

Diagnosis of Parasitic Diseases in Animals Cat Using Bayes Theorem Method

Salsabila Khairunnisa¹, Yani Maulita², Magdalena Simanjuntak³

^{1,2,3} Information Systems, STMIK KAPUTAMA

Jl. Veterans No. 4A-9A, Binjai, North Sumatra, Indonesia

salsabilakhairunisa1602@gmail.com^{1*}, yanimaulita26@gmail.com², magdalenasimanjuntak@gmail.com³

Abstract

Cats are one of the most popular pets in the world, including Indonesian people who like to keep cats as pets, and even become a hobby for cat lovers. Diseases that often attack cats are caused by parasites, namely worms and fleas. Parasites that attack cats are grouped into two, namely ectoparasites and endoparasites. expert system which is a computer program, which is able to store knowledge and rules like an expert. With the help of an expert system, someone who is lay or not an expert in a particular field will be able to answer questions, solve problems, and make decisions that are usually made by an expert. The Bayes Theorem method can be applied to diagnose parasitic diseases in cats based on input symptoms chosen by the users, the system can perform analysis based on predetermined rules or knowledge base. Based on the probability value of each symptom and disease that has been made, the system can diagnose parasitic diseases in cats with different accuracy results, the highest value or percentage which is the result of the diagnosis of the parasitic disease. From the results of trials conducted by the expert system for diagnosing parasitic diseases in cats using the Bayes Theorem method, the highest value was obtained, namely the type of parasitic disease Flea Disease (P03) with a percentage of 38.66%.

Keywords : Cats, Parasites, Expert Systems, Bayes Theorem.

1. Introduction

Cats are one of the most popular pets in the world, including the people of Indonesia. In the process of taking care of cats, of course we have to pay attention to the health of cats and stay awake. If a cat has a disease, the cat won't look clean, it will even look dirty. This will cause owners or people around them to be reluctant to hold cats that are affected by the disease. Diseases that often attack cats are caused by parasites, namely worms and fleas. Parasites that attack cats are grouped into two, namely ectoparasites and endoparasites. Every cat owner should be able to treat it early to prevent more serious disorders.

However, many cat owners do not understand how to deal with cat diseases, especially cats infected with parasites. Moreover, if an error occurs in the initial handling process, it will result in a worsening of the cat's condition. As a result, many cat owners have to take sick cats to veterinary clinics for more serious treatment.

To deal with these problems, it is necessary to build a system that can early diagnose parasitic diseases in cats whose intelligence is capable of resembling that of a doctor. The system built is an expert system which is a computer program, capable of storing knowledge and rules like an expert. With the help of an expert system, someone who is layman or not an expert in a particular field will be able to answer questions, solve problems, and make decisions that are usually made by an expert. There are several methods used in expert systems, one of the methods that will be used in this study is the Bayes theorem method.

Several researchers have conducted research by building expert systems using the Bayes theorem method. Among the researchers is the title "Bayes method in diagnosing student bullying behavior in Salapian District". The conclusion in this study based on the discussion and data processing of the application of the Bayes method in diagnosing victims of bullying behavior in students in the Salapian sub-district, it can be concluded that verbal bullying still often occurs in the school environment with a percentage of 70.33% [1].

While in a study entitled, "expert system using the Bayes method for the analysis of oral disease in cats". From the results of the research conducted, that the expert system that has been created can search for symptoms and diseases based on searching for answers to the questions that have been given through interaction with the system. With the application of this expert system can help people to find out

the symptoms and diseases suffered in the cat's mouth. The expert system is made on a web basis so that it can be accessed anywhere, anytime, and can make it easier for users to diagnose oral disease in cats as early as possible [2].

Based on the research entitled, "Expert System for Diagnosing Persian Cat Diseases with the Bayes Theorem Method". Concluded that by applying Bayes' theorem in the process of diagnosing Persian cat diseases that have been carried out in accordance with the steps and algorithms of the Bayes theorem method, so that the system can be applied as a consulting service and as a reference for veterinary workers in taking the results of an initial diagnosis in detecting Persian cats [3].

2. Research methodology

The problem solving method is divided into several parts, which can be explained as explained below.

