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ANALYSIS AND DESIGN OF MONITORING AND RECOMMENDATIONS OBSTETRICIAN SYSTEM MOBILE BASED

Yunita Sartika Sari

ABSTRACT

The health of pregnant women can not be separated from the role of obstetricians. Obstetricians in charge of examining and monitoring of fetal development in the womb as well as the health of pregnant women. To get maximum service, the best obstetrician is needed. The selection of obstetricians at this time is done by surveying obstetricians around the place of residence or by gathering information from other people, either by asking the person directly or through forums on the internet. The waiting time for unproductive services IS ALSO a problem for pregnant women in seeing a gynecologist Because it takes a long time. Queue information that is difficult, to Obtain and inaccurate makes pregnant women and their companions have to really monitor the queue even though the waiting time can be used for other more useful activities. For this reason, this research will build a mobile-based queuing obstetric monitoring and information system for mobile doctors to make it Easier for pregnant women to check with obstetricians. In this study, the highest rating given by Patients later as an assessment of obstetrician's Recommendations. The results of this study are in the form of a queue monitoring information system and obstetrician rating preference based on the Reviews largest value.

KEYWORDS: Monitoring, Recommendations, Mobile

1. INTRODUCTION

Healthy pregnant women cannot be separated from the role of the obstetrician. Obstetricians are people on duty to assist pregnant mothers from early pregnancy until delivery. The obstetrician will perform the inspection and monitoring of fetal development in the womb at once maternal health. Prenatal care is also very important to diagnose a disorder or disease risk.

To get the maximum service, it takes the best obstetrician. Selection obstetrician at the time the survey was carried out by a midwife or obstetrician is around the residence or by gathering information from others, either by check directly to the person or to the forum on the internet. Selection of obstetricians has several considerations such as gender obstetrician who will be selected, the distance from the residence where the doctor practices, consultation rates, gave birth rates, the popularity of the doctor, the doctor's experience and recommendations from people nearby or trustworthy. In the election of obstetricians needs of each patient is different so it affects every obstetricians who have never visited or to be visited.

The waiting time of service unproductive also an issue for pregnant mothers to check the gynecologist because it takes a long time, because the queue information that is hard to come by and do not accurately make a pregnant woman and a companion had to really monitor queue when the wait time can be utilized for other activities are more helpful.

This is a basic one in the manufacture of information systems for monitoring and rating obstetricians accordance with the wishes and needs of the patient and allowing the patient to get a recommendation obstetrician.

2. LITERATURE REVIEW

1. Decision Support Systems

Decision Support System is a system that is controlled by one or more decision-makers who can memabantu decision-making activities by providing a set of organized toolsyang intended to improve the effectiveness of the decisions [1].

Decision Support System is used to solve problems and not tersetruktur spring. DSS was created to help decision-makers, rather than replace them.

Decision Support System has four main subsystems that determine the Decision Support System's technical capabilities, namely the data management subsystem, the model management subsystem, the knowledge engine subsystem, and the interface subsystem.

Faculty of Computer Science, Mercu Buana University, Indonesia

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Research Paper

2. Decision Supporting System Components

In general, Decision Support System built by three major components, namely database management, Base Model and Software System / User Interface [2]. The Decision Support System components can be described as shown below:

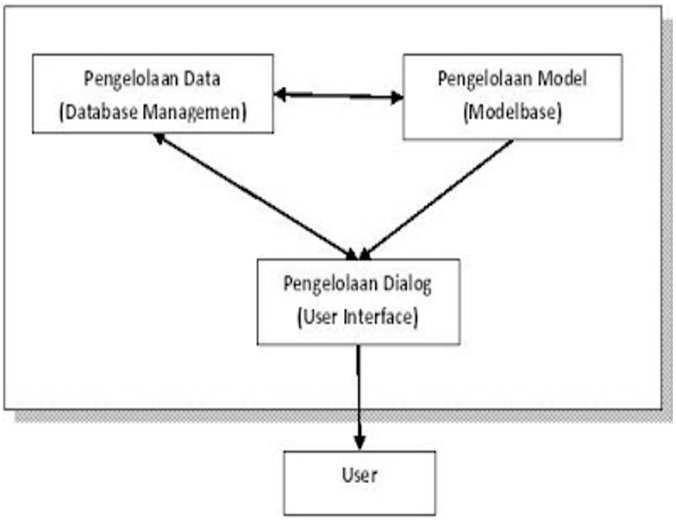

Figure 1: Components of Decision Support System

a. Database Management

Is a subsystem of data organized in a database. The data is a decision support system may come from outside and within the environment. For the purposes of the Decision Support System, the necessary data relevant to the problem to be solved through simulation.

