Article

Decision Making System in Choosing Poultry Medication at PT.Avindo PBM Web-Based Using Forward Chaining

Zanuar Gunawan1, Rudy Arijanto2,

1, 2 Buddhi Dharma University, Information Systems, Banten, Indonesia

A B S T R A C T

The application of web-based decision making system in poultry medicines selection process using forward chaining by PT. Avindo Perdana Bahtera Mulia aims to promote the medicines and to help poultry stock farmers in knowing which medicines needed to be given to poultry that indicated to be diseased, efficiently and effectively. Livestock farmer can also indentify what kind of disease the stock has and the solution of treating that disease, in this case is getting the medicines that manufactured by PT. Avindo Perdana Bahtera Mulia, quickly and accurately. After conducting research at PT. Avindo Perdana Bahtera Mulia, the marketing process is being left to all veterinarians. Sometimes when customers needed help from veterinary to diagnose the sickness of their poultries, the limited number of the veterinary and poultry specialist make customers can't do anything but wait for the help in the form of medicines suggestions. These reasons above are why this decision making application was finally made. From this application, we can expect the customers can easily know which medicines is right for their poultries and can also order the medicines right away, this can also increase the sales of poultry medicines manufacturer has. It can be concluded that this application can help to providing informations of poultry diseases and marketing the medicines from manufacturer to customers easily, effectively, and efficiently.

PRELIMINARY

The information system is an organized association of data along with procedures for its use which covers more than just the presentation. The term implies a purpose to be achieved by selecting and organizing data as well as set up protocols for its use [1][2].

In the current era of industry poultry veterinary drugs is growing rapidly, considering the many types of diseases and medicines required to cope with the disease, some communities that have poultry have difficulty in knowing the type of drug to treat a disease suffered by poultry
So also with the people who are able to easily access information through the Internet, but finding information on the Internet is certainly not enough to help in the search for a suitable drug for poultry diseases due to lack of more knowledge about the types of diseases that exist and should consult back to the experts, but to bring in an expert on farm costs and time are not little because almost all the cattle are in rural locations.
Of these issues, PT. Avindo Perdana Bahtera Mulia wants to realize the information system in the form of decision-making system that is intended to help the poultry farmers in determining the appropriate medication indicated for livestock diseases and also help market the drug in a way that modern so that medicines manufactured by PT.Avindo can be easily accessible by farmers in the city or outside the city, the solutions provided in the form of medicines produced by PT.Avindo Perdana Bahtera Mulia accordance with the characteristic symptoms of the disease or diseased poultry.

I. METHOD

Methods used include 2 (two) parts, namely data collection methods and design method.
Method of collecting data
a. Literature review
This method is used to collect the theories of both general or specifically related to the design application sourced from books, articles, journals and the Internet.
b. questionnaires
This method was conducted to determine the level of satisfaction of users of the application if the application has been able to address user needs or the need for additional features.

c. Interview
This method is used to obtain information about the function of each drug in order to fit on any symptom poultry to obtain appropriate conclusions.
**Design method**
The design method used is the Decision Support by using forward chaining algorithm. [3] reveals "Forward Chaining is a decision making method commonly used in expert systems. The search process with forward chaining method departs from left to right, from the premise leads to a final conclusion, this method is often called data driven search is controlled by the data provided.
forward Chaining search strategy which initiated the process of collection of data and or fact, of the data sought a conclusion that a solution of the problems faced. The inference engine look for the rules in the knowledge base that premise is in accordance with these data, then of the rules obtained a conclusion. Advanced coherent start the search process with the data that this strategy also called data-driven. The steps involved in creating a rule-based forward chaining as follows:
1. Defining the problem. This stage includes the selection and acquisition of knowledge of the problem domain.
2. Defining input data. Forward Chaining systems require preliminary data for the start of inference.
3. Defining control structure data. Complex applications require additional premise to help control the activation of a rule.

4. Writing prefix. This phase is to determine whether the system has been capturing domain knowledge effectively in the structure of a good rule.
5. Testing of the system. System Tests conducted with a few rules to test the extent to which the system is running properly.
6. The design of the interface. The interface is one of the essential components of a system. Interface design created together with the creation of a knowledge base.
7. Development of the system. Development system includes the addition of interfaces and knowledge in accordance with the prototype system.
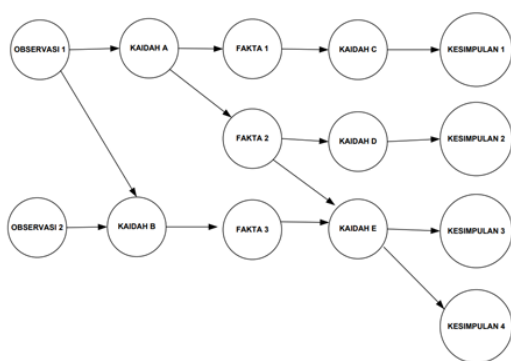
II. RESULTS