2.1. Expert system

Expert System is a branch of *Artificial Intelligence* (AI) that makes extensive use of specific knowledge or *knowledge* for expert human-level problem solving. The Expert System consists of two main parts, namely the development environment and the consulting environment. The developer environment in an expert system is used as an entry point for expert knowledge into the expert system environment, while the consulting environment will be used by users who are not experts in obtaining expert knowledge [4] .

Expert systems are computer-based applications that are used to solve problems as experts think. The expert referred to here is a person who has special expertise who can solve problems that cannot be solved by ordinary people. For example, a doctor is an expert who is able to diagnose a patient's disease and can provide management of the disease. Not everyone can make decisions regarding the diagnosis and provide management of a disease. Another example, a mechanic is a person who has expertise and experience in solving motorbike/car engine damage, a psychologist is a person who is an expert in understanding a person's personality and so on.

2.2. Bayes' theorem

Bayes' theorem is a theory of probability conditions that takes into account the probability of an event (hypothesis) depending on other events (proof). Future events can be predicted if previous events have already occurred. Bayes' theorem is a mathematical equation used in probability and statistics to calculate conditional probabilities. In other words, it is used to calculate the probability of an event based on its relationship to other events. This theorem is also known as Bayes' law or Bayes rule [5].

2.3. Cat definition

Cats are one of the animals kept by humans. As a pet, cats have their own charm because of their body shape, eyes, nose, and a variety of coat colors. Cats have characteristics including body length 76 cm, body height 25-28 cm, male body weight 3-4 kg and 2-3 kg female can live for around 13-17 years. Cats that have experienced domestication are known by the scientific name *Felis catus* or *Felis domesticus*. Cats use a variety of vocalizations and types of body language for communication, including: meowing, purring, hissing, growling, squeaking, chipping, clicking, and grunting. [6].

Cats are animals that are quite quiet when they are sick and often stay away from their owners and be alone. So if someone is not sensitive, then he will not realize that their cat is in pain. Just like other living things, there are many diseases that can attack a cat's health. Some diseases are quite deadly and some are quite common in cats.

3. Application of the Bayes Theorem Method

From the probability values that have been obtained based on the calculation above, then the Bayes Theorem method is tested with new data with symptoms of cat disease as follows:

