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Design Of Outpatient Medical Record Information System At Hermina General Hospital Serpong Using Web-Based Prototype Method

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ABSTRACT
The design of the Outpatient Medical Record Information System at Hermina Serpong General Hospital using a web-based prototype method aims to develop an effective and efficient system in managing outpatient medical records. Currently, the management of medical records at Hermina Serpong General Hospital is still done manually, which can cause difficulties in searching for patient data, potential recording errors, and suboptimal services. Therefore, a system is needed that can improve the quality of health services, speed up the administration process, and reduce the risk of data errors. The prototype method was chosen in designing this system because it allows faster and more flexible development, involving feedback from users to produce a system that suits the needs. The system is designed web-based, allowing easy and fast access to information through devices connected to the internet, thus increasing ease of use and accelerating the flow of information. The result of this study is an outpatient medical record information system that can manage patient data, examination history, diagnosis, treatment, and visit schedules, which can be accessed by medical personnel, administration, and other related parties. With this system, it is expected to improve data accuracy, time efficiency, and the quality of medical services for patients at Hermina Serpong General Hospital.
Keywords: Medical Record Information System, Outpatient, Hermina Serpong General Hospital, Prototype Method, Web-based.

INTRODUCTION
In today's digital era, the development of information technology has had a significant impact on various sectors, including the health sector. Hospitals as health service institutions are expected to be able to provide fast, accurate, and quality services to patients. One very important aspect in improving the quality of service is the management of patient medical records. Medical records are very important information in documenting a patient's medical history, diagnosis, treatment, and care. Therefore, an efficient and well-organized medical record information system is needed to support the smooth running of the health service process.

At Hermina Serpong General Hospital, the management of medical records for outpatients is still done manually, such as recording patient data in paper or book form. This process has several shortcomings, including difficulty in searching for patient medical records, potential recording errors, and irregularities in archiving. This can potentially cause discomfort for patients and reduce the quality of medical services.

To overcome these problems, a medical record information system is needed that can manage and store patient data in a structured manner and is easily accessible by medical personnel and hospital administration. With the rapid development of technology, the implementation of a web-based system can be the right solution, because it allows real-time data access through various devices connected to the internet. The use of a web-based system can also facilitate communication between hospital departments and increase transparency and efficiency of services.

In its development, the method used is the Prototype method. This method was chosen because it allows iterative system development, involving feedback from users to produce a system that suits user needs. With the prototype approach, users can provide input that is directly applied in system development, so that it is expected to produce a system that is more in accordance with user needs and desires.

Therefore, this study aims to design and develop a web-based outpatient medical record information system at Hermina Serpong General Hospital using the Prototype method. The resulting system is expected to improve medical record management, minimize administrative errors, and improve the quality of health services for outpatients.

RESEARCH METHODOLOGY

This research is a descriptive research, which describes the development processes determined by the researcher. So the stages of the methodology carried out in carrying out this research are as follows:



Figure 2.1 Flowchart of Design Process Study.

The following is a description of the main steps that can be depicted in a Flowchart:

System Requirements Identification

Analyze and identify functional and non-functional system requirements.

Collecting data from users (doctors, nurses, administration, patients).

Initial Prototype Design

Designing the appearance and workflow of the system.

Create an initial prototype that includes key features, such as patient registration, medical record keeping, and visit schedule management.

Testing and Feedback Collection

Presenting the prototype to users and getting feedback on the usability and features of the system.

Identify problems or features that need to be added or fixed.

Prototype Refining

Adjust and refine the prototype based on user feedback.

Improve the appearance, functionality and user interface to better suit your needs.

System Testing

Conduct a test run of the refinished system to ensure that its functionality is working properly.

Testing the system in real-world scenarios to see how smoothly it operates.

Finalization and Implementation

Compile system documentation.

Implementing the system in a hospital environment, training users, and preparing for ongoing maintenance.

RESULTS AND DISCUSSION

3.1 Database Design

Database design aims to obtain an efficient database, in the use of storage space, fast in accessing and easy in manipulating data and free from data redundancy. Database design is also done so that a system can be directed and appropriate and right on target.

Entity Relationship Diagram (ERD)

The following is an Entity Relationship Diagram (ERD) design created based on the results of the previous analysis.

