Website-Based Fisherman Logistic Procurement Information System Design

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Abstract. Logistic procurement as a fisherman's priority is contained in Indonesian law but its implementation still uses the conventional method. This brings about a direct contact transaction in the form of oral and in writing with calculation, data collection, and ordering materials, as well as control variables to determine the exact value. However, modernization is needed to advance fisherman logistics procurement parameters. The result showed the technology generated a user acceptance value of 83,638%. This value showed that the technology is properly targeted to the fisherman's goals and can be used as a replacement.

Keywords: Information System, Fisherman, Logistic, Website.

1. Introduction

Logistic procurement is a fisherman's priority on his way to sea based on PERMEN - KP (Regulation of the Minister of Marine Affairs and Fisheries) No. 5 of 2014 concerning the national fish logistics system which includes procurement, storage, transportation, and distribution. Its implementation using the conventional method becomes a direct contact transaction in the form of oral or in writing with calculation, data collection, and ordering materials, as well as control variables to determine the exact value. This affects fishermen who are restricted in human, physical, and financial resources. It also indirectly disrupts the management, efficiency, and accuracy of logistics procurement. Therefore, modernization is needed to advance the fisherman's logistics procurement system.

Modernization is a global phenomenon that requires a transformation of the traditional economy into a modern commercial involving changes in the culture, values, and norms, as well as the perpetrators' mental elements [1]. The act of demanding for times made fishing technology to become inseparable from innovation such as activities and tools.

Also, modernization can be carried out based on the fisherman's logistics procurement activities including calculations, data collection, and ordering materials and tools for production. Data collection and calculations include calculating and storing data on food needs, fuel for transportation, and providing ice cubes to cool catches. Meanwhile, ordering materials and tools are performed by making transactions with producers.

2. Literature Review

2.1 Development of Information Systems

The development of information systems has a purpose as a tool that can help human activities. The purpose of developing information systems varies according to needs [2]. Information management can facilitate human activities through the help of technology [3].

The development of an ordering information system was carried out by Jocelyn in 2017 in his research entitled "Information System for Ordering and Selling of Goods on Web-Based Creative Pintera" to create a system that can place orders and sales of goods on a web platform. This study formulates several problems, namely making products so that they can be better known by the public and creating a web or android -based android-based it easier for consumers to place orders. The results of this study conclude that the ordering information system created can be used to manage goods, reporting, selling, ordering, and paying using a website or smartphone and the system that has been created can be displayed online also has advantaand ges in the ordering section by providing convenience for consumers to make transactions anywhere [4].

Stefanus in 2007 conducted research on "Web-Based Information System for Ordering Goods in Apparel. Inc Distro". The research conducted by Stefanus aims to help smooth the operational process of product ordering, product search, and providing accurate information to produce a list of products needed by consumers. The results of research conducted by Stefanus indicate that the information system created can systematically optimize transactions in general, has the potential as an information medium to introduce products, and make it easier for consumers to place orders for products [5].

Irfan 2015 researched the Analysis and Design of Ordering Information Systems at Ulfah Convection". This research was conducted with the aim in innovate ordering products online so that products can be better known by consumers and to create an online ordering system. Irfan in this study concluded that problems were found in the recording of computerized orders until finally a wewith was designed to help ordering and this research provides a solution to common weaknesses in the old system in providing accurate, relevant, and timely information [6].

The research "Designing Web-Based Food and Beverage Ordering Information Systems at Shuang Hong Restaurants" which was carried out by Hendarto describes several hypotheses regarding ordering information systems including whether information systems can ease the work of waiters, facilitate the ordering process, and whether ordering information systems can work well. The hypothesis that has been made aims to improve the problems that occur at the research site and implement the ordering information system design at the research site. Hendarto after conducting research concluded that the information system created eased the work of the waiter, provided convenience in the ordering process, and ordering the information system went well [7].

2.2 Procurement of Materials and Production Equipment for Fishermen

Procurement of materials and production equipment for fishermen is part of the procurement component of the national fish logistics system PERMEN-KP (Minister of Marine Affairs and Fisheries Regulation) No. 5 of 2014. Procurement of materials and production equipment is classified based on the source from the producer with several products listed in it, namely feed, seeds, fish medicine, fishing gear, ice, and fuel oil.

Food Basic needs are needed as the main human needs. One of the main food crop commodities, one of which is rice, is a very important and strategic commodity (Farid et al., 2018) [8]. Staple foods are foods that are consumed in larger portions than other menu arrangements, tend to be neutral in taste, are a source of carbohydrates, and are filling. Indonesian people have a variety of staple foods ranging from rice, corn, cassava, sago, and others. Each region has different staple foods that are influenced by natural products, for example in Madura, most of the natural products are corn [9].

Fuel oil (BBM) is a type of fuel from crude oil that goes to refineries. Crude oil from natural products is processed in refineries to produce oil products which include fuel. The Indonesian government defines BBM as gasoline, diesel, fuel oil, kerosene, and avtur based on needs and price regulation.

Ice cubes are one of the cooling media for handling fish for traditional fishing vessels. The use of ice is the easiest way to use, relatively cheap, and easy to obtain. The use of ice cubes can cause the load on the ship to be larger and the space for the catch will be larger [10]. Therefore, it is necessary to calculate the exact ice requirement and the estimated catch.

2.2.1 Information Systems

The system focuses on groups that are tied to procedures, elements, or components [5]. Information related to knowledge can increase and reduce the ignorance of information users [5]. Information systems have components called building blocks, namely *input blocks*, *model blocks*, *output blocks*, *technology blocks*, *database blocks,* and database blocks. *control block* (control block) [6] .The input block represents the method used to capture data [5].

