DESIGN AND BUILT AN EXPERT SYSTEM APPLICATION FIR DIAGNOSING HUMAN EYE DISEASES BY USING FORWARD CAHINING METODH WEB-BASED

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Abstrak

The eye is one of the five senses that has a very important role in human life, namely as the organ of vision. If there is interference with the eye or there is a disease, it is very influential on human vision. Its mean that we can conclude that eye is very important in our lie and must be keep for our body. The purpose of this research to planning and develop the diagnose of expert system about diagnosing of diseases in the eye which include disease information about symptoms or the solution and have role to replace and imitate the process of the reason from an expert in solve the specification problem. the method used for reasoning is forward chaining method. The result of this research is expert system of diagnosing eyes diseases in humans which computerized who can be used for giving information and have benefit in diagnosing disease.

Key Word: Forward, Chaining, Eye, Disease, Expert, system, PHP dan MySQL

INTRODUCTION

The eyes are the sense that are needed in the vision process. If there is has damage in the eyes, it will result something very bad, that is not being able to see and to do something in human life. It's means that, we must keep the eyes health to launch our daily activities.

With the development of technology that is very fast, in the field of medicine at this time also has been use technology to help improve better service to wide community. Doctor has the very busy job, so that he needs expert system to diagnose many of disease such as heart, kidney, stroke, cancer, teeth, skin and eye.

Expert system is one part of artificial intelligent which has knowledge and experience that is entered by one or many experts into certain area knowledge so that everyone can use it to solving the various specific problem. In this case to be solve is a diagnose of eye disease in humans. In this case, the writer takes the title "DESIGN AND DEVELOPMENT OF HUMAN EYE DISEASE DIAGNOSIS SYSTEM APPLICATIONS USING WEB-BASED FORWARD CHAINING METHOD"

The author raised the title above due to several factors namely, how the expert system works on diagnosing human eyes and solution to overcome the eye diseases. So can get the faster and more efficient result in using this method.

LITERATURE REVIEW

Expert system is an information system that contains about expert knowledge so that it can be used for consultation. The knowledge of an expert owns by an expert system can be used to answer the difficult question (consultation). This system began to developed in the middle 160s, and develop by Neel and Simon. The benefits and disadvantages of expert system

It so many capabilities and benefits provided by expert system so that it becomes popular, according to (T. Sutojo. Dkk, 2011):

- 1. Increase the productivity because it's come faster
- 2. Make a layman work as an expert
- 3. Improve the quality by giving consistent revise and reducing error
- 4. Able to capture one knowledge and expertise

Beside the benefits, there are some disadvantages in the expert system, including (T. Sutojo. Dkk, 2011):

- 1. The cost is very expensive to make and maintain it
- 2. It's difficult to develop due to limited expertise and available of expert
- 3. Expert system is not 100% is true

Structure of expert system

There are two important parts in expert system, they are development environment and consultation environment



Sumber : (T.Sutojo.dkk, 2011) Picture 2.1.2 Structure of expert system 2.2 Forward Chaining

Forward chaining is a front tracking which start from collection of fact who find the match hypothesis to get the best conclusion.

Sometimes call data-driven, because inference engine using information specified by user to move to the entire network from logic "AND" and "OR" until in a terminal as object. If inference engine can't determine the object, so I will ask to other information.

Forward Chaining method

Forward chaining method is a find or technique front tracking method who began by ready information and merging of rule to produce a conclusion or aim. Forward chaining using data orientation approach. Computer will analyses the problem which find the match fact in IF part from IF-THEN. The following basic rule f forward chaining. Tautik. A (2009).

ANALYSIS AND DESIGN

Analysis of the problem

The analysis of the problem who conducted by the researcher at this time, has a relationship with eye disease suffer by society in general. Analysis of the problem do to find the solution and countermeasures.

Data collection and information

From the result of data collection and information which is obtain by researcher to the expert, so researcher can develop to the eyes healthy solution.

Table of types of eyes disease Here are some types of eye disease.

Code	Types of eye disease
P01	Conjunctivitis
P02	Cataracts
P03	Glaucoma
P04	Presbyopia

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> hygiene is very important. Never

especially if there

use towels together,

Conjunctivitis Hand and face

1

P05	Retinal detachment
P06	Chuckle
P07	Mild irritation
P08	Graves disease
P09	Neuritis Optic

Symptom data

There are some symptoms from eye disease.

No	Kode	SYMPTOMS
1	G1	Red eye
2	G2	Sticky in the morning
3	G3	Hot eyes
4	G4	Feels paint full
5	G5	Run away
6	G6	Headache
7	G7	Itchy eyes
8	G8	Can't stand the light
9	G9	Dilate pupils
10	G10	Visible flash of light
11	G11	Watery eyes
12	G12	Nausea
13	G13	Difficult to see the light
14	G14	Vision lost on one eye
15	G15	Swollen eyes
16	G16	Tied eye
17	G17	Severe pain in the back of
		the eye
18	G18	Shortsightedness
19	G19	Quick blink response
20	G20	Double up eye

Data Solution

Each disease has a way of handling or a solution of the type of eye disease that exists, the following ways to treat early eye disease

NO	KINDS OF	SOLUTION
	DISEASE	

		are other family
		members affected
		by conjunctivitis.
2	Cataract	Brighter glasses
		and lights might
		help mild
		cataracts. The
		most effective
		step is surgery.
3	Glaucoma	Glaucoma can be
		treated with eve
		drops, drugs
		taken, laser
		treatment, or
		surgical
		procedures.
4	Presbyopia	Glasses, the use
		of glasses is a
		simple and safe
		way to handle
		presbyopia.
5	Retinal	Diabetics should
	detachment	control their
		blood sugar
		levels carefully.
6	Chuckle	To deal with
		chains, especially
		in children
		usually avoid
		direct contact
		with dusty
		environments.
7	Mild	Wash your hands
	irritation	often because
		indirectly during
		the day you can
		touch your eyes

approximately 10

unconsciously in all conditions.

times

8	Raves disease	Eat various types
		of foods that
		contain lots of
		nutrients such as
		vitamins and
		minerals on a
		regular basis.
9	Neuritis	Treatment for
	Optik	optic neuritis can
		be done with
		medication but
		usually the vision
		will return in less
		than 12 months.

Functional requirements analysis

Functional requirements analysis describes the process of activities that will be applied in the system and explains the needs needed for the system to run well and in accordance with needs

System Design with Use Case Diagrams

Use case diagrams illustrate the processes carried out by actors on a system. As for who acts as an actor in this expert system are the admin and user.



Figure 1. System Design with Use Case Diagrams

RESULTS AND DISCUSSION



Tatere pakar ise dapet monthurtu. Anda dalam melakultan diagmon penyakit mara, premposikan kolukur dan pejaka yang Audu alami, wencherikan solusi dan penangjawar yang tepet

Figure 2. diagnoses eye disease

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Figure 3. Eye disease information view

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Figure 5. Question data view

CONCLUSION

From the description of the existing problems, and based on the chapter's analysis, the conclusions can be drawn as follows:

1) The design of an expert system for diagnosing eye diseases is able to trace the symptoms of the disease and the provide solutions based on the tracing of the answers to the questions given by a system, so that users can recognize the symptoms, diseases and solutions that they suffer.

2) This expert system can find out and provide information on eye diseases whether included in the category of the disease experienced contained in the system.

3) This Forward Chaining method can determine the results of the analysis almost at the same level as an expert or expert doctor in the field of eye disease.

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