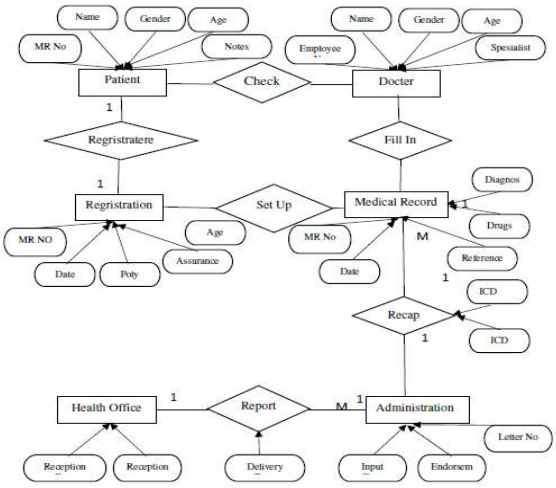
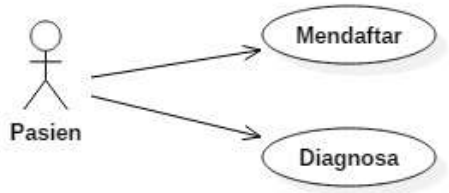


Figure 3.1 Entity Relationship Diagram (ERD)

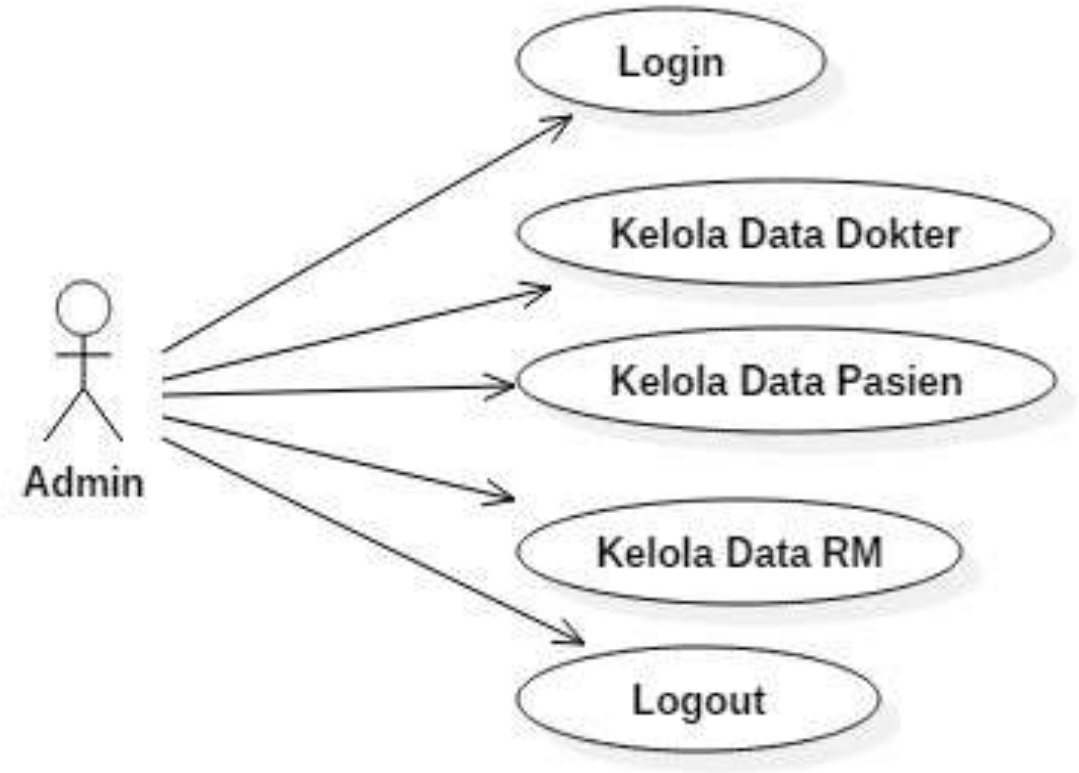
3.1 Use Case Diagram

Use Case Diagram is a description of a set of sequential actions displayed by the system and shown from the value to a specific actor. Use case diagram can also describe the type of interaction between the system user and the system.
In this medical record information system, the actors stated in the Use Case Diagram are patients, admins, and doctors.