1. The model block represents a combination of logic, procedural, and mathematical models that function to process input data and data that has been stored in *the database* [5].

2. The output block represents the final result of an information system in the form of quality information and documentation [5] .

3. The technology block represents technology in information systems that functions to receive input, run models, store, and access data, produce, and send

assistance for overall system control. Technology is represented as software, hardware, and brain devices.

4.   Database blocks represent data that is gathered and bound to one another that is stored on computer hardware and software so that it can be manipulated [5].

5.   Control blocks represent controls designed to prevent errors that may occur so that they can be resolved quickly [5].

2.2.2   *Domain*

The global addressing system is a domain name system or DNS which is translated by the internet protocol (IP) and numbers that are arranged into a domain name. The domain name system (DNS) is analogous to the use of a telephone book, where people are recognized by name, but the written name also includes a telephone number that is connected to the name recorded in it [11].

Domain is a unique address in cyberspace that is used to find and find a website. Domain names are traded freely on the internet under a rental system. Domain names have different identifications according to the location and importance of the website. [12].

2.2.3   *Website*

Website is one form of application whose contents are in the form of documents, multimedia using the HTTP (Hypertext Transfer Protocol) protocol and how to access it through software called a browser. A website that already has a domain (has a URL) and is published on the internet is called a website. There are two kinds of websites, namely static websites whose content changes are not fast and there are also dynamic websites whose content changes quickly. [11].

Website is defined as a collection of information pages that display text, images, animation, sound, and or a combination of all these components. Websites that are static or dynamic in nature form a series of interrelated structures and are linked in a network of hyperlinks [12].

2.2.4   **HTML (Hypertext Markup Language)**

The language to describe the structure of web pages is HTML (Hypertext Markup Language). The function of HTML is to publish documents online. In HTML statements, they are called tags, which are declared using square brackets (<>). The function of tags is to indicate a document or part of a document that must be made as a pair where the closing tags are added with a forward slash (/) [13]

2.2.5   *JavaScript*

JavaScript is a programming language in the web environment that has the nature of Client-Side Programming Language. Client-Side Programming Language

is a type of language whose process is carried out by the client. Browsers such as Google Chrome, Mozilla Firefox, and Safari are client applications that are referenced by JavaScript.

The mid 90's was the beginning of JavaScript development. Although Java and JavaScript have similar names, they are different. Writing JavaScript is inserted into the HTML document or combined with the HTML document itself which is then combined with other documents that you want to target. According to Henderson (2009) [13], JavaScript implements features designed to control how web pages interact with users [14].

2.2.6   CSS (Cascading Style Sheets)

Cascading Style Sheet is a language that represents web page design. Web page design includes colors, layouts, and fonts. A web developer can use CSS so that the web page he is working on can adapt to various screen sizes. CSS and HTML are usually created separately. However, CSS can be combined with HTML pages. This has the aim of making it easier to set up HTM pages that have the same design or design [14].

2.2.7   Databases

Database is a storage in which there is a collection of data that contains operational data and a description of the data. Logically connected data sets and data description designs are used to find information needed by many people (Pahlevi et al., 2018) [14]. The database structure can be adjusted, and the data can be changed, filled, and deleted as needed.

3   Research Methods

This research was carried out in March 2022 in Sungai Enam Village, East Bintan District, Bintan regency as shown in Figure 1. Furthermore, Figure 2 shows the website design and application development were performed in the Laboratory of Engineering Faculty of the Raja Ali Haji Maritime University.
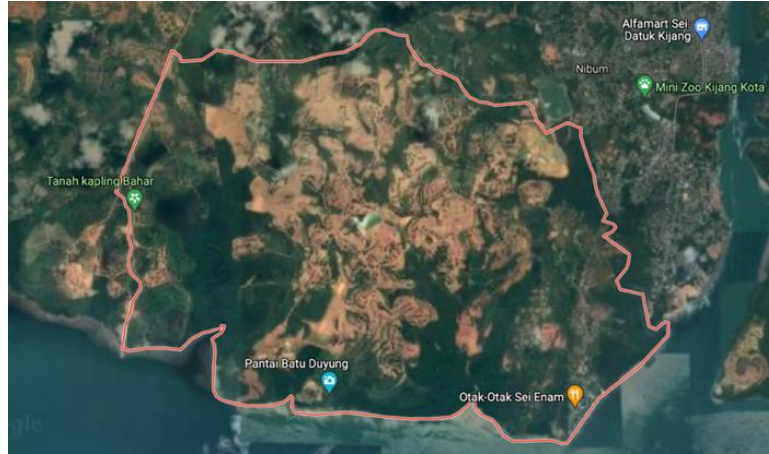
Figure 1. Location of the study (Kelurahan Sungai Enam, East Bintan District, Bintan Regency)

Image Source: Google Maps

Figure 2. Location of *website* design and application development (Laboratory of the Umrah Engineering Faculty of Electrical Engineering Study Program)
Image Source: Google Maps

In this research, the website design and development makes the public easily access the information system. This is because the system can be accessed through smartphones and personal computers. The design uses sketch and Microsoft word for writing. Meanwhile, the information system uses visual studio code or Code IDE and several frameworks including HTML, React JS, Tailwind CSS, Firebase Firestore, and Firebase Hosting. This is to enable the developed website to be accessed online on all smart devices.

