to sales to product delivery, such as the help menu (chat feature) for consumer complaints or questions that can be replied to directly from the application, the feature of uploading proof of payment and product receipts sent by logistics staff. In addition, in terms of layout, menus and coloring in the application are tidied up and more varied.
2. Not only making web-based product sales applications but also being able to create android-based applications so that they are not only accessed through the website.

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