b. Model Base

Is a model that represents the problem into a format quantitative (mathematical model as an example) as the basis of simulations or decision-making, including the purpose of permaslahan (objective), related components, limitations exist (constraints), and related matters more. Base Model enables decision makers to analyze as a whole by developing and comparing alternative solutions.

c. User Interphase / Management Dialog

Sometimes referred to as a subsystem of dialogue, a merger between the two previous components, namely Database Management and Model Base are incorporated into the third component (user interface), having previously presented in an understandable form of computer models. User Interface displays the system output to the user and receive input from the user into the Decision Support System.

DSS can provide various benefits and advantages. The benefits that can be taken from the Decision Support System are:

a. Decision Support System extends the capabilities of decision makers in processing the data / information to the wearer.
b. Decision Support System help decision makers to solve problems, especially across various issues are very complex and unstructured.
c. Decision Support System can produce solutions faster and reliable results.
d. Although a Decision Support System may not be able to solve the problems faced by decision-makers, but he can be a stimulant for decision makers in understanding the problem, because it is able to present a variety of alternative solutions.

3. Definition Of Estimates

Estimates, in the general sense is an attempt to assess or estimate a value through calculation and analysis are based on experience. According to Smith, estimation is a process for estimate amount, or the events that will happen in the future, where the many uncertainties that exist will cause the process is more complicated and complex. Estimation purposes do is to get the closest approximation to the actual events that will take place, to weigh the possibilities that exist.

4. Related research

Firdianti Nureni research in 2017 with the title "Election Decision Support System Obstetricians Using TOPSIS". In their study, the data used is an obstetrician experience based on age, consultation rates, rates childbirth, obstetricians popularity based on the number of patients, and the position to be taken from the residence to the gynecologist. The results of this study using TOPSIS method is a recommendation based obstetrician greatest preference value. So the system has an accuracy that made a big mistake and not correct [3].

Hodiah Maelani research in 2017 with the title "Design of Information Systems in Clinical Practice Kebinanan Qamarul STIKES Huda". Design of Information Systems Clinical Practice of Midwifery on STIKes Qamarul Huda using the method of designing the Unified Modeling Language (UML), which consists of designing Use Case Diagrams, Activity Diagrams, Design Table, Relation Table, Menu Structure and Interface (user interface system), Data collection method using the method of observation, interview and literature study. Midwifery practice information system will produce a system that can facilitate the operations of the practice obstetrics clinic, starting from the registration of the location of the practice, the election supervisor, processing supervisor, placement location of clinical practice in obstetrics and guidance [4].

Other research on Decision Support System to improve the Quality of Service in the Field of Health conducted by Anny Kartika Sari in 2016. This research is trying to overcome the difficulties faced by the manager or agency leadership in issues associated with product quality measurement services. Area of service the subject of research is health. Service dimensions that are relevant to the health sector in terms of data obtained through the questionnaire. The method used in the review is the SERVQUAL method. Furthermore, optimization is applied to maximize quality of service dimensions were weak in accordance with the attributes attribute to the dimension of service is concerned. Because the attributes of attributes in each dimension is a parameter that is not necessarily, then the fuzzy optimization formulation would be more effective. Optimization of fuzzy approach dissatisfaction function solved by genetic algorithm [5].

3. RESEARCH METHODOLOGY AND DESIGN

1. Method of collecting data

Data collection was conducted to obtain the information needed in order to achieve the research objectives. The goals expressed in the form of a hypothesis is a temporary answer to the question penelitian.metode data collection can be done by:

1. ***Interview****:* The interview is a form of verbal communication so it kind of conversation aimed at obtaining information [6]. People who are interviewed in this study were patients pregnant women and obstetricians.
2. ***questionnaires****:* Is a data collection technique indirectly (the researchers did not directly ask the respondent). Instrument or tool data collection is also called the questionnaire contains a number of questions that must be answered or responded to by the respondent. Respondents in the habit of giving answers or response in accordance with presepsinya. Questions from this questionnaire will be used as a reference in determining the functional requirements and non-functional system [7].
3. ***Observation:*** Is a method of collecting data by observing and recording accurately and systematically on the symptoms - symptoms (phenomena) are being studied. In this observation activities conducted by collecting data through direct observation of phenomena that occur in the location study [8].