After doing research PT.Avindo then it may be a solution in the form of Decision Making System In Choosing Poultry Drug Use Forward Chaining initial step in this research is the establishment of rules derived from interviews by experts poultry, the following is a table of the results of the interview:

Table 1. Disease in Poultry

KP	Disease
D01	Newcastle Disease (ND)
D02	Egg Drop Syndrome (EDS)
D03	Fowl Cholera
D04	Chronic Respiratory Disease (CRD)
D05	Salmonellosis (defecation lime)
D06	Kollibasilosis
D07	Infectious Coryza (Snot)
D08	Ascaris (roundworm) / tapeworm

Table 2. Poultry Diseases and Drugs

No.	Disease name	Drug
1	Newcastle Disease (ND)	Calavac Newcastle Disease Vaccine
2	Egg Drop Syndrome	Winvac ND vaccine EDS
3	Fowl Cholera	New-Ox
4	Chronic Respiratory Disease (CRD)	Respiroxan
5	Salmonellosis (Dirt lime)	Avimox - 24
6	Kollibasiolisis	Aviflox - 10
7	infectious Coryza	Coritrime
8	Ascaris (worm milled) / Ribbon Worm	Avisole

Table 3. Symptoms In Poultry

KG	symptom
G01	respiratory Snoring
G02	Diarrhea
G03	Spinning neck
G04	Followed Paralysis Death
G05	Eggs produced Ugly, eggshell thin or without shell
G06	Pale eggshell color
G07	Under the Wattle Stomach (wattle) distention
G08	Lethargic chicken and Reduced Lunch
G09	There Mucus Thick Of Part and Nose
G10	White MakeUp Watery Stools, Yellowish, and Green
G11	Stop Hen Egg Production
G12	Cough
G13	Sneezing
G14	Swelling At Home
G15	Chickens Nose Clear Liquid Extract
G16	Chickens often shook his head
G17	Resembling dirt White Colored Chalk (Pasta)
G18	Visible chicken Drowsiness
G19	Loss of Appetite followed Sudden Death
G20	Chicken "Menciap" Soreness When Remove Impurities
G21	Chicken Looks Cold and Warm place Tend Gather
G22	Disadvantages Appetite
G23	Inflammation of the navel (omphalitis) Network Neighborhood Navel Become Flabby
G24	The release of exudate from the nose and Foul Smelling
G25	Swollen face Because Ederma under the skin
G26	conjunctivitis
G27	Sometimes Difficult Breathing
G28	Blood deficiency
G29	visible Minding
G30	Weaknesses General and Egg Production Down
G31	Blockage Intestinal Infection Due Weight

Phase formation restate the rule is the stage of knowledge required by the system in the form of production rules to get results or conclusions of predefined rules. Knowledge of

the rules drawn up in Table symptoms based on the knowledge that has been gained.

1. R1 IF G1 AND G2 AND G3 G4 AND THEN P1
2. R2 THEN IF G1 AND G2 P2
3. R3 AND IF G7 G8 G9 AND G10 AND G11 AND THEN P3
4. R4 IF G1 AND G12 AND G13 AND G14 G15 AND G16 AND THEN P4
5. R5 IF G17 AND G18 AND G19 AND G20 AND G21 THEN P5
6. R6 IF G8 AND G21 AND G22 AND G23 THEN P6
7. R7 IF G14 AND G22 AND G24 AND G25 G26 AND G27 AND THEN P7
8. IF R8 G02 AND G08 AND G28 AND G29 AND G30 AND G31 THEN P8

III. DISCUSSION

After the search methods and search for information through interviews or literature, the authors convert the data that has been obtained into the decision-making applications using the algorithm forward chaining as an alternative in the search for medicines of poultry more effective and efficient, can be seen in Figure 2 is a display process user input against any symptoms that indicated poultry diseases.
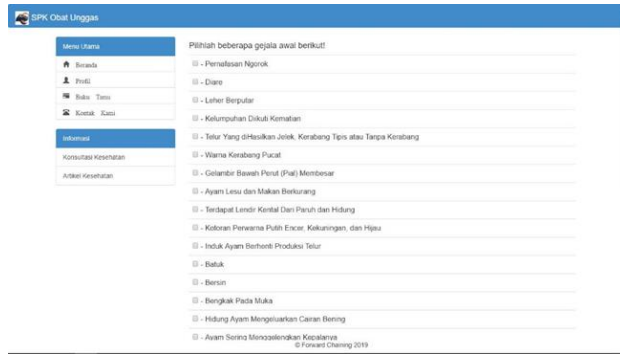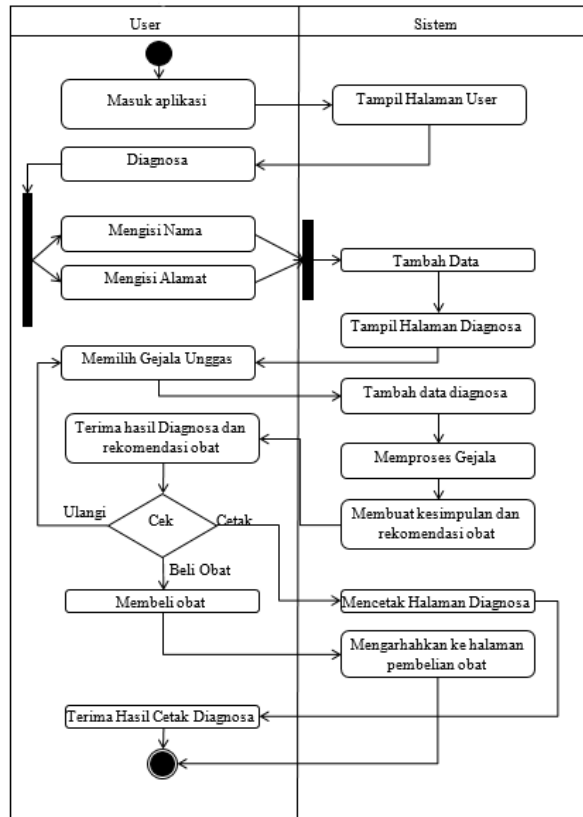

