Bird Selling System at The Archipelago Bird Breeding Association (ABBS) North Sumatra Region Using Waterfall Method

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ABSTRACT
The spread of the Covid-19 Virus has resulted in sluggish business development in Indonesia. This impact is also felt by the chirping bird breeders. One of the organizations or institutions that oversees the existing chirping bird breeding is the Archipelago Bird Breeding Association (ABBS). In their daily activities, the members of the ABBS carry out captive breeding, maintenance and also buying and selling results from captivity. There are many problems faced by breeders during this pandemic, including difficulties in marketing their captive products. The purpose of this research is to create a medium for chirping mania lovers to get information on selling birds. This research uses the Waterfall method. The Waterfall has a multi-step approach to system analysis and design. The results of this study include a website-based chirping bird sales application that makes it easier for bird breeders to sell their birds.

Keyword: Bird Breeder; ABBS; Website; Selling System; Waterfall.

1. INTRODUCTION
In this era of globalization, technological developments develop very quickly from time to time (Maulana et al., 2020). Especially in the use of the computer technology and the internet (R. Syahputra et al., 2018). This is inseparable from human habits today which cannot be far from using the internet and computers (Hasdiana et al., 2019). Ranging from simple things to the complex (E. R. Syahputra & Oktavianasembiring, 2019). This habit then becomes a trigger for humans to continue to develop, improve and look for the latest innovations to make human work easier (Hsb & Syahputra, 2020).

Especially now that the Covid-19 virus is spreading. This has resulted in sluggish business development in Indonesia (Anggraini & Syahputra, 2020). This impact is additionally felt by the chirping bird breeders. one among the organizations or institutions that oversee the prevailing chirping bird breeding is that the Archipelago Bird Breeding Association (ABBS). This organization may be a forum for endemic Indonesian bird breeders who have a politician legal entity and are registered with the Ministry of Law and Human Rights. In their daily activities, the members of the ABBS carry out captive breeding, care and also buying and selling the results from captivity. There are many problems faced by breeders during this pandemic. Among them are difficulties in marketing captive products. The difficulty in question is where so far the breeders sell a lot of chirping birds which are done directly to buyers, but with the recommendation to limit direct interaction, it is certainly difficult to carry out the buying and selling process.

This difficulty is more directed to the information that breeders must provide about the birds shall to be sold. Usually, prospective buyers will ask the breeders directly about the condition, the breed and legitimacy of the birds to be sold.

Departing from the problems that have been described, the author makes a bird was breeding sales system by implementing the Waterfall method. The Waterfall has a multi-step approach to the system analysis and the design where the system has been very well-developed using custom analytics and the user activity cycles (Suryadi & Nurmwawi, 2018).
Based on the problems that have been described, this research focuses on solving problems in the Design and the implementation of the Chirping Bird Sales System Using the Waterfall Method.

2. RESEARCH METHOD

A. System Development Method

The method used by the author in designing this application is the Waterfall method because this method is a structured approach (Lubis et al., 2021). The stages of the waterfall method are as follow:

1. System Engineering
   - This modeling begins with finding the needs of the entire system that will be applied to software. This is very important, considering that software must be able to interact with other elements such as hardware, databases, etc. This stage is often referred to as Project Definition. The software that will be used by the author in making this system is using notepad ++ as a programming tool for PHP, HTML, and Java script. Next, the author will use a MySQL database and is supported by the Google Chrome browser.

2. Analysis
   - Analyze the flow of the system in the outline, then analyze the data that will be used. Broadly speaking, the flow of this system starts from the seller marketing their bird products into the system, then the buyer sees a list of birds for the sale based on the seller who has marketed their products in the system that has been designed.

3. Design
   - After analyzing the data, the next step is to make a detailed system flow and then make a design for each form. The form design that will be used includes a form on how from the beginning of marketing the birds that will be entered into the system until the buyer buys the bird through the system.

4. Coding
   - The coding stage is translating the analysis and a design into a programming language. The author will use the PHP the programming language with the mysql database. In addition, the author will also use the Raja Ongkir API in determining the location of information for the delivery area.

5. Testing
   - After the coding stage, the next is the system testing. In testing this system, the author will check or test each sub-system, whether it is as expected or there is still bugs. If each sub-system is declared to be appropriate, an overall test will be carried out involving the vehicle to be used.

6. Maintenance
   - After the system is implemented, the maintenance of the system is very necessary. For an example, there is a repair for system damage.

B. System Design

The design stage of the system design has the intent and a purpose to meet the needs of system users and to provide a clear picture and the complete design of the customer service system to be built (E. R. Syahputra et al., 2020). And here the author uses UML as a system design, including the following:

1. Use Case Diagrams
   - The use case diagram consists of several participants, namely, the administrator, the seller, and the buyer. In this use case, the system process is controlled and supervised by the administrator, and the seller and the buyer can only interact according to the granted access rights. Broadly speaking, the system process to be designed is described by the use case diagram shown in Figure 1.
2. **Activity Diagram Data Seller Product Data**

In the activity diagram, this product data is done by the seller, the first thing to do in inputting the data on the birds to be sold is to log into the system by entering the username and password that were previously registered during registration. The complete activity diagram can be seen in Figure 2.

![Figure 2. Activity Diagram Data Seller Product Data](image-url)

3. **Activity Diagram Transaction Data**

In the activity diagram, this transaction data is carried out by the admin, where the admin wants to see the transactions that have been made when purchasing birds for sale. This transaction data can be seen in print by the admin as a report and review material for products that have been sold. For activity diagram transaction data can be seen in Figure 3.

![Figure 3. Activity Diagram Transaction Data](image-url)
4. Class Diagrams

The class diagram is a specification that produces an object when instantiated and is the core of object-oriented development and design (Amalia et al., 2020). The following is the class diagram design of the system:

Figure 3. Activity Diagram Transaction Data

Figure 4. Class Diagrams System Design
3. **RESULTS AND DISCUSSION**

After this research is carried out, the next step is to implement the system and perform system testing. The completed system is composed of several pages that have their respective functions. The pages that will be displayed are as follows:

1. **Dashboard Page**
   
   This page displays the initial screen which is for the user to access various menus through the system that has been designed. The appearance is as follows.

![Dashboard Page](image1)

2. **Birds List Page**
   
   This page is used to view the list of birds that will be sold by buyers. The appearance is as follows.

![Birds List Page](image2)

3. **Product Input Page**
   
   This page is used by the seller to enter the data of the birds that will be sold into the system. As for how it looks as follows.

![Product Input Page](image3)
4. **Seller Transaction Data Page**

This page functions to view transaction data that has been carried out by buyers through a system that has been designed. The appearance is as follows.

![Seller Transaction Data Page](image)

**Figure 8. Seller Transaction Data Page**

5. **User Data Page**

This page is used by admins to view and manage user data that uses and registers into the system. The appearance is as follows.

![User Data Page](image)

**Figure 9. User Data Page**

4. **CONCLUSION**

The result of this research is the existence of a sales system that is intended for bird breeders under the auspices of the ABBS organization for the North Sumatra region. This system was developed using the phases of the System Development Life Cycle method. This sales system helps bird breeders market their captive birds online.

**REFERENCES**