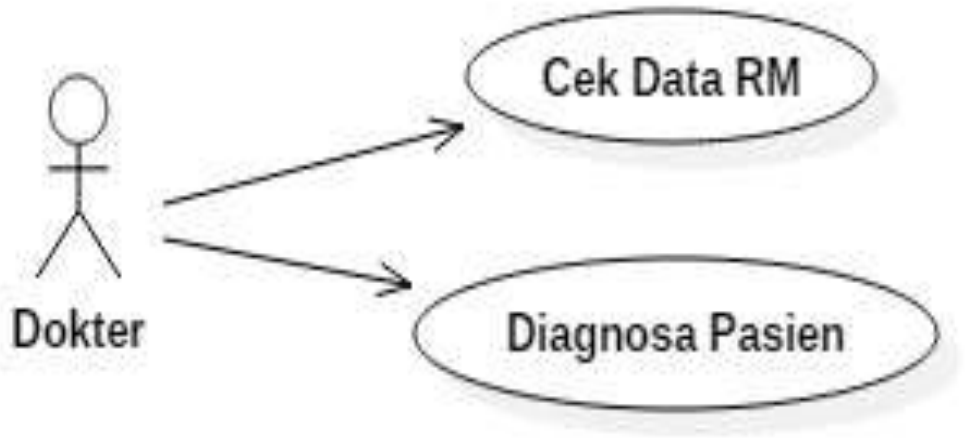
a. Patient Use Case Diagram



b. Use Case Diagram Admin

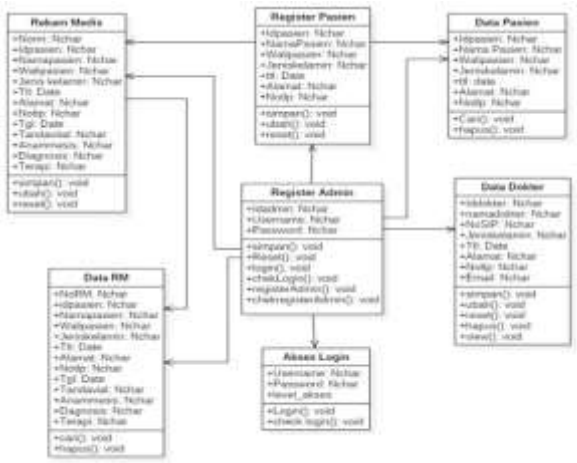


c.Doctor Use Case Diagram



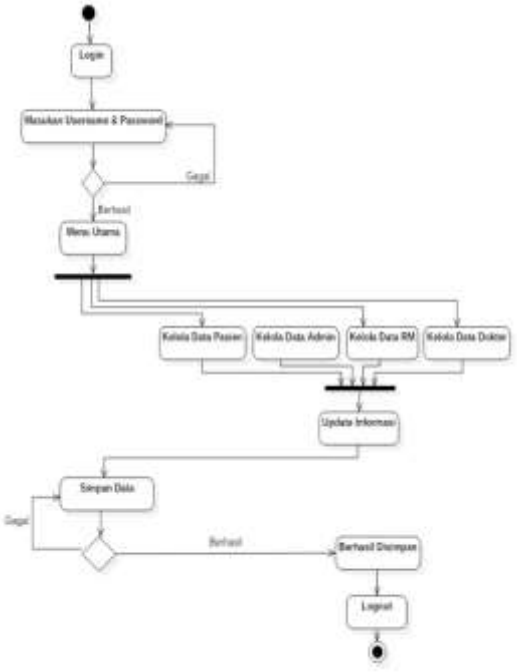
3.2 Class Diagram

Class diagrams describe the static structure of a system by showing object classes and the relationships between classes. Class diagrams are the backbone of object-oriented methods.



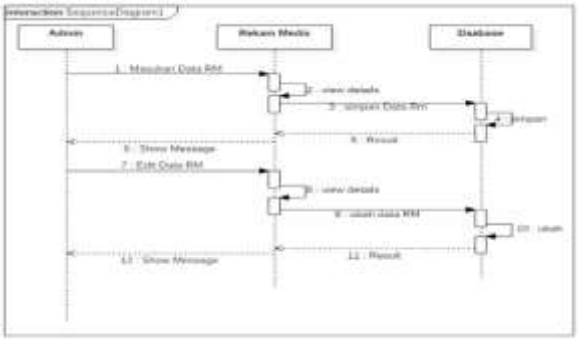
3.3 Activity Diagram

Activity diagram is a development of Use Case which has an activity flow. The flow or activity can be a sequence of menus or business processes contained in the system. In the book Software Engineering by Rosa AS, it says, "Activity diagrams do not explain actor behavior.



3.4 Medical Record Sequence Diagram

Sequence diagram or sequence diagram is a diagram used to explain and display the interaction between objects in a system in detail. In addition, the sequence diagram will also display the messages or commands sent, along with the time of their execution. Objects related to the running of the operation process are usually sorted from left to right.



CONCLUSION

The design of the Outpatient Medical Record Information System at Hermina Serpong General Hospital using a web-based prototype method has succeeded in creating an efficient solution in managing outpatient medical records. Through the use of the prototype method, system development can be carried out iteratively by involving feedback from users, resulting in a system that is more in line with the needs and expectations of the hospital. The web-based system developed allows fast and easy access to patient medical record data by medical staff and hospital administration, thereby increasing time efficiency and data accuracy. With this system, the process of patient registration, recording medical history, and scheduling visits can be done in a

more structured manner, minimizing recording errors, and accelerating the flow of information.

The main benefits obtained through this system are improving the quality of health services, because medical personnel can access patient information more quickly and accurately, as well as increasing transparency and coordination between hospital departments. In addition, this system also supports data management that is safer, more organized, and more easily accessible in the long term.

Overall, the implementation of a web-based medical record information system with the prototype method provides a positive contribution to improving outpatient medical record management at Hermina Serpong General Hospital, as well as being the basis for further system development in the future.

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