APPLICATION DETERMINANT HEALTHY FOOD EXPERT TO SUPPORT THE NEEDS OF NURSING MOTHERS

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Abstract
determination of breastfeeding mothers of healthy foods is one of the processes to Determine the level of quality of the food eaten by the mother during suckling. The Process of Determining healthy food to support the needs of breastfeeding mothers are usually still manual, the breastfeeding mothers should consult midwife or health canters nearby to find healthy food and health level of healthy foods that are consumed during lactation that the nursing mothers are sometimes difficult, for the midwife or health canters diligence takes time for consultation and moms find it difficult, if you have to carry the baby, especially a baby that is still under 5 months. In order to Overcome the problems that happened made design and construction Application Specialists Determinants Healthy Foods Needs to Support Breastfeeding. The method used for application development expert determinants of healthy foods to support the needs of breastfeeding mothers using Data Flow Diagrams (DFD). The end result of the design and construction of this expert application is the existence of a web-based mobile web that can provide easy access to information and the process of defining healthy and unhealthy food nursing mothers to Become more effective and efficient.
Keywords: Expert system, healthy food, unhealthy food, nursing mothers, and Mobile

1.0 INTRODUCTION

Substitute for a typewriter or ordinary calculation tool, but more than that, computers are used to process knowledge of the decision making process can be faster and more accurately. In relation to the issues of healthy food needs of breastfeeding mothers can develop a software application that adopts the system of expert human knowledge kekomputer. The function of expert system application is expected in order to resolve such problems by experts in their fields.In Indonesia, the achievement of mother's milk (ASI) exclusive of 80% is too high because exclusive breastfeeding is decreasing assess implementation and exclusive breastfeeding policy and Early Initiation of Breastfeeding (IMD) in Indonesia descriptively. Policy, namely the Minister of Health (Kepmenkes) 237/1997, PPNo.69 / 1999 Kepmenkes No. 450/2004[1], When the status of healthy foods good mother is most likely the baby is also good quality. Breastfeeding mothers must maintain the state of health, because Juka infected mothers will have an impact on breastfeeding (breast milk). Therefore, maintaining the health of a healthy lifestyle, eat healthy foods.

Research conducted by Agus Bambang Herlambang(2015) Inference method used is forward chainning of client related to nutritional needs. The fact is displayed in the form of a question which will then be calculated the energy needs of the client Filipinos in doing so can make it easier to receive information for the needy[2], then further research will be undertaken by Radiyan Rahim, Methods Cooper (2018) is a way of calculating the number of calories required pregnant women. Cooper method of counting calories, In this case also the authors designed an app nutritional needs of pregnant women, so researchers had to calculate the amount of calories and first determining the necessary data[3], Erly Krisnanik (2018) researcher designing applications expert system to determine a healthy menu with copper as the reference calculation method was added to the inference engine methods

used applications forward chaining expert approach with so researchers perform calculations in advance to design expert system [4],

Results of previous intensive search using the programming language database system forward chainning cooper method. While in this study were made by using the application system specialist for healthy maknan determination to support the needs of breastfeeding mothers. So that it can be very easy and helping with the mother determines the healthy foods that should be consumed by nursing mothers. Besides itujuga can gain knowledge and insight about healthy foods for breastfeeding mothers. So the application of this expert is expected to improve the quality of breast milk (breast milk) with information about healthy foods for breastfeeding mothers, if the mother noticed and have a healthy eating style milk in the production will be good quality.

Based on the results of research on expert systems that have been in the mentioned above, then do further research with the title "Specialist Applications For determination of Healthy Foods To Support Needs Of Breastfeeding". The objects used in this study were healthy food needs in nursing mothers. Method used to use the mobile web app.

With the Application Specialist for Determination of Healthy Foods to Support the needs of breast-feeding mothers it is expected that this application is able to provide the ease of bagi nursing mothers to determine healthy foods that should be consumed during breastfeeding. With the knowledge and information about these healthy maknan mother expected more attention in memiliih maknan healthy for mothers still breastfeeding, so that the milk (breast milk) good quality and ensure the development of the child.

2.0 THEORETICAL

2.1. Expert System

An expert system according to Aprilia Sulistyohati (2008) An expert system is a computer-based system that uses knowledge, facts and reasoning techniques in solving problems that normally can only be solved by an expert in a particular field[5]–[9]. An expert system adds value to technology to assist in addressing the increasingly sophisticated information age[10][11], [12].