2. Instrumentation

In this study conducted instruments for data collection, among others:

1. Interview, the instrument used in the form of a list of interview.
2. The questionnaire / questionnaire, the instrument used in the form of granules question.
3. Observation, the instrument used is a research study that observed object.

3. Data analysis technique

The data analysis technique is a way of analyzing the study data to address existing problems. Data analysis techniques in this study using data support the observation, interviews, and questionnaires.

Phase analysis and design with UML object-oriented approach, while the design of the system includes database design, to answer and describe the problems - problems arising from the background and the formulation of the problem, then the method in the study, can be seen in the figure below:

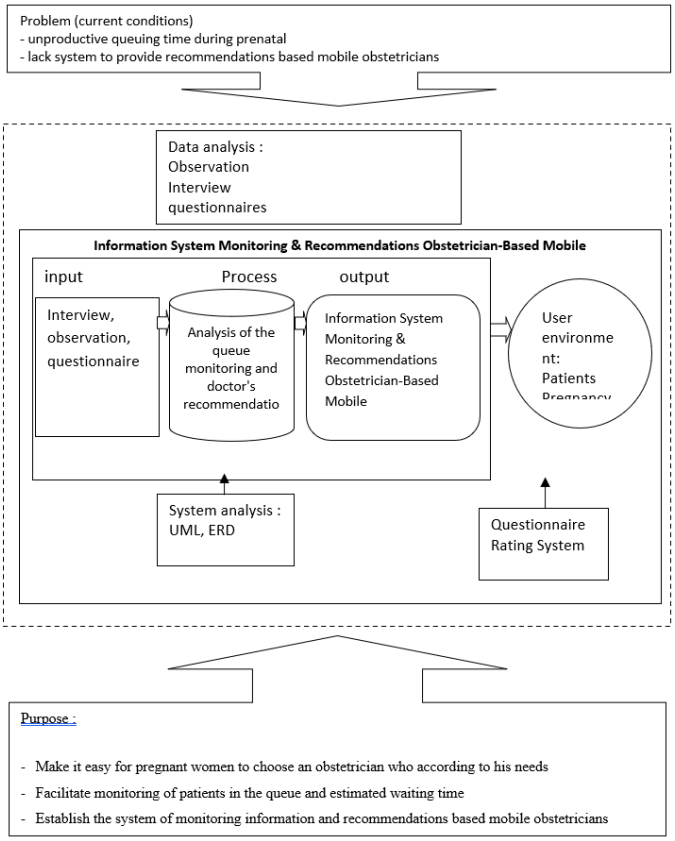

Figure 2: Mindset Troubleshooting

Troubleshooting Mindset explanation as used in this study can be explained as follows:

1. Researchers conducted the data analysis stage is to conduct interviews, questionnaires, and observations
2. Researchers will perform system analysis and design with UML, followed by encoding using the PHP programming language and MySQL database.
3. Display applications are built in order to allow a user to use monitoring and information system applications on mobile-based gynecologist.

4. DISCUSSION OF RESEARCH

1. Business Process Flow

The first step in this experiment is set up such as hardware, system design aims to give an overview of features and the system work system in order to achieve the purpose of the application. Some of the main process flow of the system is described as follows:

a. Registration Process Flow Services

Registration process flow describes the services when patients register for examination or other health services. Patients were asked to choose a doctor who is available at the session, after select the patient will get a queue number corresponding doctors selected and directed to form a queue.