website application assessments will be carried out by conducting usability testing with respondents (fishermen) who are around the research environment, namely Sungai Enam Village, Bintan Regency. Website application testing will be carried out to assess the functionality of the applications made and to get input on the application designs that have been made. The application assessment is obtained from application testing with respondents to know the overall assessment of the application's functionality in the final. The research procedure can be seen in Figure 3.
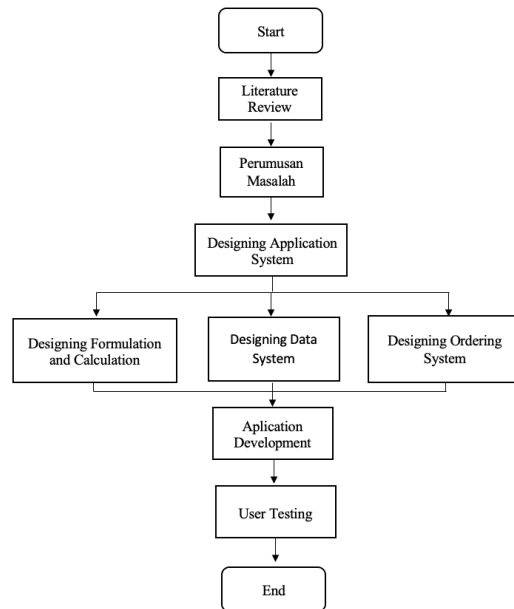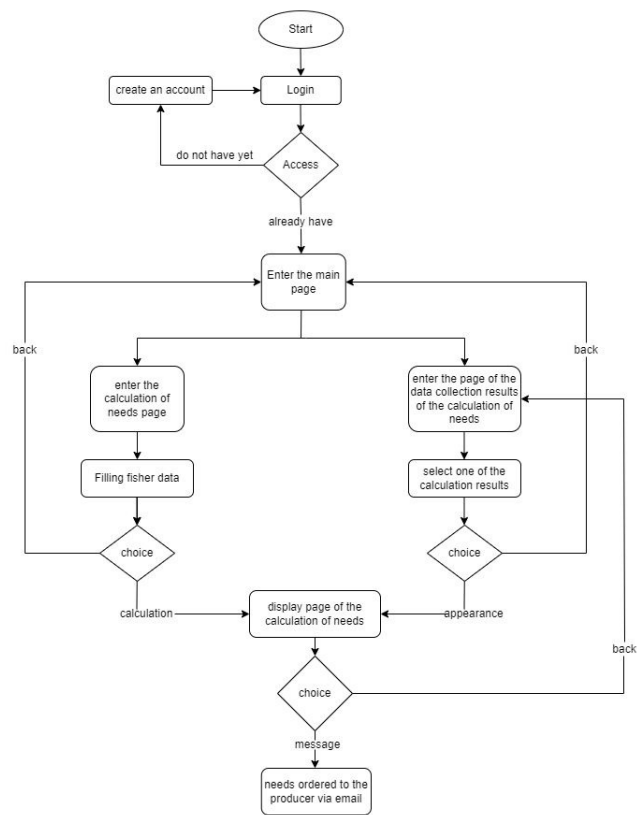

Figure 3. Research Flowchart

3.1 System Planning

Information Systems designed using visual studio code applications and several website builders tools such as HTML, JavaScript, and CSS. This information system will work according to the design as shown in Figures 4, 5, 6, 7, 8, 9.
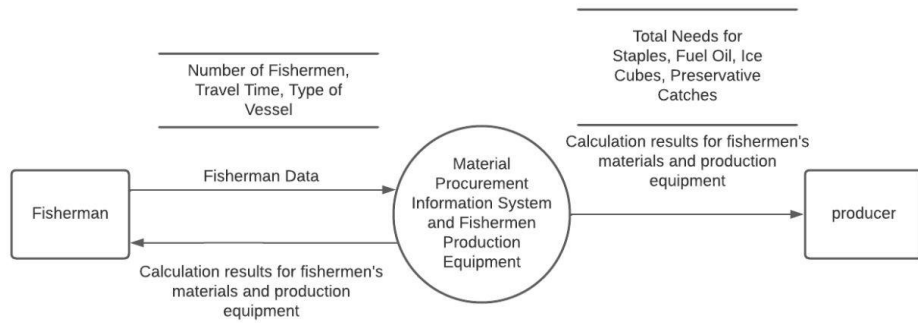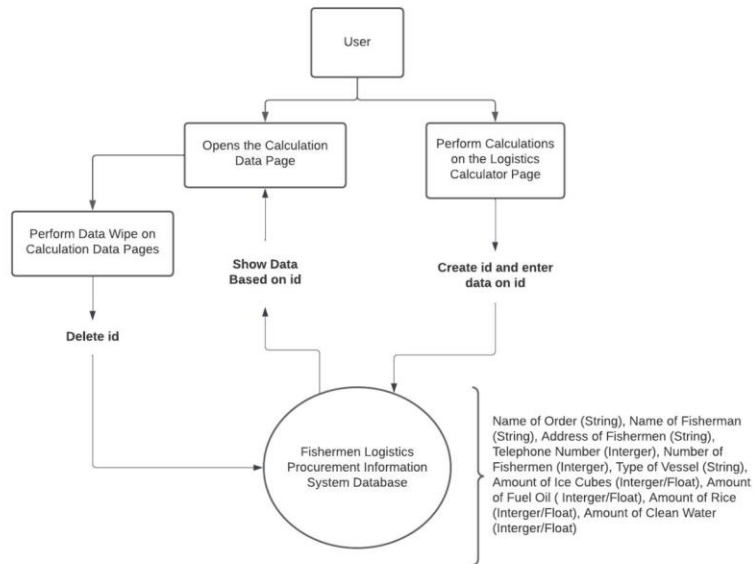
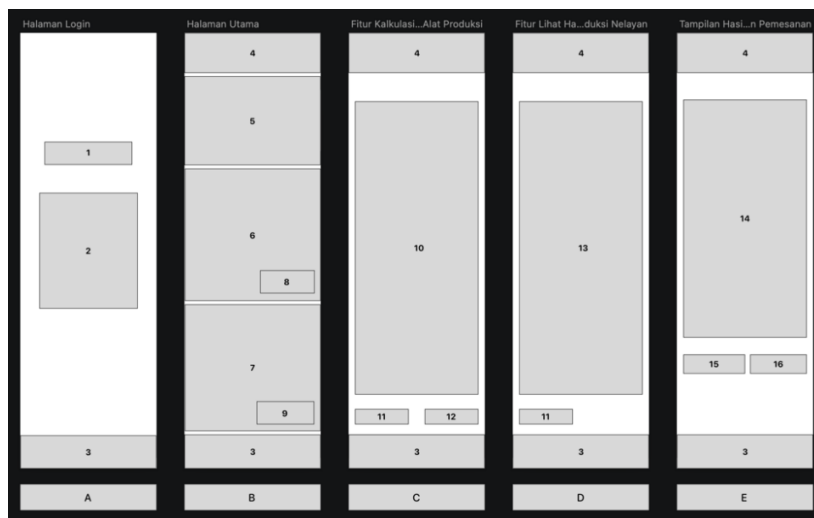**Figure 4.** Data *Flow* Diagram Fisherman Logistics Design