Meanwhile, according to Ricky Hamidi, Heng Anra and Helen Sasty Pratama (2017) An expert system is a computer-based application that is used to solve the problem, as is thought by experts. In building expert systems, there are many methods that can be used to help facilitate resolve existing problems[13] ,

The four components that make up the expert system by Wenny Widiastuti (2012) as follows:

1. Knowledge Base (Knowledge Base)
   The knowledge base is at the core of the program in which the expert system knowledge base is a representation (Knowledge Representation) from an expert. The knowledge base consists of the fact that the form of information on how to generate a goal or a decision on the facts already known

2. Database (Data Base)
   The database is part of the record of all the facts, whether the facts early on when the system begin operating and the facts obtained during the inference process is underway. The database resides in the computer's memory. Most expert system contains a database to store data and other observations needed for processing.

3. Inference engine (Inference Engineer)
   The inference engine is the part that contains the mechanism of function of thinking and reasoning pattern system used by an expert. This mechanism will analyze a particular problem and then to seek an answer or conclusion the best. This process is done by means of holding the tracking of the contents of the knowledge base. Deductive inference engine selecting relevant knowledge in order to reach a conclusion. Thus this system can answer user questions although the answers are not stored explicitly in the knowledge base of facts that exist in the database

4. User Interface (UI)
   User interface is part of a link between the expert system with the user program. User interface is part of the software that provides the means for the user to communicate with the system. User interface will ask questions and also provide a menu option to

enter the initial information into a database. Any communication during the troubleshooting process is controlled by the user interface. In the user interface will take place between the dialogue with the user program[14],

2.2. Healthy Food and Nutrition Breastfeeding

Healthy and nutritious food to nursing mothers is the most vital factor for physical development and psychological baby in infancy. Healthy food healthy course must meet the nutrition a baby need. According to Rizqie Auliana (2011) Balanced nutrition is the arrangement of everyday foods that contain nutrients in the type and amount corresponding to the needs of the body, with due regard to the principle of diversity, or variety of food, physical activity, hygiene and ideal body weight. Balanced nutrition in Indonesia visualized in the form of balanced nutrition cone (TGS) in accordance with Indonesian culture[15],

By Milda year (2016) the food is a very important factor like in persons. As one of the staples, Man must have tried to meet its needs for food, even in the womb, after birth and grow up, human begin bias choose and strive to meet its needs itself to be the food. People often refer to pregnancy and lactation as meal time "both" so that pregnant and lactating women easily feel hungry[16],

2.3. Website Definitions

According Main Yadi (2011) *website* or sites can be defined as a collection of pages page that is used to display the information, text, still images or motion, animation, sound, or a combination of them all, whether they are static or dynamic that formed a series of interconnected buildings linked where each is connected with a network of network pages (hyperlinks) [17]. Rahmat Hidayat (2009) *website* a whole web pages contained in a domain that contains the information. A Website is usually built many web pages that are interconnected. The relationship between a web page with a web page that others called hyperlinks, whereas the text which is used as media connection called hypertext[18],

2.4. Definition of Mobile Web Apikasi

Main Yadi (2013) Applications is a subclass of computer software that uses computer skills directly to perform a desired task user normally compared to the software system that integrates a variety of computer capabilities, but does not directly apply these skills to work on a task benefit users [19]. Hikmawan Ali Nova (2011) currently provides a variety of website has a mobile version for access, which among other things by adding the letter m (mobile) or wap. Once the importance of the existence of a mobile version of a website among other things contained in the international journal Telecommunications Union in October 2008, where the number of Internet users via mobile surpass PC users. That's why often times we find the existence of a mobile version of a wibe, which of course come to our benefit as users because of bias reduces the cost and time in surfing fun[20],

3.0 METHODOLOGY
3.1. System Development Life Cycle (SDLC)

Information system development methodology means a framework that is used to plan and control process of an information system. According Ladjamudin (2009) *Method of System Development Life Cycle* or commonly abbreviated as SDLC is a development that serves as a mechanism for identifying software. Development of computer-based information systems can be a complex task that requires a lot of resources and can take some time to complete. The system development process through several stages of the system is planned to start with the system implemented, operated, and maintained. Cycle or the life cycle of system development is a form that is used to describe the main stages and steps in these stages in the development process[21].