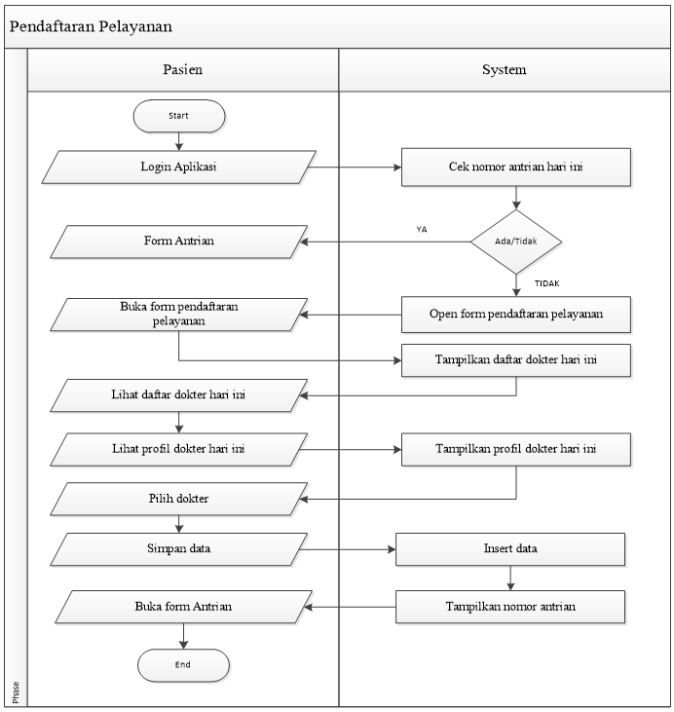

Figure 3: Registration Process Flow Services

b. Physician Services Process Flow

Doctor service process flow describes the initial patients will get services. Starting from the doctor opened the service if the queue number of patients the same as the numbers run queue, then there will be a notification on the application of patients and patients given 1 minute to immediately chamber checks if more than 1 minute not to eat queue number will be continued and the patient will wait one queue new patients will then be called back. After patient in in the room, doctor inform to the system that the doctor was in the service and the system would keep the start time of the service.

After the service is completed doctor inform to the system that the doctor had finished the service and the system would keep the finish time of service. The start time and end time ministry calculates that will be recorded as the average service time of the doctor. After the service the patient will be directed towards the process flow rating.

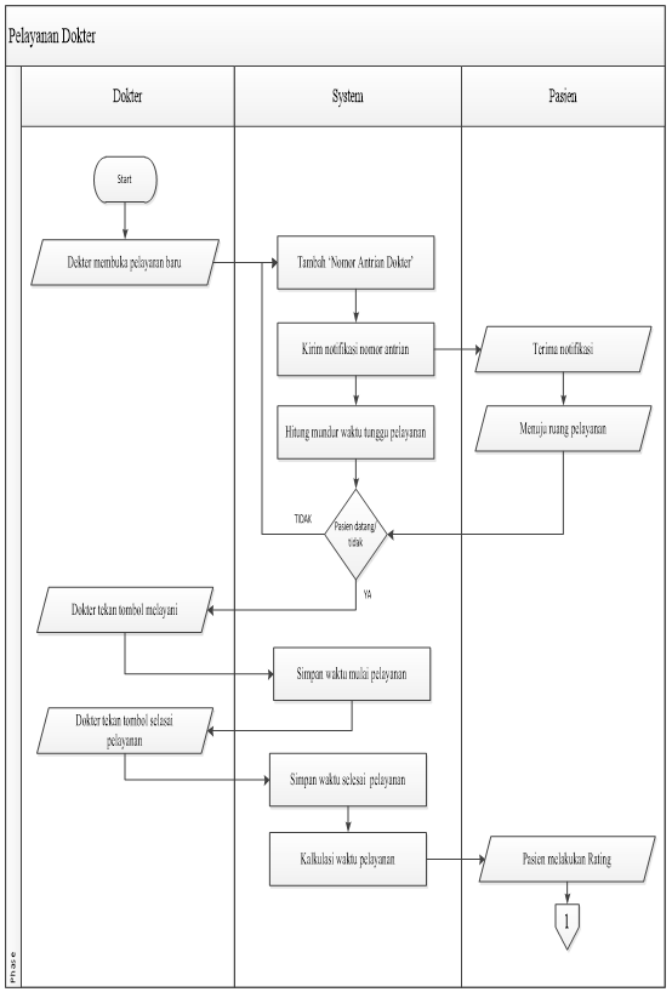

Figure 4: Flow Chart Physician Services

c. Rating Process Flow Doctor

After the service the patient will be directed towards the process flow rating. In this process the patient is given the proposition to give an assessment of the physician services using the method of rating. In addition to rating the patient is also asked to give the reasons for the rating.

