EXPERT SYSTEM APPLICATION FOR EARLY DIAGNOSIS OF HEARING HEALTH BASED ON MOBILE DEVICE

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ABSTRACT

End Task is about the "Expert system application for early diagnosis of hearing health based on mobile device". The application is divided into 5 sections namely: attack, measurement, search, help and about. Users interact with applications via mobile phones. Functionality provided to users are: attack menu to display various health disorders and selected health problems to begin the process of diagnosis, measurement menu to display the various actions that can be done alone in dealing with symptoms, search menu to search for good health disorders or general medical disorders specific health problems by entering a keyword, help menu to display information on how to use menus in the application of this health disorder diagnosis and about menu to display information about the application of this health disorder diagnosis.

Expert system application that created it is able to diagnose health problems experienced as early diagnosis. This expert system application will provide information to the user as a possible cause of diagnostic results, guidelines for medical assistance, and suggestions for actions which can be done to overcome the possible causes. Users can also search based on symptoms of health problems, and the search for his own actions dealing with health problems.

This application is also equipped with multimedia elements such as text, and images. Testing applications using two methods of testing the functionality of applications by application developers use J2ME emulator and the Java-based mobile phone. Software for application development using Java 2 Micro Edition (J2ME) version 2.2.

1. INTRODUCTION

1.1 Problem Identification

1. The people who started independently in dealing with health nuisances.
2. Unconscious public that health problems are mild disease is one of the instructions from serious health problems.
3. Communities that are not medically trained..

1.2 Benefit

1. Can help users to detect early health problems being experienced.
2. Capable of providing convenience and benefit to society in diagnosing health problems independently.
3. Utilizing standard J2ME programming language to build applications for the early diagnosis of health disorders on the mobile device useful for society..

2. MODEL, ANALYSIS, DESIGN AND IMPLEMENTATION

2.1 Model

1. Data collection phase
   a. Studies Library.
   b. Observation.
   c. Interviews.
2. Stage of software.
   a. *Requirements analysis and definition*
   b. *System and software design*
   c. *Implementation and unit testing*
   d. *Integration and system testing*
   e. *Operation and maintenance*

2.2 Problem Analysis

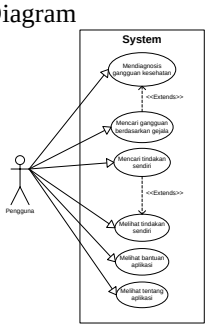
Analysis of this system obtained through interviews and observations to be found in some data and facts that will be used as test material and the analysis to the application and development of an application of the proposed system.

Generally, the people have understood the meaning of health. When self or their children sick, they want to know the cause of the symptoms they experience and how quickly they will recover. Problem for those who are not medically trained is that such complaints or cough headache can be the first indication of a serious illness.

The method used is Backward chaining is a chain that crossed from a hypothesis back to the facts that support these hypotheses. Backward chaining point is to get a chain that connects the facts to the hypothesis

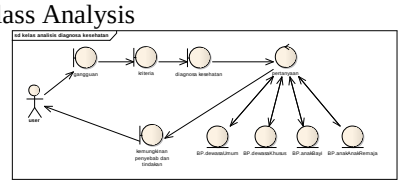
2.3 Designing UML

1 Use Case Diagram

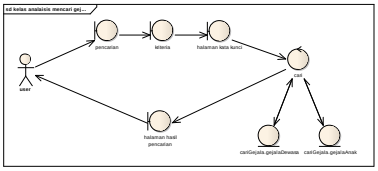


Drawing 1. *Use Case Diagram*

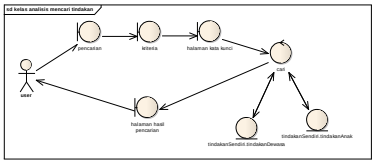
2 Class Analysis



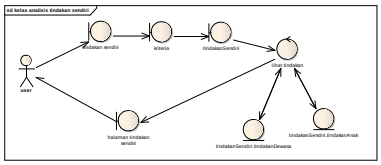
Drawing 2. Analyst Use Case Class Diagnose Health Disorders



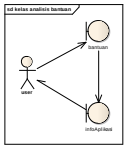
Drawing 3. Analyst Class Use Case Based Searching for Disorder Symptoms