According to Yulia Jihan Syafitri (2017) In designing the system, researchers used a systems development methodology that is the System Development Life Cycle (SDLC) which consisted of 5 cycles of:
   a. Planning System (System Planning)
      Phase planning is a basic process to understand why a system needs to be built. In this phase, a feasibility analysis is required to find data or process gathering Information to

users. Planning for the development of this system is to use the programming language Borland Delphi and assisted with MySql database. Aids in the design of the system is the Unified Modeling Language (UML).

b. Analysis System (System Analyze) phase analysis is an investigation process on the system is running in order to get answers to questions about the system, how the system works and time of use of the system.

c. General System Design (Design Logic) is the process of determining how the system works in terms of design architecture, Interface Design, Database and File Specification and Design Program. The results of this design process we will get the system specs. The system used to use an application that uses Borland Delphi programming language and uses MySQL database. Diagrams used in the design of the system is Use case diagram, *Data flow Diagram*,

d. Implementation System (Implementation) The implementation phase is the development process and system testing, system installation, and system support plan. The system has been designed, then coding, tested, and installed where at this stage begins with the submission of the draft to the programmers.

e. System Maintenance (Maintenance) Is the final stage where the data can be confirmed in a systematic information system can be improved and developed. [22],

Stages in the development system called the System Development Life Cycle because at each stage of the system will be done sequentially decreased from the planning, analysis, design, implementation and maintenance. It can be described as follows:
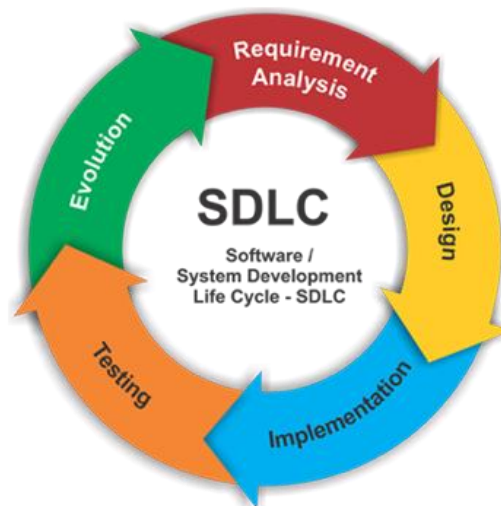
Figure 1. system development methodology

3.2. framework research

framework in this study describes the design of mobile web-based expert system of food support needs of nursing mothers. This research was done to facilitate breastfeeding mothers in the process of obtaining some information about healthy foods that should be consumed by breastfeeding mothers, but it is easier for mothers to breastfeed by the time whenever the mother will read and find the information, see this situation needs to be built website that can be accessed through multiple web-based platform is a mobile website, which can be used to provide information about healthy foods for breastfeeding mothers. Here is a description of how the process in determining a healthy food nursing mother. Here are the lines of inquiry that starts from the preparation in determining the purpose of the research conducted by the end of the study.
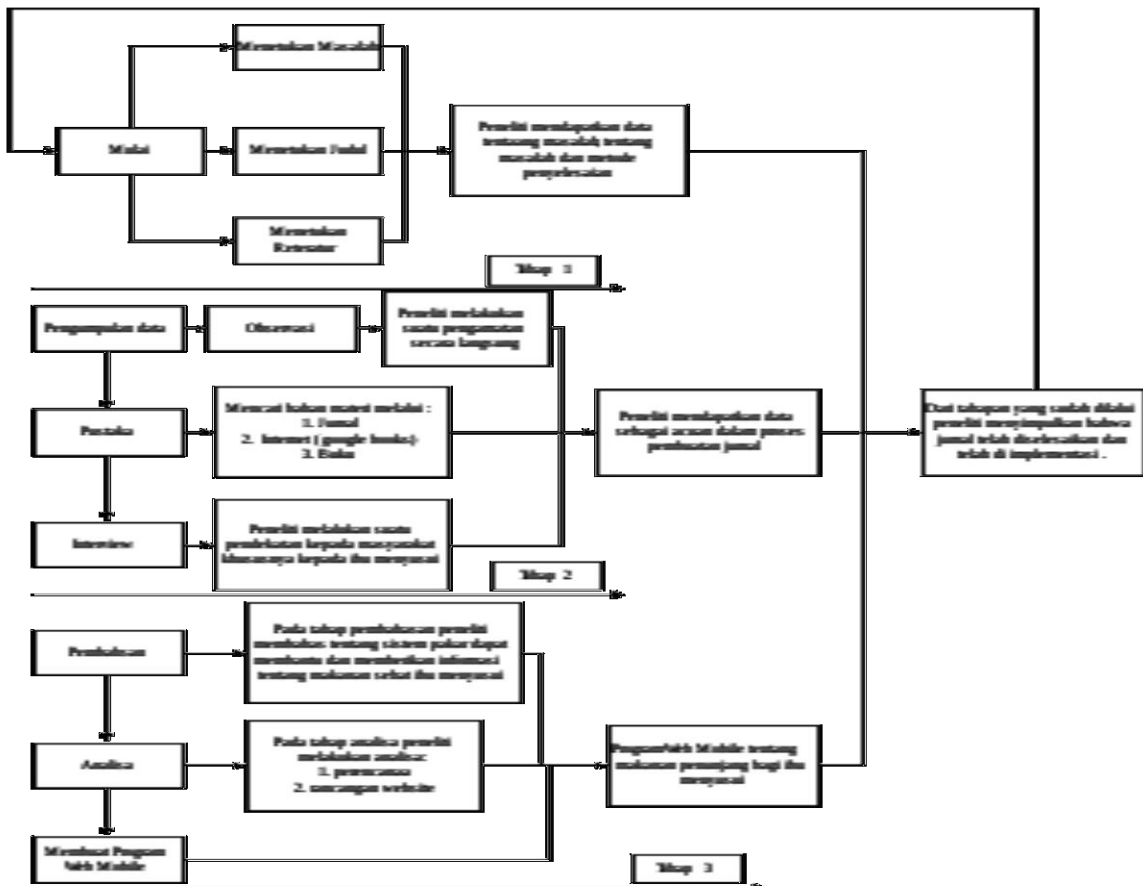
Figure 2. Diagram Research