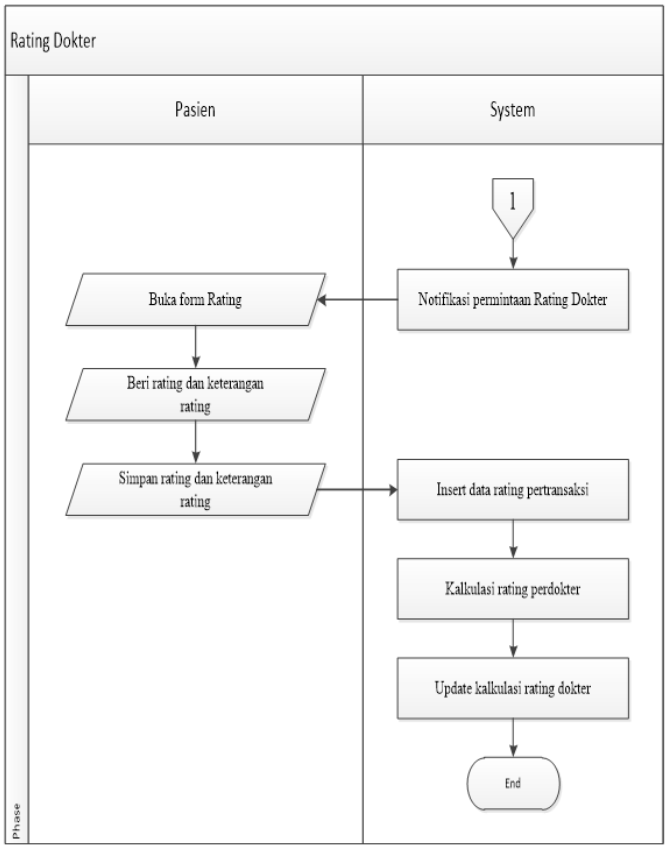

Figure 5: Flow Chart Rating Doctor

2. Use Case Diagram

Figure 6: Use Case Diagram Queue System and Monitoring

4. Flow Chart Diagram

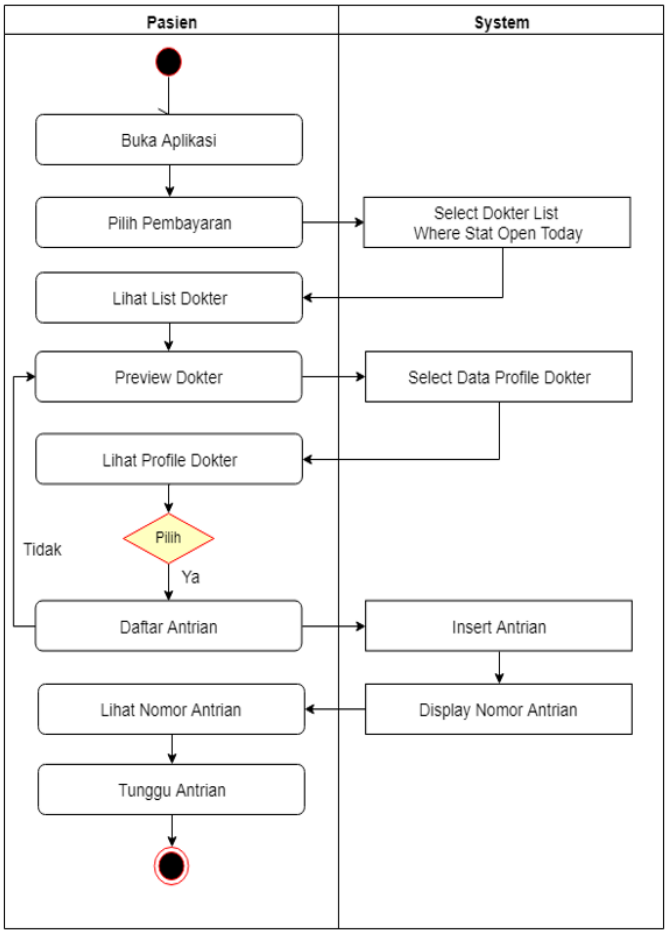

Figure 7: Flow Chart Diagram Queue Up

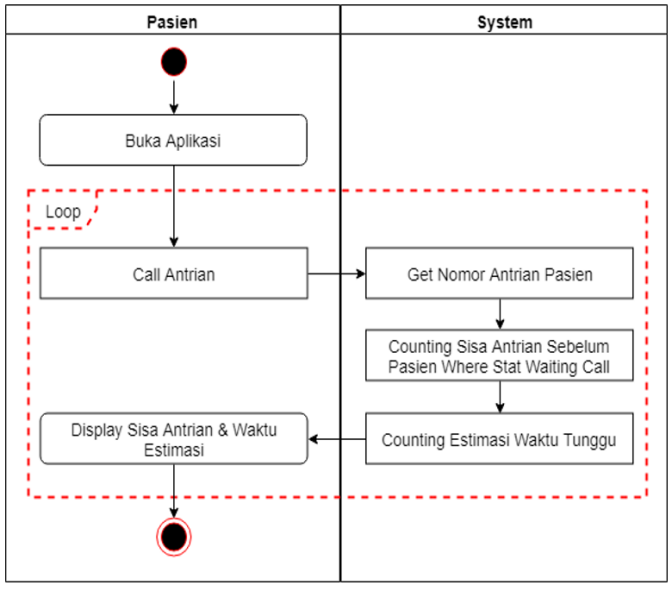

Figure 8: Flow Chart Diagrams View Queue

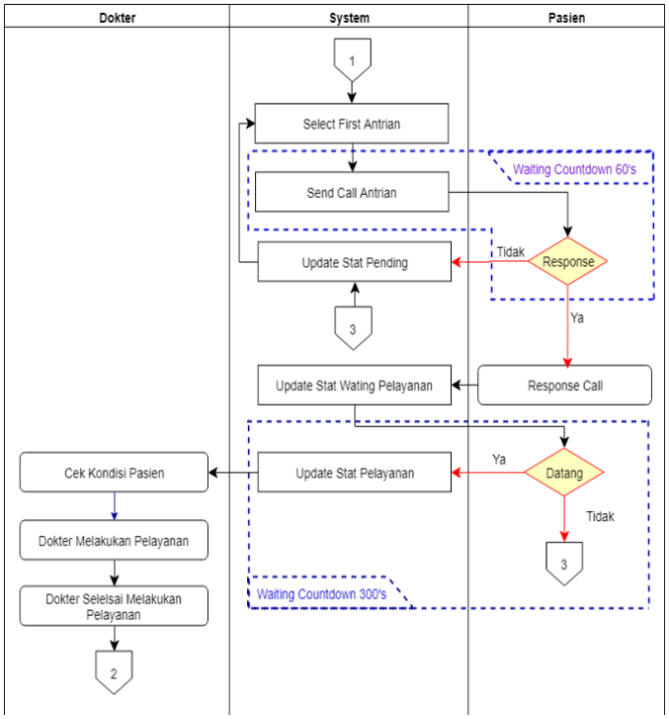

Figure 9: Flow Chart Diagram Queue Dialing