1. Appetite decreases to a hunger strike (G05)

$$G05|P01 = \frac{27}{35} = 0.771$$

$$G05|P02 = \frac{22}{25} = 0.88$$

$$G05|P03 = \frac{32}{37} = 0.865$$

$$G05|P04 = \frac{0}{25} = 0$$

$$G05|P05 = \frac{0}{29} = 0$$

$$G05|P06 = \frac{0}{34} = 0$$

$$G05|P07 = \frac{0}{27} = 0$$

2. Often excessively scratching, biting or licking the body (G06)

$$G06|P01 = \frac{0}{35} = 0$$

$$G06|P02 = \frac{23}{25} = 0.92$$

$$G06|P03 = \frac{33}{37} = 0.892$$

$$G06|P04 = \frac{25}{25} = 1$$

$$G06|P05 = \frac{0}{29} = 0$$

$$G06|P06 = \frac{0}{34} = 0$$

$$G06|P07 = \frac{1}{27} = 0.029$$

3. Hair loss until bald (G07)

$$G07|P01 = \frac{0}{35} = 0$$

$$G07|P02 = \frac{10}{25} = 0.4$$

$$G07|P03 = \frac{22}{37} = 0.595$$

$$G07|P04 = \frac{20}{25} = 0.8$$

$$G07|P05 = \frac{21}{29} = 0.724$$

$$G07|P06 = \frac{22}{34} = 0.647$$

$$G07|P07 = \frac{11}{27} = 0.314$$

4. Skin irritation, redness and rash (G08)

$$G08|P01 = \frac{0}{35} = 0$$

$$G08|P02 = \frac{25}{25} = 1$$

$$G08|P03 = \frac{35}{37} = 0.946$$

$$G08|P04 = \frac{0}{25} = 0$$

$$G08|P05 = \frac{0}{29} = 0$$

$$G08|P06 = \frac{0}{34} = 0$$

$$G08|P07 = \frac{0}{27} = 0$$

5. Anemia (pale gums and eye membranes) (G10)

$$G10|P01 = \frac{0}{35} = 0$$

$$G10|P02 = \frac{0}{25} = 0$$

$$G10|P03 = \frac{37}{37} = 1$$

$$G10|P04 = \frac{0}{25} = 0$$

$$G10|P05 = \frac{28}{29} = 0.966$$

$$G10|P06 = \frac{0}{34} = 0$$

$$G10|P07 = \frac{21}{27} = 0.6$$

6. Hair always looks dull (G20)

$$G20|P01 = \frac{0}{35} = 0$$

$$G20|P02 = \frac{0}{25} = 0$$

$$G20|P03 = \frac{0}{37} = 0$$

$$G20|P04 = \frac{0}{25} = 0$$

$$G20|P05 = \frac{0}{29} = 0$$

$$G20|P06 = \frac{18}{34} = 0.529$$

$$G20|P07 = \frac{15}{27} = 0.429$$

From the symptoms that have been described, the system will carry out the process according to the application of the Bayes Theorem method. After the calculation process is complete, the results of the diagnosis of parasitic diseases in cats can be known.

1. Define in advance the probability value of each disease symptom .

$$P(P|G) = \frac{P(G|P) * P}{P(G|P01) * P(P01) + P(G|P02) * P(P02) + P(G|P03) * P(P03) + P(G|P04) * P(P04) + P(G|P05) * P(P05) + P(G|P06) * P(P06) + P(G|P07) * P(P07)}$$

a. Earmite Disease / Ear Lice (P01)

$$G05 = \frac{0,771 * 0,165}{0,127 + 0,104 + 0,151 + 0 + 0 + 0 + 0} = \frac{0,127}{0,382} = 0.33$$

b. Scabies / Skin Mites (P02)

$$G05 = \frac{0,88 * 0,118}{0,127 + 0,104 + 0,151 + 0 + 0 + 0 + 0} = \frac{0,104}{0,382} = 0.27$$

$$G06 = \frac{0,92 * 0,118}{0 + 0,108 + 0,156 + 0,118 + 0 + 0 + 0,005} = \frac{0,108}{0,387} = 0.28$$

$$G07 = \frac{0,4 * 0,118}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,047}{0,5} = 0,09$$

$$G08 = \frac{1 * 0,118}{0+0,118 + 0,165+0+0+0+0} = \frac{0,118}{0,283} = 0,42$$

c. Fleas (P03)

$$G05 = \frac{0,88 * 0,175}{0,127 + 0,104 + 0,151+0+0+0+0} = \frac{0,151}{0,382} = 0,4$$

$$G06 = \frac{0,892 * 0,175}{0+0,108 + 0,156 + 0,118+0+0 + 0,005} = \frac{0,156}{0,387} = 0,4$$

$$G07 = \frac{0,595 * 0,175}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,104}{0,5} = 0,21$$

$$G08 = \frac{946 * 0,175}{0+0,118 + 0,165+0+0+0+0} = \frac{0,165}{0,283} = 0,58$$

$$G10 = \frac{1*0,175}{0+0+0,175 +0+ 0,132 +0+ 0,099} = \frac{0,175}{0,406} = 0,43$$

d. Ticks (P04)

$$G06 = \frac{1 * 0,118}{0+0,108 + 0,156 + 0,118+0+0 + 0,005} = \frac{0,118}{0,387} = 0,3$$

$$G07 = \frac{0,8 * 0,118}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,094}{0,5} = 0,19$$

e. Protozoa / Blood Parasites (P05)

$$G07 = \frac{0,724 * 0,137}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,099}{0,5} = 0,2$$

$$G10 = \frac{0,966 * 0,137}{0+0+0,175 +0+ 0,132 +0+ 0,099} = \frac{0,132}{0,406} = 0,33$$

f. Milled Worms / Round Worms (P06)

$$G07 = \frac{0,647 * 0,160}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,14}{0,5} = 0,21$$

$$G20 = \frac{0,529 * 0,160}{0+0+0+0+0,085 + 0,071} = \frac{0,071}{0,156} = 0,55$$

g. Tapeworm (P07)

$$G06 = \frac{0,029 * 0,127}{0+0,108 + 0,156 + 0,118+0+0 + 0,005} = \frac{0,005}{0,387} = 0,12$$

$$G07 = \frac{0,314 * 0,127}{0+0,047 + 0,104 + 0,094 + 0,099 + 0,14 + 0,052} = \frac{0,052}{0,5} = 0,1$$

$$G10 = \frac{0,6 * 0,127}{0+0+0,175 +0+ 0,132 +0+ 0,099} = \frac{0,099}{0,406} = 0,24$$

$$G20 = \frac{0,429 * 0,127}{0+0+0+0+0,085 + 0,071} = \frac{0,085}{0,156} = 0,45$$