Figure 5. Flowchart of Fisherman Logistics Procurement Information System

Figure 6. Database Management of Fishermen's Logistics Procurement Information System

Figure 7. *Low Fidelity Design* Information System for Fishermen's Logistics Procurement

LEGENDA

1 : Website Name
2 : Authentication Access
3 : Website Footer
4 : Website Header
5 : Website Information
6 : Calculation Feature Information
7 : Calculation Result Feature Information
8 : Navigation Button to Calculation Page
9 : Navigation Button to Calculation Result Page

10 : Fisherman Data Firm
(Name, Address, Number, Fisherman Quantity, Fishing Length, Ship Type)
11 : Navigation Button to Home Page
12 : Navigation Button to Continue Calculation
13 : Calculation Data
14 : Calculation Result
15 : Navigation Button to Previous Page
16 : Navigation Button to Order Logistic

A : Login Page
B : Home Page
C : Calculation Page
D : Calculation Data Page
E : Calculation Result Page

Figure 8. *Legend of Low Fidelity Design* Information System for Fishermen's Logistics Procurement
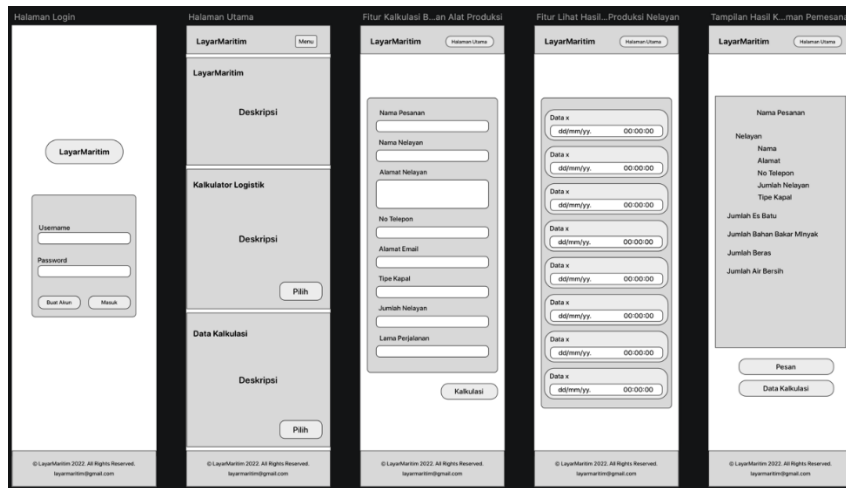
Figure 9. *Medium Fidelity Design* Information System for Fishermen's Logistics Procurement

3.2 Processing and data analysis

Data processing and analysis in this study will use the user acceptance test/ UAT method. UAT is a performance analysis method to prevent errors in an information technology/IT-based system development. Some of the advantages of using the UAT method are that UAT can find new logic/functions in an IT system, UAT can measure user needs for an IT system, and UAT has a limit on measuring the completion of a system 's flow.

The UAT method will be implemented in two stages, namely alpha test and beta test. Alpha tests will be carried out by conducting unit testing and integration testing on the system to analyze the system's performance against several functions and logic that have been built in it internally. The beta test will be carried out by conducting a questionnaire and will be measured using a Likert scale to determine the value of using the system from the user's side. The Likert scale used in this study will be set from a scale of 1 – 5:

Table 1. *Website* - Based Fisherman Production Equipment with a *Likert scale*.

No	Category	Code	Score
1	Strongly Disagree	SD	1
2	Disagree	D	2
3	Just Normal	JN	3
4	Agree	A	4
5	Strongly Agree	SA	5

Likert Scale on the *Website* -Based Information System for Procurement of Materials and Equipment for Fisherman Production Questionnaires.

