EXPERT SYSTEM FOR DETECTION OF SKIN ON THE FACE IN THE D'ANGELS BEAUTY CLINIC

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Abstract
The role of facial beauty experts is very important to identify the type of facial skin and provide the right treatment solution for each type of facial skin. From this, an expert system is needed to help provide solutions by building an expert system that can identify the type of facial skin by including treatment solutions. The forward chaining method chooses based on considerations in the IF logic process of the If-Then, AND OR rules, and this method seeks the combination of the highest trust value. to assist aesthetic doctors in documenting medical knowledge and experience that can be used later by nurses in detecting skin types on the face. From the results of the research, it was concluded that an expert system was built to detect the type of skin on the face at the D'Aangels beauty clinic that can determine the type of skin without coming to the location of the D'Aangels beauty clinic

I. INTRODUCTION

The face is one of the important points of someone who often gets main attention, starting from the eyes, nose, mouth, and skin. Especially for skin, it is divided into several skin types, including normal skin, dry skin, oily skin, mixed skin and sensitive skin. The factors that cause facial skin are divided into several types including season, weather, humidity, habits and others. The difference in skin types will certainly have an effect on the type of treatment performed by a person. The skin is the outermost part of the human body so that it is easily seen by others. The area of an adult's skin is about 1.5 m2. Skin thickness and condition vary widely depending on age, sex, race, climate, and location on the body. Facial skin is one part of the skin

that can affect a person's appearance and self-confidence (Anonymous, 2010). The human physical body is dynamic, which means that it changes every time, the cells that make up the human body have a certain age which will then be replaced with new ones, but in the end all cells will experience total death, as well as in human skin[1], [2].

Healthy skin is seen as optimal skin physically and psychologically. Physically, it can be seen from the color, consistency, flexibility, structure, shape and size of the skin layer cells (Murad, 2007). The skin is also a sign of changes in body systems in general, for example the aging process that occurs in every organ of the body, so the skin will give the earliest signs. The aging process is a natural process, but sometimes for some reason aging happens faster than it should, this is called premature aging. Many people begin to see facial skin wrinkles at a relatively young age, even in their early 20s (Admin, 2008).

Apart from internal elements such as stress, hormonal and free radicals, ultraviolet rays, pollution smoke or dust, these are examples of external elements that affect skin health, including premature aging. This causes a decrease in the strength of the skin structure which causes the appearance of various wrinkles, dark spots, blackheads and pimples. The basic principle is that the skin needs moisture. The water content of healthy skin is at least 60% so that the skin remains soft, supple, bright, supplies cells with sufficient nutrients so that the skin remains soft and functions properly. In young and healthy skin, the accumulated dead skin cells form a layer of scales that are waterproof to fight dehydration. The scales on the surface will become coarser and the spaces between cells will widen so that moisture is easily lost. Based on this background, an application is made that can help provide information about skin types.

II. RESEARCH METHODS

An expert system is a computer system that resembles the decision-making ability of an expert. An emulsion is much more powerful than a simulation which only requires something that is real in some area or thing. In other words, this expert system itself is part of artificial intelligence [3]. T. Sutojo, Forward Chaining is a search technique that starts with known facts, then matches those facts with the IF part of the If-Then rules. Forward chaining is also called data driven because inference uses user-defined data information to move the entire network from AND and OR logic until the terminal is determined as an object[2]. Forward chaining is a method that makes reasoning from a problem to its solution. If the premium clause is in accordance with the situation (with TRUE value), the process will conclude this inference method will be used in the expert system to be built. The following Forward Chaining expert system application is a disease diagnosis using the Forward Chaining inference engine[4], [5]. The diagnosis process in this expert system is based on the results of research on skin types in beauty clinics. Inputs or input from the following systems are:
1. User data, which consists of:
 Name, address, occupation, phone number, age
2. Research data on skin types, consisting of:
a. oily skin

b. sensitive skin

c. acne

d. skin flex acne scars / black flex

e. large pores

f. dry peeling skin

g. dull blackheads

Skin beauty is the art of beautifying and beautifying facial appearance. Beautification serves to change (make-over) the existing deficiencies towards a more beautiful and perfect one. Various makeup tricks can be done to make your face special. The process of mastering make-over skills requires knowledge, expertise, accuracy, creativity, and continues to experiment to get optimal results[6].