2. Look for the probability value of the disease Symptoms

$$P(G05|P01) * P(P01) = 0,33 * 0,17 = 0,0561$$

$$P(G05|P02) * P(P02) = 0,27 * 0,12 = 0,0324$$

$$P(G05|P03) * P(P03) = 0,40 * 0,17 = 0,068$$

$$P(G06|P02) * P(P02) = 0,28 * 0,12 = 0,0336$$

$$P(G06|P03) * P(P03) = 0,40 * 0,17 = 0,068$$

$$P(G06|P04) * P(P04) = 0,30 * 0,12 = 0,036$$

$$P(G06|P07) * P(P07) = 0,01 * 0,13 = 0,0013$$

$$P(G07|P02) * P(P02) = 0,09 * 0,12 = 0,0108$$

$$P(G07|P03) * P(P03) = 0,21 * 0,17 = 0,0357$$

$$P(G07|P04) * P(P04) = 0,19 * 0,12 = 0,0228$$

$$P(G07|P05) * P(P05) = 0,20 * 0,14 = 0,028$$

$$P(G07|P06) * P(P06) = 0,21 * 0,16 = 0,0336$$

$$P(G07|P07) * P(P07) = 0,10 * 0,13 = 0,013$$

$$P(G08|P02) * P(P02) = 0,42 * 0,12 = 0,0504$$

$$P(G08|P03) * P(P03) = 0,58 * 0,17 = 0,0986$$

$$P(G10|P03) * P(P03) = 0,43 * 0,17 = 0,0731$$

$$P(G10|P05) * P(P05) = 0,33 * 0,14 = 0,0462$$

$$P(G10|P07) * P(P07) = 0,24 * 0,127 = 0,0312$$

$$P(G20|P06) * P(P06) = 0,55 * 0,16 = 0,088$$

$$P(G20|P07) * P(P07) = 0,45 * 0,13 = 0,0585$$

3. Add up the probability value of each symptom.

$$PG05 = P(G05|P01) * P(P01) + P(G05|P02) * P(P02) + P(G05|P03) * P(P03)$$

$$PG05 = 0,0561 + 0,0324 + 0,068$$

$$PG05 = 0,1565$$

$$PG06 = P(G06|P02) * P(P02) + P(G06|P03) * P(P03) + P(G06|P04) * P(P04) + P(G06|P07) * P(P07)$$

$$PG06 = 0,0336 + 0,068 + 0,036 + 0,0013$$

$$PG06 = 0,1389$$

$$PG07 = P(G07|P02) * P(P02) + P(G07|P03) * P(P03) + P(G07|P04) * P(P04) + P(G07|P05) * P(P05) + P(G07|P06) * P(P06) + P(G07|P07) * P(P07)$$

$$\begin{aligned}
PG07 &= 0.0108 + 0.0357 + 0.0228 + 0.028 + 0.0336 + 0.013 \\
PG07 &= 0.1439 \\
PG08 &= P(G08|P02) * P(P02) + P(G08|P03) * P(P03) \\
PG08 &= 0.0504 + 0.0986 \\
PG08 &= 0.149 \\
PG10 &= P(G10|P03) * P(P03) + P(G10|P05) * P(P05) + P(G10|P07) * P(P07) \\
PG10 &= 0.0731 + 0.0462 + 0.0312 \\
PG10 &= 0.1505 \\
PG20 &= P(G20|P06) * P(P06) + P(G20|P07) * P(P07) \\
PG20 &= 0.088 + 0.0585 \\
PG20 &= 0.1465
\end{aligned}$$

