APPLICATIONS FOR DETECTING THE TYPE OF PLANT DISEASES AND METHOD OF SUGAR CANE BASED WEB

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ABSTRACT

Sugar is one of the nine basic needs, the high number of national sugar requirement is not matched by productivity of the existing sugar, sugar productivity decline was caused by the existence of several kinds of attacks cane diseases that figure reached 20 percent presentation. It is also a lack of knowledge of the sugarcane farmers to prevent and detect the disease found in sugarcane plants.

This Application designed to detect the type of disease in sugarcane crops of symptoms that can be seen. Of this Application can provide information about the types of diseases, symptoms and treatment solutions. Development of this Application uses forward chaining inference method and the method of Best First Search as a search method, programming language used is PHP and MySQL as its database.

This system is built based website to facilitate the delivery of information that can be accessed anywhere sugar cane farmers and sugar cane planters so that the handling of the sugarcane disease can be rapidly carried out.

***Keywords**: Sugarcane Diseases, forward chaining, Best First Search, PHP*

1. INTRODUCTION

1.1. Background

Sugar as one of the nine basic need today there were in the street, national needs exceed 3.25 million tons per year can be met only national product of less than 2 million tons per year, while the lack of more than 1.25 million tons per year still rely on imported supplies. Back farmers as suppliers of cane sugar is considered as the cause of national decline of sugar production and sugar cane farmers should be willing and sincere seated as the cause of national decline of the sugar industry. One factor inhibiting the production of sugar is the disease and the lack of socialization to the farmers for knowledge and handling of the types of disease in sugarcane. Appropriate measures on the protection or the protection of plants could save the sugar production of about 20 percent.

1.2 Problem formulation

Based on the description of the background issues that have been raised, then the problem formulation is as follows:

1Lack of information will be diseases of sugarcane farmers in the sugar cane crop of symptoms and the impact caused.

2. Lack of socialization to sugarcane farmers for knowledge management of sugarcane diseases.

3. And the lack of information on how to improve the productivity of sugarcane crop.

1.3 The Aim and The Purpose

The purpose of making this final task is to build a software "application for the detection of disease in sugarcane plants and how to handle" in Subang PT.PG.Rajawali II.

While objective to be achieved in

building a software are: Helping users or the public, especially the sugar cane farmers and sugar cane entrepreneurs under the auspices of PT. PG Rajawali II earrings in detecting disease in sugarcane plants via a website and find out the causes, effects and symptoms caused by the disease in order to overcome at least in plant disease of sugarcane.

Provides information about diseases of sugarcane crop in the community, especially the sugar cane farmers so that they can learn early that will impact caused by the disease and also provides information on how to handle a move to mensosialisasi disease in sugarcane crops in the sugarcane farmers.

3. Provide information on how to improve the productivity of sugarcane crop in particular by providing knowledge on sugarcane crop.

2 MODEL, ANALYSIS, DESIGN, AND IMPLEMENTATION

2.2 Model

Data analysis techniques in the manufacture of software using the modeling software with waterfall paradigm as shown in Figure 1.1, which includes several processes including:

a. System / Information Engineering
   Is part of the largest system in progress of a project, start by setting the various needs of all the elements necessary to allocate into the system and software creation.

b. Analysis
   Stage is to analyze the things needed in the implementation of the software manufacturing projects.

c. Design
   Translation stage of the analyzed data into a form that is easily understood by the user.

d. Coding
   Translation stage data or solving problems that have been designed keadalam particular programming language.

e. Testing
   It is a testing phase of software that was built.

f. Maintenance
   The final stage in which a software may have already completed the changes or additions as requested by the user.

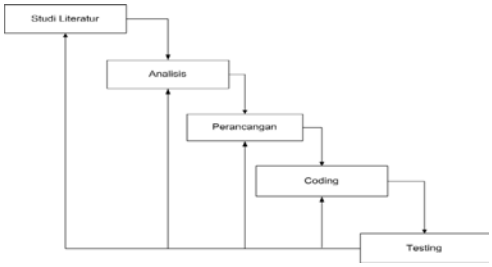


Figure 1. *Waterfall*

2.3 Analysis

A. Analysis System

In building an application to detect the type of disease in sugarcane plants and how to handle the analysis carried out several stages namely:

1. Defining the problem to be built for an expert system application. The system will be built is an application to detect the type of disease in a web-based sugar cane crops.
2. Collecting the data needed to build the system, that is, the information about the symptoms, and ways of handling disease through the study of literature and observations that are used as a knowledge base.
3. Presenting knowledge to the table who have analyzed the symptoms, as well as production rules, and search tracking tree and type of disease symptoms.
4. The proposed system will be made.