Figure 1: Home

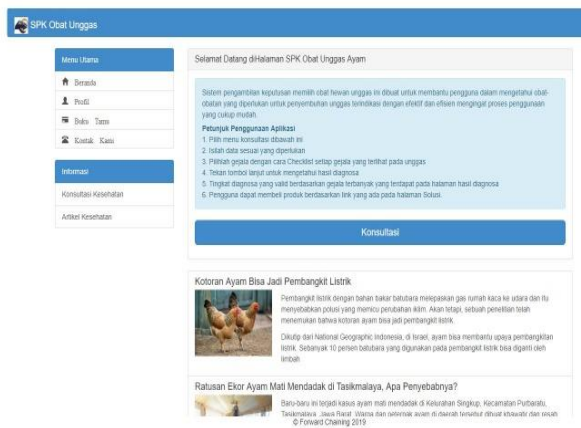**Figure 2: Home Diagnosis**
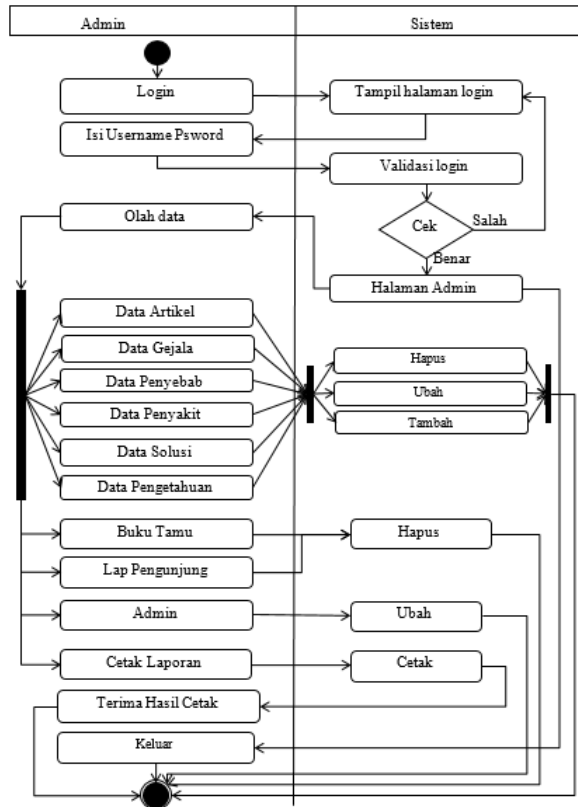

Figure 3: Activity Diagram user

Figure 4: Activity Diagram Admin

IV. CONCLUSION

1. From decision-making system that has been designed and created it can be concluded that this application can work as well to help provide information about animal drugs quickly and precisely.

2. Marketing may have the more extensive time because of its role to diagnose poultry has been aided by this application.

3. PT.Avindo Perdana Bahtera Mulia's products are increasingly popular, and the demand for drugs increased.

REFERENCE

[1] Al-Fatta, H., 2009. *Analisis dan Perancangan Sistem Informasi.* Yogyakarta: ANDI.

[2] Yakub, 2012. Pengantar Sistem Informasi. In: Yogyakarta: Graha Ilmu, p. 51:53.

[3] Level Perdana et all, 2013. Sistem Pakar Untuk Diagnosis Penyakit Ginjal Dengan Metode Forward Chaining. *JurnalTIkomsin,* p. 2.

BIOGRAPHY

Zanuar Gunawan Graduated in Studies Program Information System (S1), in 2019, work on PT.Avindo Perdana Bahtera Mulia As Accounting since 2016 till now.

Rudy Arijanto Graduated in Studies Program Information Management and Computer STMIK (S1) Bina Nusantara and also Informatics (S2) STTI Benarif, now serving as Dean of the Faculty of Science and Technology at the University of Buddhi Dharma.