Information:
1. The first stage started keeping a journal is to determine the problem to be investigated and proceed to determine the title and continued to search for references.
2. The second stage is to determine the method to be used, that is observation, interview and literature.
3. The third stage is reluctance making a website that will be created, and began slowly making of the website. Then test the website that has been created and completed.

4.0 RESULANTS AND DISCUSSION
4.1 Design of Information Systems

In designing systems, the authors designed a system with the aim of producing a model or representation entity that will be built by using some of the tools that explain the process data collection. As for stages in the process are as follows:

a. Use Case Diagram

Use Case diagram illustrates the relationship between use and various user cases involved.
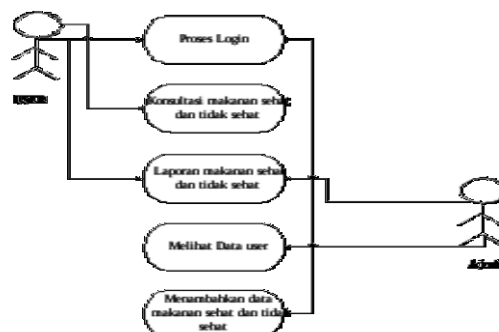
Figure 3. Use Case Diagram

4.2. Implementasi
Here is the view of the implementation of the system:

a. Display Home

Is the main page of the website design for the admin login and patient.

Figure 4. Display Home

This page contains a table of healthy and unhealthy foods.

Figure 5. Table Food

b. Data Food By Admin

Admin data view contains data foods on healthy and unhealthy foods and can be updated by admin.

Figure 6. Data Food Administrator

This page contains data patient consultation and Display result data containing the results of patient consultation consultations.

Figure 7. Data Consulting

4.3. Analisa Results

From all the research and the results of the implementation has been done by the author, analysis of the results of research in accordance with the expected results. From these results can be explained as follows:

1. The program login menu performs the login process to get into the main yard line with admin privileges.
2. The pages in the menu page will be tested whether the existing menus programmed web applications that can run well or vice versa. If the application program can be run in accordance with what is desired from the start, means testing and the analysis conducted by the authors succeed.
3. With the web can facilitate breastfeeding mothers to find healthy and no food consumption during lactation.
4. Their intended website system that the program can make the process of internet access to get in view the first web application which can be accessed at smart phone or android.
5. With the web can provide information about healthy and unhealthy foods for breastfeeding mothers.

Of the 30 people who responded to questionnaires and to test the website has been made available as much as 9% (3 respondents) answered disagree, 16.9% (6 respondents) disagree, 31.6 (10 respondents) agreed and 32.7% (10 respondents) agreed with expert application website determinants of healthy food to support the needs of breastfeeding mothers.

5.0 CONCLUSION

Based on the analysis, design that has been done in the manufacture of specialist applications determinant of healthy food to support the needs of breastfeeding mothers, it can take several conclusions as follows:

1. Application expert food healthy determinant to support the needs of breastfeeding mothers, the results of this study can provide convenience for breastfeeding mothers to find a healthy outcome or not the food consumed during breastfeeding.
2. Application expert food determinant healthy to support the needs of breastfeeding mothers can also provide information for breastfeeding mothers about healthy or unhealthy foods.

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