B. Basis Data Analysis

Logical structure of the database can be described in a graph by using Entity Relationship Diagram (ERD). ERD is a relationship between entities in the system used to describe the relationship between entities or data structures and

relationships between files.

The main components of the formation of ERD Entity (entity) and Relation (relationship), so in this case is the ERD components entity set and relationship set further described through a number of attributes (properties) that describe the facts of the review system. The ERD of the application to be made are as follows:

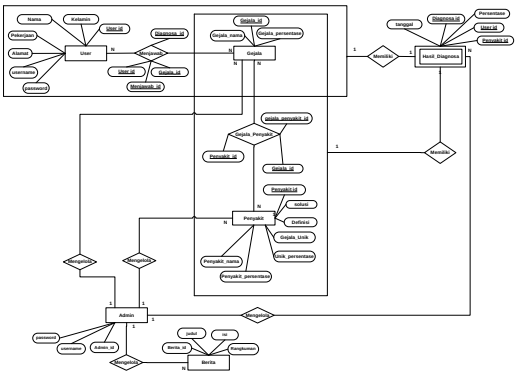


Figure 2 *Entity Relationship Diagram* (ERD)

C. Functional Needs Analysis

1. Context Diagram

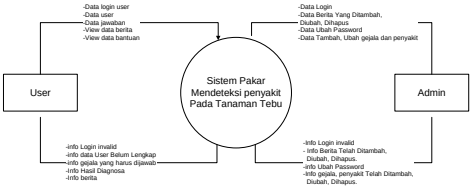


Figure 3 Context Diagram

2. DFD Level 1

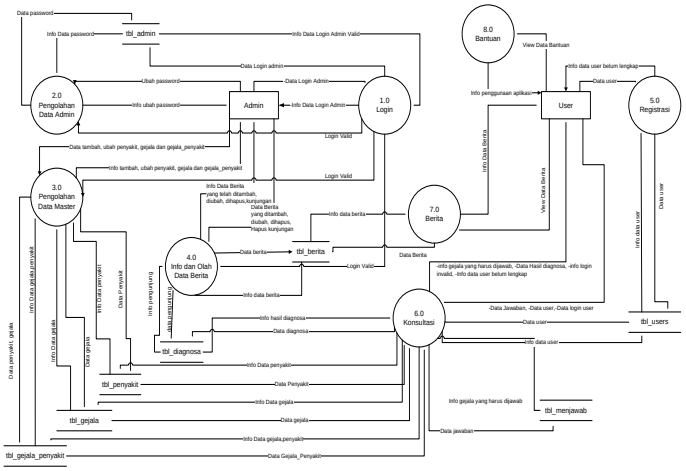


Figure 4 DFD Level 1

3. Scheme Relations

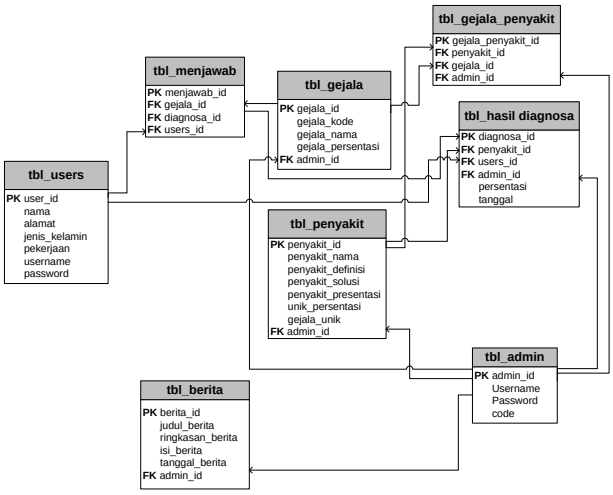


Figure 5. Scheme Relations

2.4 Design

A. Menu Structure Design

In designing a menu structure required the application containing the menus and submenus that serves to facilitate the user in using the application. Here are described on the menu structure in thisapplication:

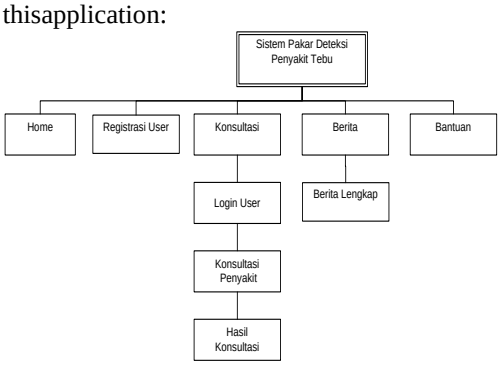


Figure 6. The design of the user menu structure

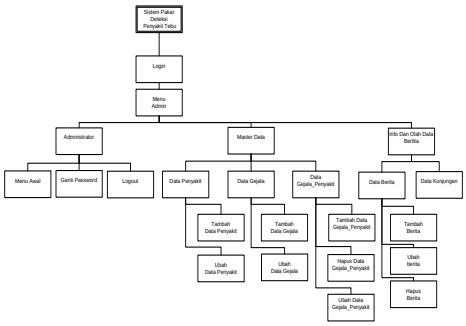


Figure 6. The design of the Admin Menu Structure

B. Home Design Applications user

Here is a picture design main menu.