4. Calculate the value of the probability of disease.

a. Earmite Disease / Ear Lice (P01)

$$P01 = P(G05|P01) / PG05$$

$$P01 = (0.0561 / 0.15605)$$

$$P01 = 0.3585$$

b. Scabies / Skin Mites (P02)

$$P02 = P(G05|P02) / PG05 + P(G06|P02) / PG06 + P(G07|P02) / PG07 + P(G08|P02) / PG08$$

$$P02 = (0.0324/0.1565) + (0.0336/0.1389) + (0.0108/0.1439) + (0.0504/0.149)$$

$$P02 = 0.207 + 0.2419 + 0.0751 + 0.3383$$

$$P02 = 0.8622$$

c. Fleas (P03)

$$P03 = P(G05|P03) / PG05 + P(G06|P03) / PG06 + P(G07|P03) / PG07 + P(G08|P03) / PG08 + P(G10|P03) / PG10$$

$$P03 = (0.068/0.1565) + (0.068/0.1389) + (0.0357/0.1439) + (0.0986/0.149) + (0.0731/0.1505)$$

$$P03 = 0.4345 + 0.4896 + 0.2481 + 0.6617 + 0.4857$$

$$P03 = 2.3196$$

d. Ticks (P04)

$$P04 = P(G06|P04) / PG06 + P(G07|P04) / PG07$$

$$P04 = (0.036/0.1389) + (0.0228/0.1439)$$

$$P04 = 0.2592 + 0.1584$$

$$P04 = 0.4176$$

e. Protozoa / Blood Parasites (P05)

$$P05 = P(G07|P05) / PG07 + P(G08|P05) / PG08 + P(G10|P05) / PG10$$

$$P05 = (0.028/0.1439) + (0.0462/0.1505)$$

$$P05 = 0.1946 + 0.307$$

$$P05 = 0.5016$$

f. Milled Worms / Round Worms (P06)

$$P06 = P(G07|P06) / PG07 + P(G20|P06) / PG20$$

$$P06 = (0.0336/0.1439) + (0.088/0.1465)$$

$$P06 = 0.2335 + 0.6007$$

$$P06 = 0.8342$$

g. Tapeworm (P07)

$$P07 = P(G06|P07) / PG06 + P(G07|P07) / PG07 + P(G10|P07) / PG10 + P(G20|P06) / PG20$$

$$P07 = (0.0013/0.1389) + (0.013/0.1439) + (0.0312/0.1505) + (0.0585/0.1465)$$

$$P07 = 0.0094 + 0.0903 + 0.2073 + 0.3993$$

$$P07 = 0.7063$$

5. Find the Bayes value by adding up the value of the probability of disease.

$$\sum_{Gn}^n = P01 + P02 + P03 + P04 + P05 + P06 + P07$$

$$= 0.3585 + 0.8622 + 2.3196 + 0.4176 + 0.5016 + 0.8342 + 0.7063$$

$$= 6$$

6. Calculate the percentage of disease

a. Earmite/Ear Lice (P01)

$$= \frac{0.3585}{6} = 0.0597$$

$$= 0.0597 * 100\%$$

$$= 5.97\%$$

b. Scabies/Skin Mites (P02)

$$= \frac{0.8622}{6} = 0.1437$$

$$= 0.1437 * 100 \%$$

$$= \mathbf{14.37 \%}$$

c. Fleas (P03)

$$= \frac{2,3196}{6} = 0.3866$$

$$= 0.3866 * 100 \%$$

$$= \mathbf{38.66 \%}$$

d. Ticks (P04)

$$= \frac{0,4107}{6} = 0.696$$

$$= 0.0687 * 100 \%$$

$$= \mathbf{6.96 \%}$$

e. Protozoa/Blood Parasites (P05)

$$= \frac{0,5016}{6} = 0.0836$$

$$= 0.0836 * 100 \%$$

$$= \mathbf{8.36 \%}$$

f. Milled Worms/Roundworms (P06)

$$= \frac{0,8342}{6} = 0.1390$$

$$= 0.1390 * 100 \%$$

$$= \mathbf{13.90 \%}$$

g. Tapeworm (P07)

$$= \frac{0,7063}{6} = 0.1177$$

$$= 0.1177 * 100 \%$$

$$= \mathbf{11.77 \%}$$

From the calculation process using the Bayes Theorem method above, it is known that the diagnosis of parasitic disease in cats is a cat diagnosed with flea disease (P03) with a percentage of 38.66%.

3.1. Results Overview

The result description is an overview of the system design to be built which is commonly referred to as user interface design which is the system design stage that will be created and prepared and then displayed as a user interface or display of system design. The better the interface design is made, the better the system will be built.