Table 2. Questionnaires For Fisherman

No	Question	SA	A	JN	D	SD
1	ASLAN application is easy to use					
2	The ASLAN application simplifies the interaction process in procurement logistics					
3	ASLAN makes it easier for me to handle fishing logistics procurement					
4	ASLAN application increases effectiveness in fisherman logistics procurement					
5	I have successfully carried out a trial of filling out the logistics calculation form					
6	I have successfully made a trial order on the ASLAN app					

7	ASLAN application accelerates fisherman logistics procurement
8	I will suggest others to use ASLAN as a fisherman logistics procurement application
9	Even though I'm not a fisherman, I want to know more about the development of the ASLAN application
10	The features and functions of the ASLAN application are already running according to the needs of fishermen's logistics procurement

Table 3. Questionnaire Calculation of *Website* - Based Materials and Equipment Procurement Information System for Fishermen using *Likert scale*

Respondent	Question									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Respondent x										
Total Score										
Index										

The index value formula can be seen below:

$$Index = \frac{Total\ Score}{(Total\ Respondent \times Max\ Quistionnaire\ Score)} \times 100\%$$

$$Index_i = \frac{score_1 + score_2 + \cdots + score_i}{(Total\ Respondent \times Skor\ Kuisioner\ Maksimum)} \times 100$$

To determine the quality value of the system, it is necessary to determine the quality scale with categories using a *Likert scale* and the average value of system quality using the statistical mean method:

The formula for determining the value of the *acceptance index* uses the mean method:

$$Acceptance\ Index = \frac{Total\ Index}{Total\ Quistionnaire}$$

$$Acceptance\ Index = \frac{Index_1 + Index_2 + Index_3 + \cdots + Index_i}{10}$$

Formula for determining the quality *index* scale:

$$Scale = \left(\frac{100}{\text{Jumlah Kategori}}\right)\%$$

$$Scale = \left(\frac{100}{5}\right)\%$$

$$Scale = 20\%$$

Table 4. Quality *index* scale using *Likert scale*

Scale	Category
0% - 19.9%	Strongly Disagree
20% - 39.9%	Don't agree
40% - 59.9%	Just normal
60% - 79.9%	Agree
80% - 100%	Strongly agree

4   Results and Discussion

The developed application begins through flow diagram and design which are used as initial visual concepts and workflows. According to the logic, this visual concept is applied to the form of a program.
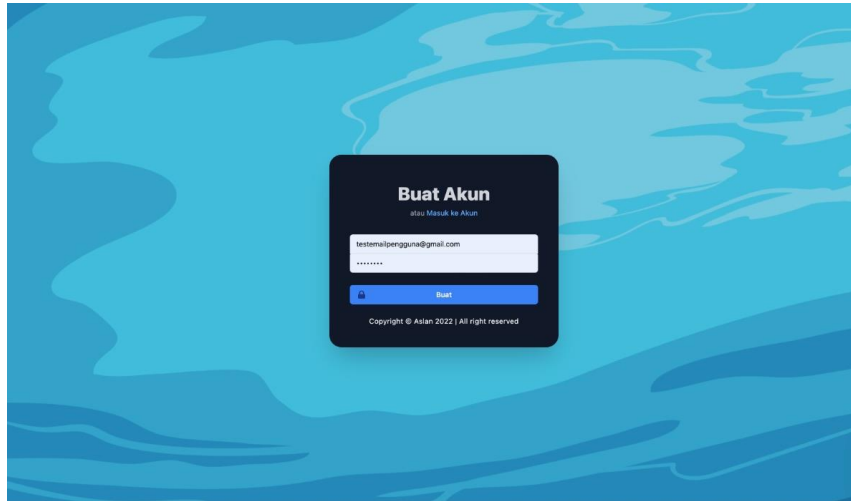
Figure 10. View Create Account
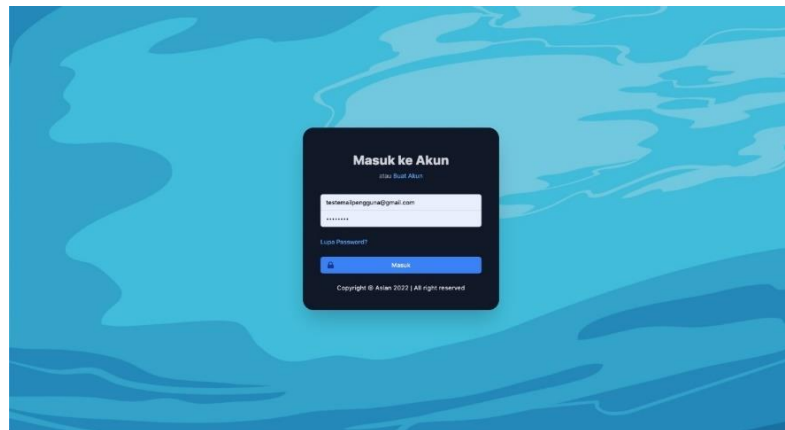
Figure 11. Login Display