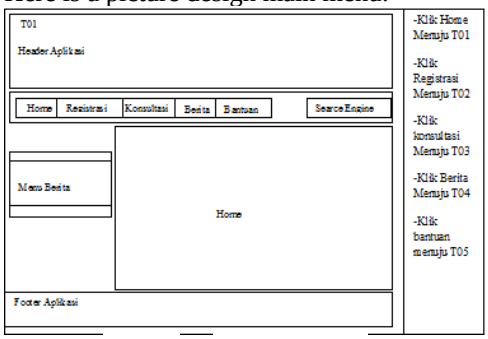


Figure 7. Display Home

C. Home Design Application admin

The following is an analysis of design drawings

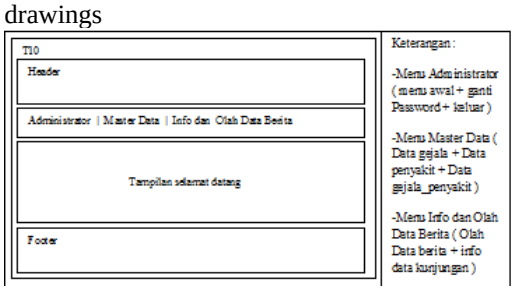


Figure 8. Tampilan Analisa *Clustering*

2.5 Implementation

Implementation phase is to translate the design stage based on the analysis results in a language understandable by machines, and application software on the actual situation. The entire source code used in the manufacture of Disease Detection Applications in Web-based sugar cane crop is using PHP..

A. System Implementation

The purpose is to confirm the implementation of the module design programs on the system actors so that the user can provide input to the system builder.

B. Software Implementation

Minimum requirements for hardware (hardware) needed to implement programs created application is a PC computer hardware is compatible with the specifications mentioned below. The higher specification computers used to run the application, the better. Minimum needs are:

a. Processor: 2.0 GHz CPU
b. Memory: 256 MB RAM
c. Hardisk: 20 GB (Free Space)
d. VGA: 64 MB

C. Software Implementation

The software used on computer systems is as follows:

1. Operating System Windows XP Profesional SP 2.
2. XAMPP for Internet and local database storage.
3. Macromedia Dreamweaver 8 for writing program code.
4. Mozilla Firefox as a browser.

D. Interface implementation

interface implemntasi useful as a display for the user of this application will be. Interface implementation done at each of interface design that have been made to the application form in Macromedia Dreamweaver 8. To know more clearly about the process in the system and its implementation results can be seen in the table below:

Table 4.2 Implementasi Antarmuka

Menu	Deskripsi	Nama File
Home	File program yang berfungsi menampilkan menu utama user dari sistem pakar tebu	index.php
Registrasi User	File program yang berfungsi menampilkan menu daftar user.proses user memasukan data user dan harus diisi secara lengkap.	Register.php
Konsultasi	File program yang berfungsi menampilkan pertama proses login user terlebih dahulu masukan username dan password kemudian menampilkan proses jawab pertanyaan YA atau TIDAK setelah itu baru kehasil konsultasi penyakit	form.php Konsultasi.php
Berita	File program yang berfungsi menampilkan proses penyajian berita seputar tanaman tebu	berita.php
Bantuan	File program yang berfungsi menampilkan keterangan untuk menjelaskan langkah-langkah menggunakan aplikasi sistem pakar dalam melakukan proses diagnosa penyakit	Bantuan.php
Login admin	File program yang berfungsi Login untuk admin, memasukan username dan password.	admin.php
Menu admin	File program menampilkan menu utama admin, untuk bisa melakukan proses pengolahan data berita, data penyakit, data gejala, data gejala_penyakit, ganti password, dan logout	home.php
Ganti password	File program yang berfungsi untuk mengganti password admin dengan memasukan password baru dan konfirmasi password	cpassword.php
Data kunjungan	File program yang berfungsi untuk admin dapat melihat data kunjungan user	Kunjungan.php
Data berita	File program yang berfungsi untuk Pengolahan data berita. Tambah, hapus dan ubah	news.php
Data penyakit	File program yang berfungsi untuk Pengolahan data penyakit. Tambah, dan ubah	Penyakit.php
Data gejala	File program yang berfungsi untuk Pengolahan data gejala. Tambah, dan ubah	Gejala.php
Data gejala_penyakit	File program yang berfungsi untuk Pengolahan data gejala. Tambah, hapus dan ubah	Gejala_penyakit..php