1. Main Page

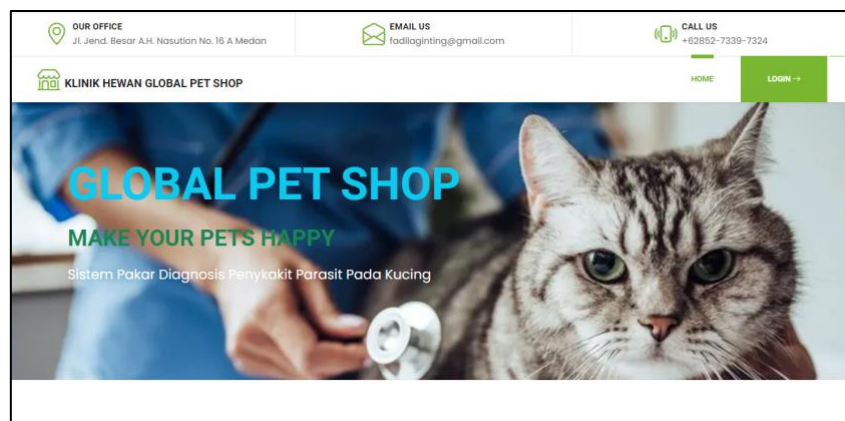


Figure 1: Main page

2. Login Page

OUR OFFICE
Jl. Jend. Besar A.H. Nasution No.10 A Medan

EMAIL US
fadlognting@gmail.com

CALL US
+62852-7339-7324

KLINIK HEWAN GLOBAL PET SHOP

HOME LOGIN

Login

Input Email Anda

Password

☐ Remember me

Log In

Belum Memiliki Akun? [Klik disini](#)

Figure 2: Login Page

3. Rules page

OUR OFFICE
Jl. Jend. Besar A.H. Nasution No.16 A Medan

EMAIL US
fadlognting@gmail.com

CALL US
+62852-7339-7324

KLINIK HEWAN GLOBAL PET SHOP

HOME PENYAKIT GEJALA RULE DATA KASUS DATA PENGGUNA SALSA BILA

RULE / BASIS PENGETAHUAN

Show 10 entries Search:

No	Penyakit	Gejala	Nilai	Aksi
1	[P01] Earmite / Kudu Telinga	[G01] Telinga mengeluarkan cairan dan berbau busuk	0.91	☐
2	[P01] Earmite / Kudu Telinga	[G02] Menggaruk telinga bagian dalam dan luar terus menerus	1	☐
3	[P01] Earmite / Kudu Telinga	[G03] Selalu menggelengkan kepala	1	☐
4	[P01] Earmite / Kudu Telinga	[G04] kotoran telinga berwarna kehitaman	1	☐
5	[P01] Earmite / Kudu Telinga	[G05] Nafsu makan berkurang hingga mogok makan	0.33	☐
6	[P02] Scabies / Tungau Kulit	[G05] Nafsu makan berkurang hingga mogok makan	0.27	☐
7	[P02] Scabies / Tungau Kulit	[G06] Sering menggaruk, menggaruk atau menyalit tubuh secara berlebihan	0.28	☐

Figure 3: Rules page

4. Consultation page

KLINIK HEWAN GLOBAL PET SHOP

HOME KONSULTASI RIWAYAT KONSULTASI CHARLES ANDRIO

KONSULTASI

Input Data Kucing

Nama Hewan*

Jenis Kelamin*

Jenis Kucing*

Usia*

Warna Bulu*

Berat Badan*

Pilih Gejala

No	Checklist	Nama Gejala
1	☐	[G01] Telinga mengeluarkan cairan dan berbau busuk
2	☐	[G02] Menggaruk telinga bagian dalam dan luar terus menerus
3	☐	[G03] Selalu menggelengkan kepala

Figure 4: Consultation Page

5. Print Page of Consultation Result Report

KLINIK HEWAN GLOBAL PET SHOP
DIAGNOSIS PENYAKIT PARASIT PADA HEWAN KUCING
MENGUNAKAN METODE TEOREMA BAYES

HASIL DIAGNOSIS PENYAKIT

Identitas Pemilik	
Nama	Charles Andrio
Jenis Kelamin	Laki-laki
Alamat	Jl. Gatot Subroto No. 16 Medan
No. HP	08121112222

Identitas Hewan	
Nama Kucing	Felix
Jenis Kelamin	Laki-Laki
Jenis Ras	PERSIA
Usia	4 Tahun
Warna Bulu	Putih
Berat Badan	3 Kg