Figure 12. Main Pages Display

Figure 13. Logistics Procurement Form Display

Figure 14. Fisherman Logistics Data Display

Figure 15. Logistics Needs Data Display

ASLAN

Pemesanan Logistik

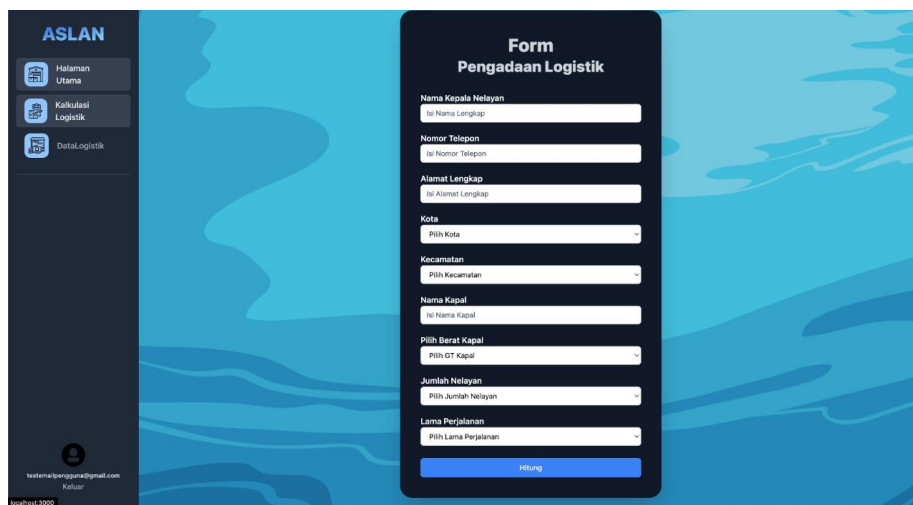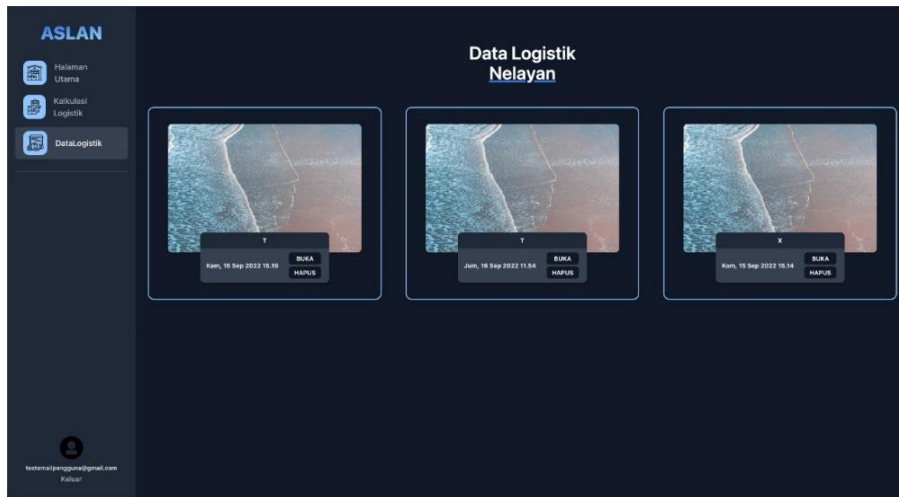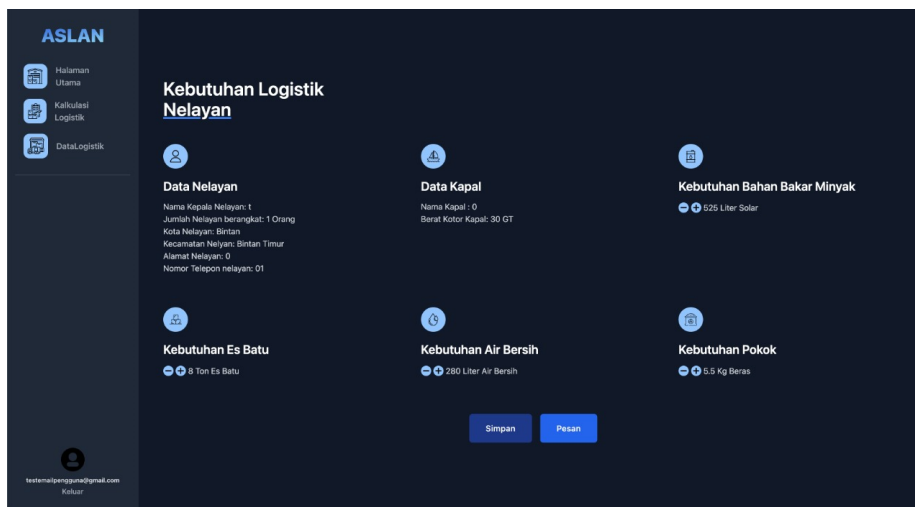|		
Bahan Bakar Minyak	$$$	IDR
Barang: Solar Kuantitas: **1050 Liter**		
Bahan Pangan dan Air Bersih	$$$	IDR
Barang: Beras Kuantitas: **109.2 Kg**		
Barang: Air Bersih Kuantitas: **5600 Liter**		
Perlengkapan dan Kesiapan	$$$	IDR
Barang: Es Batu Kuantitas: **16 Ton**		

Pelanggan: **T**   Nomor Telepon: **0821**

Email: testemailpengguna@gmail.com   Alamat:

Kapal: **T**   **Bintan,**
Bintan Timur,
T

Figure 16. Display of Orders for Fisherman's Logistics Needs

4.1 Functional Test

The functional test aimed to determine whether the system is working properly. It was carried out through the UAT method consisting of alpha and beta that are in line with this research data management and analysis. Table 7 shows the alpha test undergoes a unit experiment to examine whether each feature/function is properly run. Also, Table 8 indicates that an integration testing process is used to examine how each feature/function works together. Therefore, this alpha test analyzes the system's feasibility before being carried out on potential users. A beta test was also carried out to ensure that the system works properly in line with users' procedures.

4.2 Alpha Test

The alpha test on the ASLAN application will be directly tested internally by the developer using two steps, namely unit testing and integration testing. Unit testing is carried out to test application features or functions per unit with the achievement of features being able to carry out actions according to their functions. Integration testing is done to test the integration of features in carrying out a process of using an application.