3 RESULTS AND DISCUSSION

From the analysis and design has been done, the results of the application that was built to look like the following view:

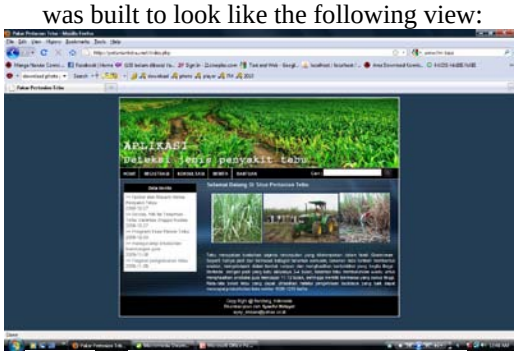


Figure 9. Display the main menu the user



Figure 10. Display menu user registration



Figure 11. Display menu consultation

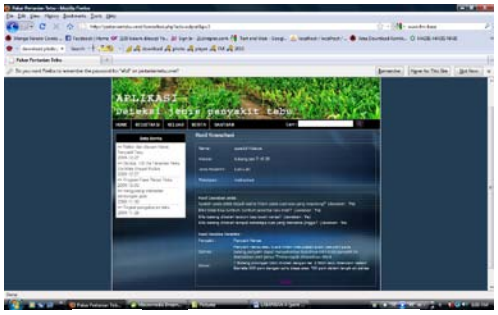


Figure 12. Display menu results consultation

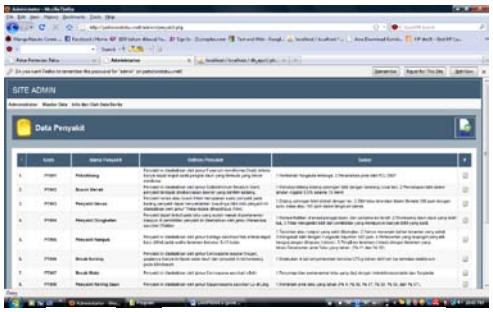


Figure 13. Display menu disease data

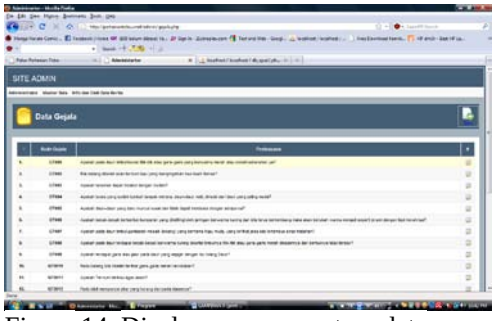


Figure 14. Display menu symptom data

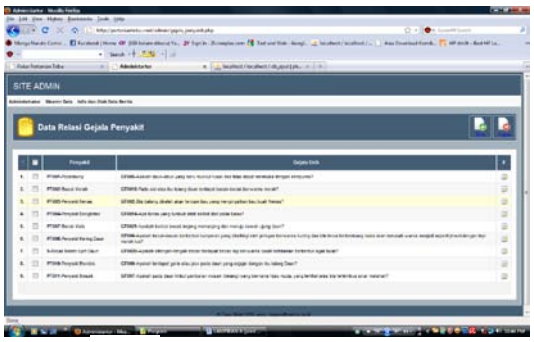


Figure 15. display menu data gejala_penyakit

4 CONCLUSIONS AND RECOMMENDATIONS

4.2 Conclusion

Based on the problems that built the application to detect the type of pest and disease in sugarcane plants and how to handle web-based, it can take several conclusions are as follows:

1. Applications are built makes it easier for farmers and the sugar cane plantations pengusah under the auspices of PT. PG Rajawali II to determine the causes, effects and symptoms caused by disease in sugarcane crops.
2. Facilitate the sugarcane farmers and sugar cane pengusah under the auspices of PT. PG Rajawali II to seek more detailed information and accurate information on types of diseases in sugarcane plants as well as information on disease management in sugarcane crop.
3. Facilitate the sugarcane farmers and the sugar cane plantations pengusah under the auspices of PT. PG Rajawali II to obtain information about how to improve the productivity of sugarcane crop through the presentation of news information contained in the web application to detect diseases of sugarcane crop

4.3 Suggestions

The suggestions which the author pointed out is expected to improve results more satisfying and beneficial for sugarcane farmers and sugar planters to detect diseases at early cane. The following suggestions may be submitted by the author:

1. Applications built on the type of disease in sugarcane crops can be developed more, including providing an image upload facility and provide facility diseases direct contact to the experts to facilitate and complete the consultation process.
2. Program development and data analysis to be more extended in scope in accordance with the needs of the program.
3. For company PT. PG Rajawali II was suggested to add human resources data management applications in this expert system.

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