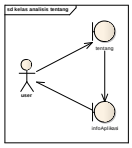
Drawing 4. Analyst Use Case Class Action Finding Himself



Drawing 5. Analyst Use Case Class Action Alone

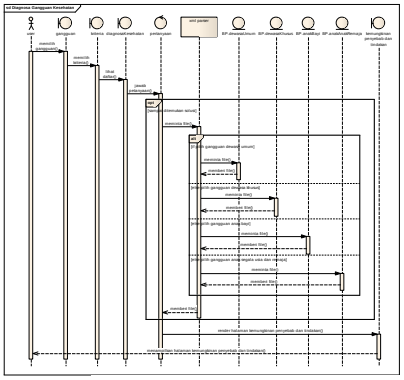


Drawing 6. Analyst Use Case Class Help

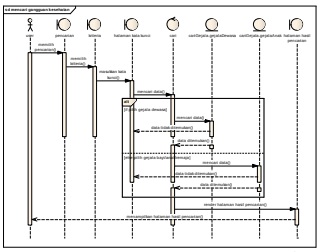


Drawing 7. Analyst Use Case Class About

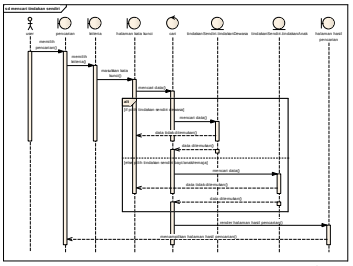
2.4 Sequence Diagram



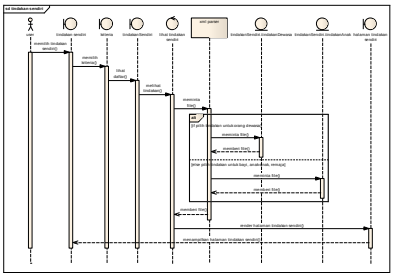
drawing 8. Sequence Diagrams Diagnose Health Disorders



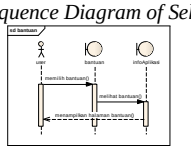
Drawing 9. *Sequence Diagram Looking for Health Disorders*



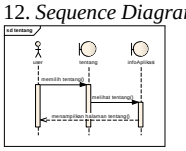
Drawing 10. *Sequence Diagram Looking for Action Own*



Drawing 11. *Sequence Diagram of Self-Action View*

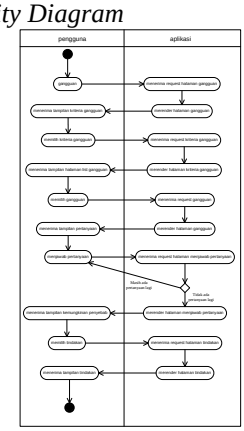


Drawing 12. *Sequence Diagram Help*

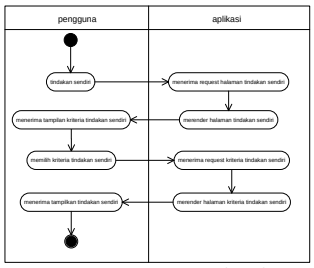


Drawing 13. *Sequence Diagram About*

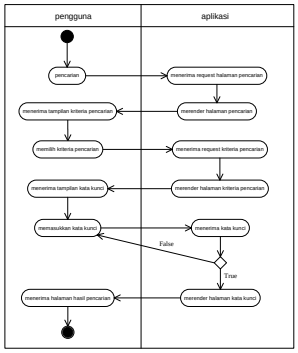
1. Activity Diagram



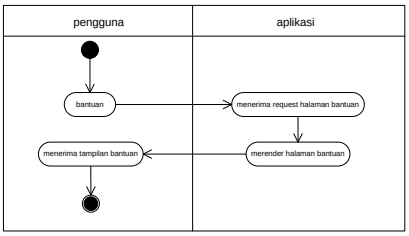
Drawing 14. *Activity Diagrams Diagnose Health Disorders*



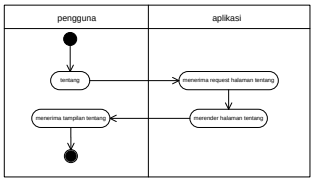
Drawing 15. A*ctivity Diagram of Self-Action View*