Table 5. Unit Testing

Function Group	Function	Test Result	
		Succeed	**Fail**
Authentication	Create account	✓	
	Sign in account	✓	
	Exit Account	✓	
Logistics calculations	Enter the name of the fisherman's name	✓	
	Enter address data	✓	
	Enter city data	✓	
	Enter district data	✓	
	Enter the ship's GT data	✓	
	Input data on the number of fishermen	✓	
	Enter the length of the trip	✓	
	Input data needs for ice cubes	✓	
	Enter ship name data	✓	
Manage logistics data	Clear data on logistics data	✓	
	Open data on logistics data	✓	
	Showing data on logistics data	✓	
Manage logistics orders	Add or subtract data from logistics calculations	✓	
	Bring up logistics calculation data	✓	
	Save changes to logistics calculations	✓	
	Order logistics	✓	

Table 6. Integration Testing

No	Test	Test step	Test result
1.	Integration of registration function group	1. Accessing the ASLAN *website* 2. Register or create an *account* 3. After successfully *registering* then *logging in.*	Successfully *logged* in on the *Website.*
2.	Logistics calculation function group integration	1. Access *the website* 2. ASLAN 3. Access the menu 4. logistics calculations	Successfully calculate logistics procurement that is integrated with logistics data.

		5. Enter data on the form *website* procurement 6. After filling out the logistics procurement form and clicking the calculate *button, then go to the logistics data page*	
3.	Logistics data management function group integration	1. Accessing the ASLAN *website* 2. Access the logistics data menu 3. Delete or open data on existing logistics data	Successfully calculate logistics procurement that is integrated with logistics data.
4.	Logistics ordering function group integration	1. Access *the website* ASLAN 2. Access the menu logistics data on *the website* 3. open data on the logistics data page 4. Add or reduce the number of logistics calculation results and click save or click order to place a logistics order 5. Viewing logistics order transactions that have been made on user emails and logistics provider company emails	Successfully calculate logistics procurement that is integrated with logistics data.

4.3 Beta Test

The following are the results of *beta tests* carried out by potential users of the ASLAN application, where potential users directly try the ASLAN application which is an ASLAN application. fisherman logistics procurement information system. Potential users access a link form that contains a link to the ASLAN application and questionnaire. Potential users first access the ASLAN application and try all the features in full until they are finished, then they can fill out an assessment on the questionnaire that has been given to assess the user experience of the Aslan application. The following is a questionnaire calculation table using a *Likert scale:*

Table 7. Assessment form by *user*

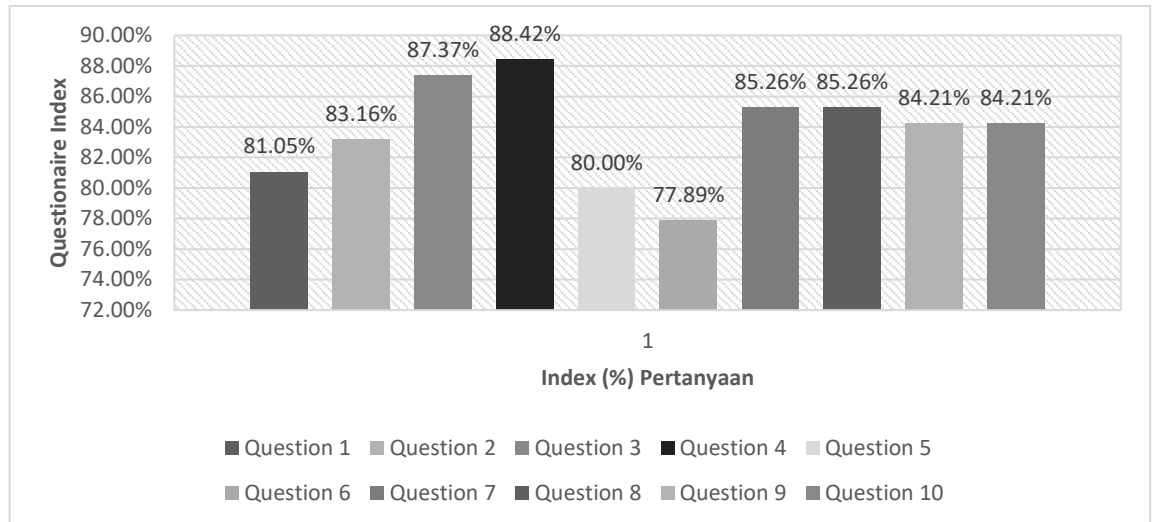| Name	Question									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Respondent 1	Strongly agree	Strongly agree	Strongly agree	Agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree
Respondent 2	Agree	Agree	Agree	Just normal	Agree	Agree	Agree	Strongly agree	Strongly agree	Agree
Respondent 3	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Respondent 4	Just normal	Agree	Strongly agree	Agree	Agree	Just normal	Agree	Strongly agree	Agree	Agree
Respondent 5	Agree	Strongly agree	Strongly agree	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Agree	Agree
Respondent 6	Just normal	Agree	Agree	Strongly agree	Just normal	Just normal	Strongly agree	Agree	Agree	Agree
Respondent 7	Just normal	Agree	Agree	Strongly agree	Just normal	Just normal	Agree	Agree	Agree	Strongly agree
Respondent 8	Agree	Strongly agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Respondent 9	Agree	Just normal	Agree	Agree	Just normal	Just normal	Just normal	Agree	Agree	Agree
Respondent 10	Strongly agree	Agree	Agree	Strongly agree	Agree	Agree	Strongly agree	Strongly agree	Agree	Strongly agree
Respondent 11	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Respondent 12	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Just normal	Agree
Respondent 13	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree
Respondent 14	Agree	Strongly agree	Agree	Strongly agree	Agree	Strongly agree	Agree	Agree	Strongly agree	Agree
Respondent 15	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Respondent 16	Agree	Agree	Agree	Strongly agree	Agree	Agree	Agree	Agree	Agree	Agree
Respondent 17	Agree	Agree	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Agree	Agree	Agree
Respondent 18	Strongly agree	Agree	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Agree	Agree	Strongly agree
Respondent 19	Agree	Agree	Strongly agree	Strongly agree	Agree	Agree	Agree	Agree	Agree	Agree

4.4 Data Analysis

Based on the data obtained from beta testing, it can be concluded that the achievement index (%) falls in question 4 which states that the respondents **strongly agree** that it can increase the effectiveness of fishing logistics procurement.