Gejala Yang Dirasakan Oleh Kucing	
No	Nama Gejala
1	Nafsu makan berkurang hingga mogok makan
2	Sering menggaruk, menggigit, atau menjilat tubuh secara berlebihan
3	Bulu rontok hingga botak
4	Kulit iritasi, kemerahan, dan ruam
5	Anemia (gusi dan selaput mata pucat)
6	Bulu selalu terlihat kusam

Hasil Diagnosis Penyakit	
Berdasarkan perhitungan dengan menggunakan metode Bayes, penyakit yang diderita Kucing Anda adalah :	
Jenis Penyakit Parasite	: Pinjal Kutu
Dengan hasil	: 39.92%
Solusi	: Mandikan kucing dengan shampo khusus kucing setiap 1 minggu 3 kali. Kemudian, bisa gunakan garam dan gel lidah buaya dicampur dengan air hangat untuk mengatasi kutu pada kucing. Setelah itu berikan obat anti kutu kucing.

Medan, 02-08-2023
Diketahui Oleh :
Pakar Hewan

tid

drh. Fadila Hayati A. Ginting

Figure 5 : Consultation Report Print Page

4. Conclusion

From the results of the research conducted, it greatly adds to knowledge and insight, by collecting data related to parasitic diseases in cats conducted at the Global Pet Shop Veterinary Clinic, the following conclusions can be drawn:

1. The Bayes Theorem method can be applied to diagnose parasitic diseases in cats based on input symptoms selected by the users, the system can perform analysis based on predetermined rules or knowledge base.
2. Based on the probability value of each symptom and disease that has been made, the system can diagnose parasitic diseases in cats with different accuracy results, the highest value or percentage which is the result of the diagnosis of the parasitic disease. From the results of trials conducted by the expert system for diagnosing parasitic diseases in cats using the Bayes Theorem method, the highest value was obtained, namely the type of parasitic disease Flea Flea Disease (P03) with a percentage of 38.66%.
3. The PHP programming language and MySQL database can be built and applied to an expert system for diagnosing parasitic diseases in cats using the Bayes Theorem method.

Reference

- [1] P. Ananda, AMH Pardede, and BS Ginting, "The Bayes Method in Diagnosing Student Bullying Behavior in Salapian District," in Kaputama Informatics Journal, 2022, vol 6, no.3.
- [2] F. Razi, "Expert System Using the Bayes Method for Analysis of Oral Disease in Cats," in Journal of Information Systems and Technology, 2022,

vol.4, no.2 .

- [3] Y. Yanti, and Sulindawaty, "Expert System for Diagnosing Persian Cat Disease with the Bayes Theorem Method," in *Journal of Computer Science and Information Systems*, 2018, vol.1, no.2.
- [4] AR Handoko, "Designing an Expert System for Suspicious Financial Transaction Analysis Using the Forward Chaining Method," in *Simmetris Journal*, 2019, vol.10, no.2 .
- [5] P. Batarius, and F. Tedy, "Bayes Method Approach To Determine Types Of Diseases In Pigs," in *Scientific Journal Widya Teknik*, 2017, vol.16, no.
- [6] IA Putri, N. Fauziah, and Y. Atifah, "Analysis of Changes in the Behavior of Female Angora Cats (*Felis catus*) During Pregnancy," in *Proceedings of SEMNAS BIO*, 2021
- [7] HCP Wardhani, I. Rahmawati and MY Kurniabudhi, "Detection and Prevalence of Cat Feces Worm Eggs in the City of Surabaya", in *Journal of Biosains*, 2021, vol.7, no.2.
- [8] D. Widyana, AF Boy and R. Mahyuni, "Application of the Bayes Theorem Method for Diagnosing Gastroenteritis in Lion Head Rabbits", in *Cyber Tech Journal*, 2018, vol.1 no.1.
- [9] M. Ramadhan, Z. Lubis, A. Pranata, NB Nugroho and K. Erwansyah, "Expert System for Diagnosing Eye Disease in Dogs Using Bayes' Theorem", in *Journal of Information Systems Technology and Computer Systems TGD*, 2023, vol. 6 no. 1.
- [10] E. Sitepu, M. Simanjuntak and H. Khair, "Expert System for Diagnosing Blood Disorders in Humans Using the Web-Based Bayes Method", in *Informatics Engineering Journal (JTIK)*, 2022, vol.6 no.1.