Table 1. Logic Rule in Expert System

| No	Symptoms ID	Symptoms
1	G001	Not Greasy
2	G002	Fresh and Smooth
3	G003	Cosmetic Ingredients easy stick to the skin
4	G004	Looks healty
5	G005	No breakouts
6	G006	Easy to choose cosematics
7	G007	Large Skin Pores, especially in the area of the nose, cheeks, chin
8	G008	The skin on the face looks shiny
9	G009	Often covered with pimples
10	G010	Skin looks very dry
11	G011	Fine Pores
12	G012	Thin facial skin texture
13	G013	Quickly reveal wrinkles
14	G014	Part of the skin looks oily
15	G015	Some of the skin looks dry
16	G016	Sometimes breakouts
17	G017	Hard to get a perfect cosmetic polish
18	G018	Easy allergies
19	G019	Easily irritated and injured
20	G020	Skin easily looks red

III. DISCUSSION

With Database Implementation, you can define the data flowing in the system completely. At the implementation stage, the database is used as a communication tool between system analysts and system users about the data flowing into the system, namely about the data entering the system and about the information needed by system users. The following is a Database Implementation at D'angels beauty clinic:

1. Admin Input page
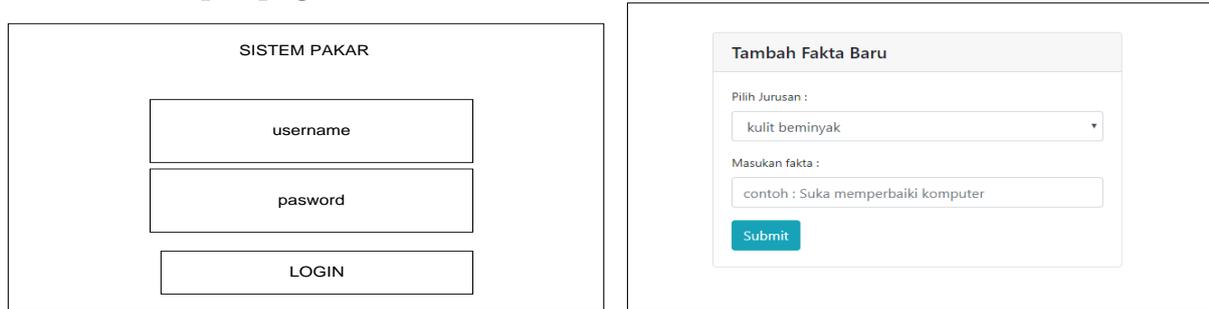
Figure 1. Admin input page design and data packet input
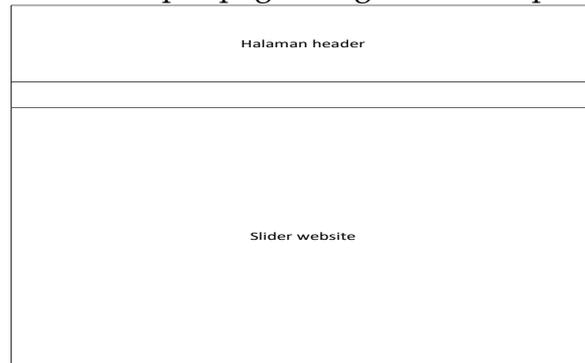
Figure 2. Website Output page design

The results obtained from the implementation of the website at D'angels beauty clinic, namely the existence of an information system that describes all information that can later be used as an option and material for consideration by the public when they want to find their skin type. This system consists of several modules such as pages or user interface as a means of displaying data in the form of input questions and later displaying the skin type solution on the web page. The following is the result of the system being built:

2. Main page display
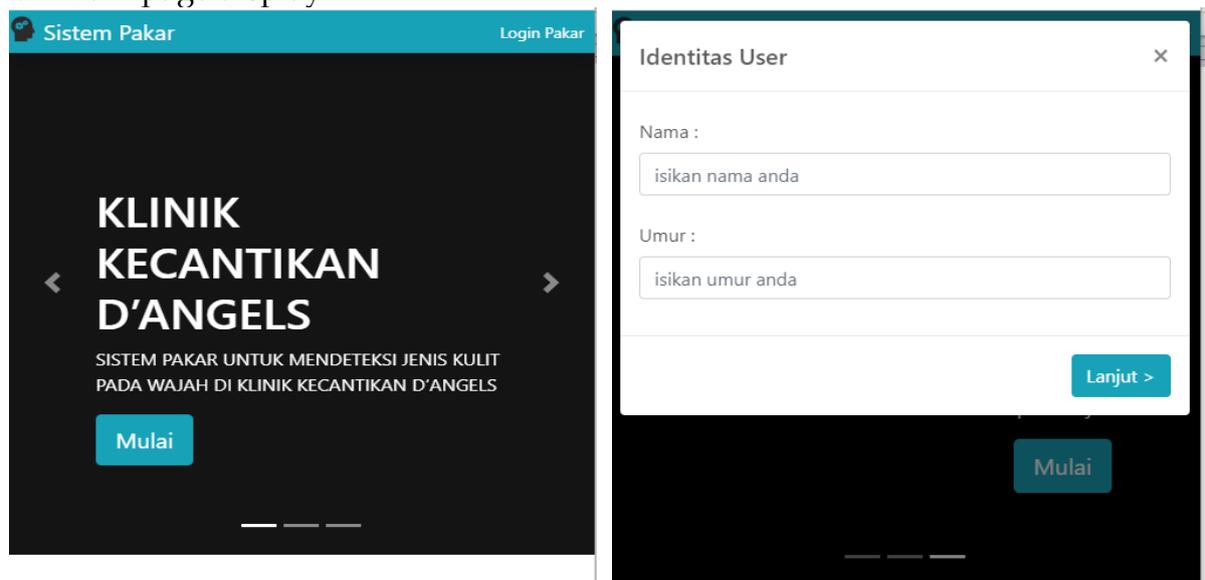
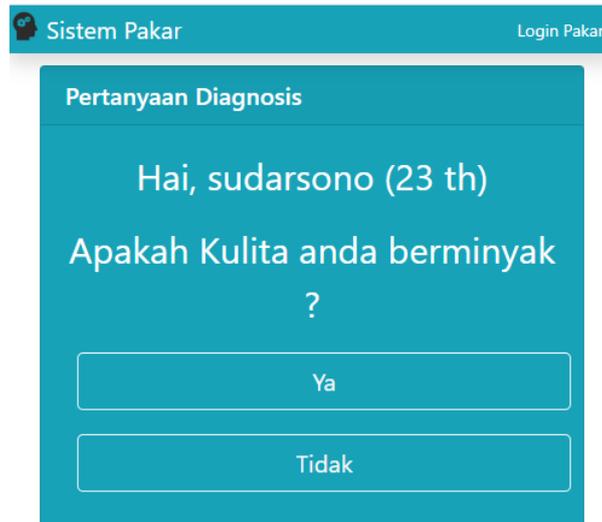Figure 3. Implementation of Main Page and User Views

Figure 4. Implementation of Skin Diagnosa Page Views

IV. CONCLUSION

From the results of research by an expert system to detect skin types on the face at the D'angels beauty clinic, you can draw some conclusions by building an expert system to detect the type of skin on the face at the D'angels beauty clinic, so an expert system is formed that can determine skin type without dating to the location of the D'angels beauty clinic. The expert system application for detecting skin types on the face at the D'angels beauty clinic can be accessed online at any time by the entire community and allows the provision of data that is always up to date and up to date.

REFERENCE

[1] A. Maseleno, G. Hardaker, N. Sabani, dan N. Suhaili, "Data on multicultural education and diagnostic information profiling: Culture, learning styles and creativity," *Data Br.*, vol. 9, hal. 1048–1051, 2016.

[2] P. P. Abdullah, "Sistem Pakar Untuk Mendiagnosa Penyakit Pada Ayam Dengan Metode Certainty Factor Berbasis Android," 2016.

[3] S. I. Tika Wulandari, Guna Yanti Kumala Sari Siregar Pahu, Dita Novita Sari, "PERANCANGAN SISTEM PAKAR DETEKSI PERTUMBUHAN TANAMAN SEMANGKA BERBASIS WEBSITE DENGAN CERTAINTY FACTOR," *J. TAM (Technol. Accept. Model)*, vol. 9, no. 2, hal. 134–141, 2018.

[4] L. W. Santoso, A. Noertjahyana, dan I. Leonard, "Aplikasi Sistem Pakar Berbasis Web untuk Mendiagnosa Awal Penyakit Jantung," *Informatika*, hal. 1–48, 2012.

[5] A. Maseleno, M. M. Hasan, M. Muslihudin, dan T. Susilowati, "Finding Kicking Range of Sepak Takraw Game: Fuzzy Logic and Dempster-Shafer Theory Approach," *Indones. J. Electr. Eng. Comput. Sci.*, vol. 2, no. 1, hal. 187, 2016.

[6] H. A. R. Agusta Rakhmat Taufani, "Sistem Tutorial Berbasis Kecerdasan Buatan Pada Proses Pengambilan Keputusan Perawatan dan Perbaikan Gitar." hal. 79–86, 2017.