Furthermore, the highest index points to the lowest followed by question 4, question 3, question 7 & question 8, question 10, question 2, question 1, question 5, and question 6. Following are the results of data analysis on the beta test using a questionnaire:

Table 8. Results of Questionnaire Analysis

Respondent	Question									
	1	2	3	4	5	6	7	8	9	10
Respondent 1	5	5	5	4	5	5	5	5	5	5
Respondent 2	4	4	4	3	4	4	4	5	5	4
Respondent 3	4	4	4	4	4	4	4	4	4	4
Respondent 4	3	4	5	4	4	3	4	5	4	4
Respondent 5	4	5	5	5	5	4	4	5	4	4
Respondent 6	3	4	4	5	3	3	5	4	4	4
Respondent 7	3	4	4	5	3	3	4	4	4	5
Respondent 8	4	5	4	4	4	4	4	4	4	4
Respondent 9	4	3	4	4	3	3	3	4	4	4
Respondent 10	5	4	4	5	4	4	5	5	4	5
Respondent 11	4	4	4	4	4	4	4	4	4	4
Respondent 12	4	4	4	4	4	4	4	4	4	4
Respondent 13	5	4	5	4	5	4	5	4	5	4
Respondent 14	4	5	4	5	4	5	4	4	5	4
Respondent 15	4	4	4	4	4	4	4	4	4	4
Respondent 16	4	4	4	5	4	4	4	4	4	4
Respondent 17	4	4	5	5	4	4	5	4	4	4
Respondent 18	5	4	5	5	4	4	5	4	4	5
Respondent 19	4	4	5	5	4	4	4	4	4	4
Total Score	77.00	79.00	83.00	84.00	76.00	74.00	81.00	81.00	80.00	80.00
Index (%)	81.05%	83.16%	87.37%	88.42%	80.00%	77.89%	85.26%	85.26%	84.21%	84.21%

Figure 17. Graph Index (%) questions

$$Acceptance\ Index = \frac{Index_1 + Index_2 + Index_3 + \cdots + Index_i}{10}$$
$$Acceptance\ Index = \frac{836.83}{10}\%$$
$$= 83.683\%$$

5. Conclusion

Based on the field test results, the application developed can be accepted as a solution for the fisherman in managing, calculating, and ordering logistics with an acceptance rate of 83%. This research produces maritime innovations, particularly fisheries technology that procures fisherman logistics in the form of a website-based application. The development of applications needs to continue to improve users' experience, evaluate data processing performance, and add features that can help them. Also, it makes in-depth observations to examine gaps or problems in fisherman ecosystems that assist in obtaining an innovation for application or outside of this development.

References

[1] Djoh, Da (2018). The Impact Of Modernization On Social Changes In Farmers' Community In Kambata Tana Village, East Sumba Regency. Journal Of Agricultural Economics And Agribusiness, 2 (4), 332–339.

[2] Prima, A. (2015). Production Information System Development At Nikko Bakery. 16 (2), 10.

[3] Chandra, Julian, & Rajab, M. (2017). Scheduling Information System Development .3, 19.

[4] Sembiring, Jo, & Pakpahan, S. (2018). Information System For Ordering And Selling Of Goods At Pintera Kreativ Web-Based. Means (Media Information Analysis And Systems), 146–152.

[5] Purwanto, S. (2007). Information System For Ordering Goods At The Web-Based Distro Kubu Apparel.Inc. Sanata Dharma University, 102.

[6] Wibowo, Ii (2015). Analysis And Design Of Ordering Information Systems On Ulfah Convection. Amikom Yogyakarta High School Of Information Management And Computer Management, 7.

[7] Farid, A., Romadi, U., & Witono, D. (2018). Factors Affecting Farmer Adoption In The Implementation Of The Jajar Legowo Planting System In Sukosari Village, Kasembon District, Malang Regency, East Java Province. Journal Of Extension, 14 (1).

[8] Dewi, Ydp, & Purwidiani, N. (2015). Study Of Staple Food Consumption Patterns In Pagendangan Villagers, Galis District, Pamekasan Regency, Madura. 4, 14.

[9] Nugroho, Ta, & Adietya, Ba (2016). Experimental Study On Use Of Cooling Media For Fish In The Form Of Wet Ice And Ice Pack As An Effort To Increase The Performance Of Fisherman Storage Fish. 4 (4), 10.

[10] Nugroho, Ta, & Adietya, Ba (2016). Experimental Study On Use Of Cooling Media For Fish In The Form Of Wet Ice And Ice Pack As An Effort To Increase The Performance Of Fisherman Storage Fish 4 (4), 10.

[11] Arifin, S., & Krisnadita, Y. (2017). Domain Transfer Plugin Application At Pt Beon Intermedia. 8 (1), 9.

[12] Jaya, H. (2017). Web-Based Hypermedia Design In Digital Electronics Course, Pta-Ft Unm. Journal Of Telecommunication & Computer Electronics, 12, 13.

[13] Jaya, H. (2017). Web-Based Hypermedia Design In Digital Electronics Course, Pta-Ft Unm. Journal Of Telecommunication & Computer Electronics, 12, 13.

[14] Pahlevi, O., Mulyani, A., & Khoir, M. (2018). Goods Inventory Information System Using Object Oriented Method At Pt. Livaza Technology Indonesia Jakarta. 5 (1), 9.