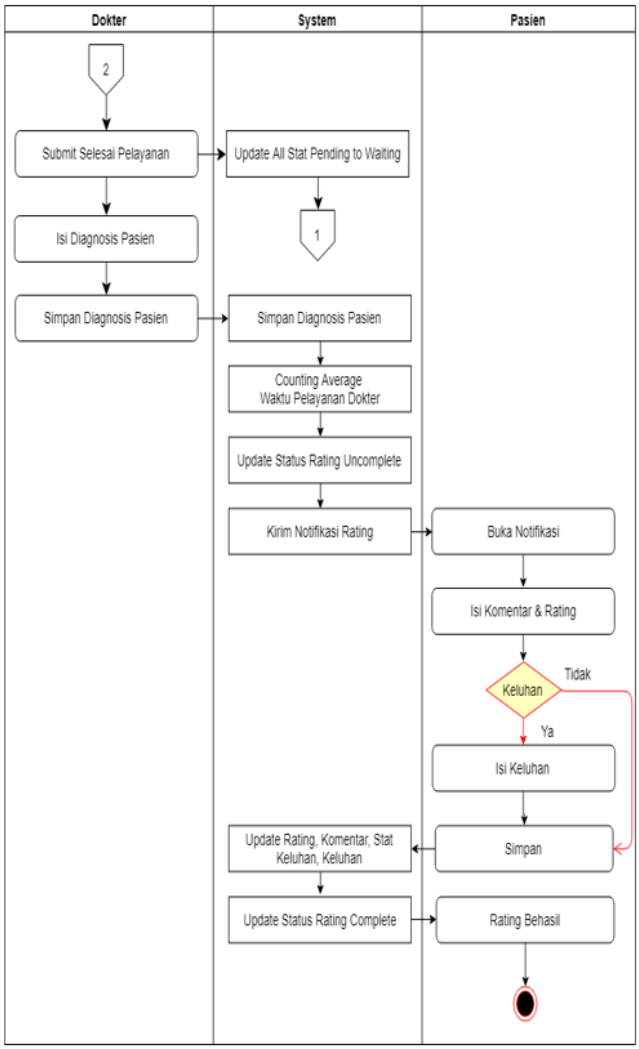

Chart Flow Diagram Figure 10: Physician Rating

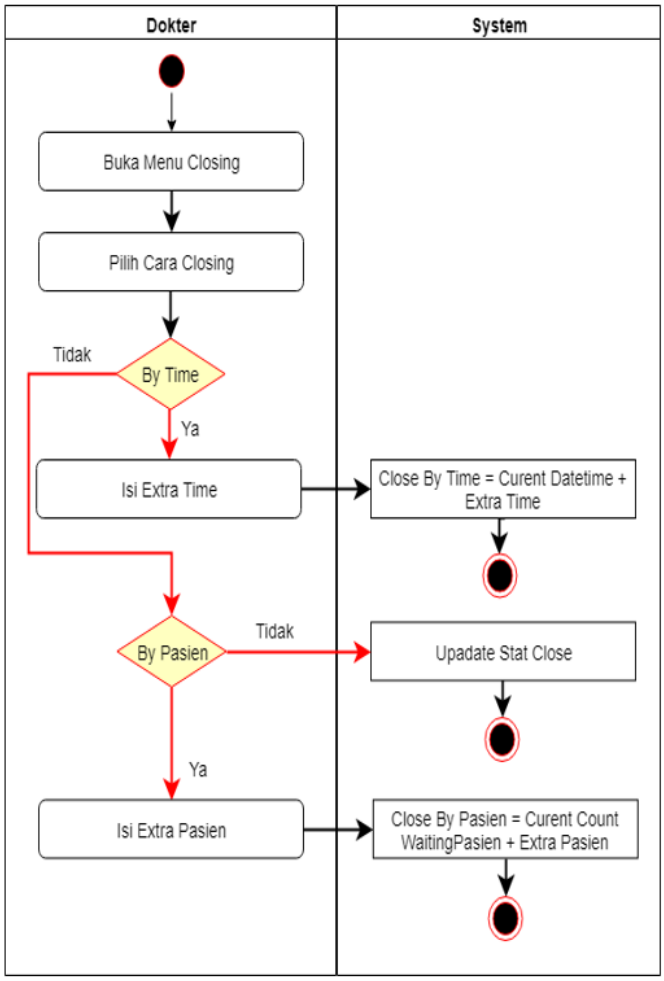

Figure 11: Flow Chart Diagram Close Queue

5. Design Database

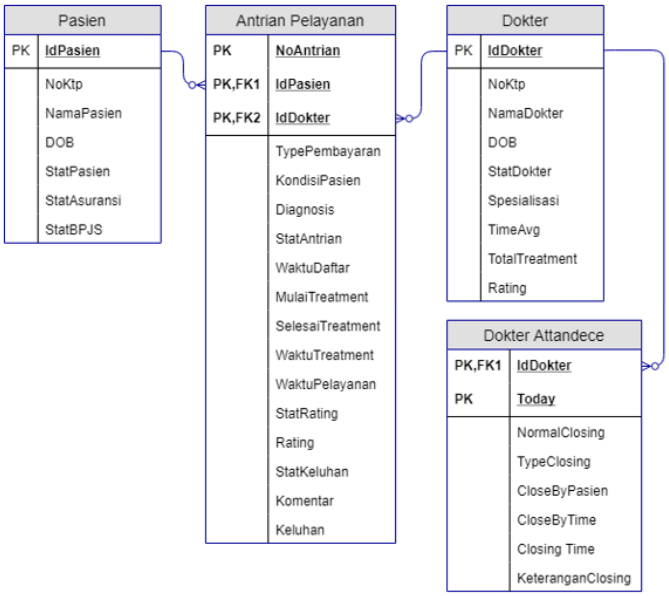

Figure 12: Database Design

5. CONCLUSION

a. Monitoring Information System Applications and Recommendations Obstetrician-Based Mobile can facilitate pregnant women do prenatal.

b. With the making of Monitoring Information System Applications and Recommendations Obstetrician-Based Mobile is expected to decrease the wait time is not effective in conducting prenatal

c. With the features of its rating on the Monitoring and Information System application Obstetricians Recommendations Based Mobile can facilitate pregnant women in choosing a gynecologist wants.

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