Drawing 16. *Activity Diagram Looking for Health Disorders or Self-Action*

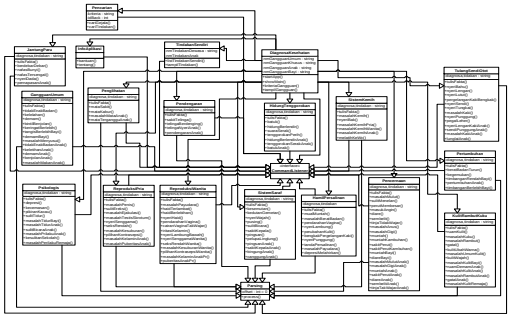


Drawing 17. *Activity Diagram Help*



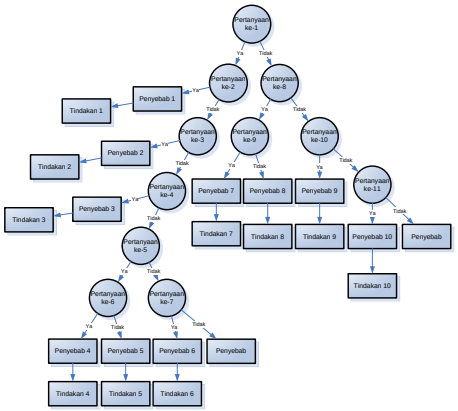
Drawing 18. *Activity Diagram About*

2. *Class Diagram*



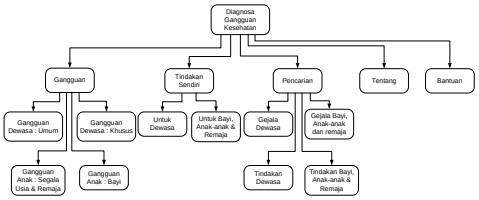
Drawing 19. *Class Diagram*

3. Decision Flow Disturbance



Drawing 20. Decision Flow Disturbance

4. Designing Menu Structure



Drawing 21. Designing Menu Structure

2.5 Implementation

oftware used in developing this website is as follows:

1. Java(TM) ME Platform sdk 3.0.
2. Emulator : J2MEWTK 1.0.4 (*Java2 Micro Edition Wireless Toolkit*).

1. View *Splash Screen*



Drawing 22. *Splash Screen*

2. View Disorders



Drawing 9. View Disorders

3. View List Hearing Health



Drawing 10. View Health Disorders

4. Display Symptoms FAQ



Drawing 11. Symptoms FAQ

5. Diagnosis Result Display



Drawing 12. Diagnosis Result Display

6. Diagnosis Result Display



Drawing 13. Diagnosis Result Display

7. Self-Action View



Drawing 14. Self-Action View

8. Display List of Actions Alone



Drawing 1.15 Display List of Actions Alone

9. Alone Action Information Display



Drawing 1.16 Alone Action Information Display

3. RESULTS AND DISCUSSION

1. Based Expert Systems Applications Mobile Device For Initial Diagnosis of this health disorder looks interesting.
2. Based Expert Systems Applications Mobile Device For Initial Diagnosis of health disorders are easy to use (user friendly).
3. Based Expert Systems Applications Mobile Device For Initial Diagnosis of this disorder Provide Health Information.
4. Based Expert Systems Applications Mobile Device For Initial Diagnosis of health disorders is useful and fairly accurate.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Based on research that has been done on this application, it can draw some conclusions as follows:

1. This expert system application is a mobile application that is built on the rules as a knowledge base and reasoning backward as inferensinya method.
2. Expert system application is made has been able to diagnose the health problems experienced by the user or users as early diagnosis, based on input answers to questions about the health problems of the system.
3. The application of this expert system was able to provide information early diagnosis of health disorders in the form of possible causes, guidelines for medical assistance, and suggestions for actions which can be done to overcome the possible causes.

4.2 Recomendation

To further improve the quality and the quality of these applications there are a few suggestions that can be used as consideration, namely:

1. Applications that have been built to be more specific to one disease. In order for users to get more detailed explanation of the perceived health problems. So that the user can actually see the danger or not experienced health problems.
2. The system can be developed as a web-based applications continue to function as a mobile application. Web applications are used as a medium for knowledge base development system that serves as an update in the form of the next version.

5. REFERENCES

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