



ANALYSIS AND DESIGN OUTPATIENT ADMINISTRATION INFORMATION SYSTEM WITH OBJECT ORIENTED METHODOLOGY

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ABSTRACT

Nowadays, the development of technology is rapidly increasing, including the health sector. The hospital is one of the health services to the community by providing medical services. Outpatient activities have been lacking, it cause still manually implemented. Therefore, errors often occur in carrying out data processing, so that in its implementation takes a long time. To deal this problems, a computerized information system is needed. Methods in analyzing and designing system is Object Oriented Analysis with Unified Modelling Language (UML).

KEYWORDS: Outpatient, Administration, Information System, Object Oriented Methodology, Unified Modelling Language

1. INTRODUCTION

Nowadays, the development of technology is rapidly increasing, including the health sector. This challenge and necessity for any organization to be able to provide administration services quickly, accurately, and up to date information to the public. Computerization in the administration and patient care is one alternative to solve the problems. This outpatient activity for the shortage because it still manually implemented and no computerized system. Therefore, the author takes the title "Analysis and Design Outpatient Administration Information System with Object Oriented Methodology" limitation of issues to be discussed regarding of analysis and design outpatient administration Information System is the process of patient registration, patient examination process, the process of making a statement, payment processing, and reporting process.

2. PLATFORM THEORY

Unified Modeling Language (UML)

According to Dennis, the Unified Modeling Language (UML) is a standard language for the visualization, specification, construction and documentation of the artifacts of a software, and can be used for all steps in the system development process from analysis, design to implementation [1].

UML Provides a standard notation and diagrams that can be used as a communication tool for developers in the process of system analysis and system design. Diagrams in UML is defined as information in various forms that are used or generated in the process of software development.

Based on the perspective in the process of object-oriented analysis and design with UML, there are Several major UML diagram that can be used items, namely:

1. Use Case Diagram:

Describe the functionality expected of a system and describe the workflow [2].

2. Activity Diagram:

An analysis of used models describes a process or activity.[3]

3. Sequence Diagram:

describe the objects that exist in the use case and the message that run in a use case.[4]

4. Class Diagram:

describe a number of classes and the relationships between the classes in the system.[5]

3. PREVIOUS OR RELATED RESEARCH

In system information major, we found various kinds of journal that related to our current works. We can see it briefly in this following sentences:

1. The research that conducted by Anita Diana and Ganjar Tri Nugroho proposed ANALYSIS AND DESIGN OF ADMINISTRATION INFORMATION SYSTEM PATHWAYS ON CLINICS WITH OBJECT METHODOLOGY ORIENTED CASE STUDY: MAHARANI CLINIC TANGERANG. The application of this object oriented method is expected to facilitate the development of the designed system. [6].
2. The research that conducted by Yohannes Yahya W, TW Wisjhnuadji, and Septi Triswati was about OUTPATIENT ADMINISTRATION INFORMATION

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HOW TO CITE THIS ARTICLE:

Yunita Sartika Sari
(2018). Analysis and
Design Outpatient
Administration
Information System
with Object Oriented
Methodology
, International
Educational Journal
of Science and
Engineering (IEJSE),
Vol: 1, Issue: 4, 01-05

SYSTEM IN MULIA ASIH TANGERANG CLINIC. This research The results achieved are able to assist in the processing of data to produce more accurate information and improve the efficiency of time that will be produced at any time when needed , no longer needed the storage of documents , because documents have been stored in the database, the difficulty in making the report manually , can be facilitated and accelerated by the presence of these systems , in the design of this information , physicians can easily obtain data on the patient's medical history patient status. [7].

3. The research that conducted by Nur Aziz Achmirullah is titled ANALYSIS AND DESIGN INFORMATION SYSTEMS PATHWAY ADMINISTRATION TUGU IBU HOSPITAL. The method used in this research is literature study, observation, interviews, and analyze and design the system[8].

4. RESEARCH DESIGN AND METHODOLOGY

The methodology is a set of methods or procedures for more detailed about the stages of doing a research to solve a problem. Here are the stages in this research:

1. Understand Issues

This stage is the initiation of the study, which is looking for problems by conducting interviews with the cashier and pharmacy section.

2. Study conditions and current business processes

The next stage is to study the current conditions, as well as an ongoing process. This was conducted by author in order to understand the current condition of the beginning to the end of the process so that the entire picture will be a running system. This activity is carried out by interviewing the stakeholders and document analysis.

3. Needs analyze data and information on current and upcoming.

The next stage is to get the user needs and user requirements for the system to be

4. Designing System Proposed

Based on the previous stages, the researchers will try to design a system to address the needs of the issues faced by the organization. Features that will exist, the conceptual design of a database, to design the GUI is done at this stage.

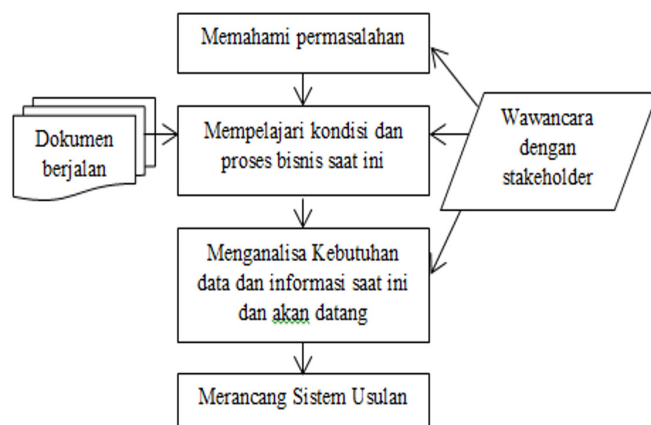


Figure 1: Research Methodology

5. RESULT AND DISCUSSION

Use Case Diagram

a. Use Case Diagram Master File

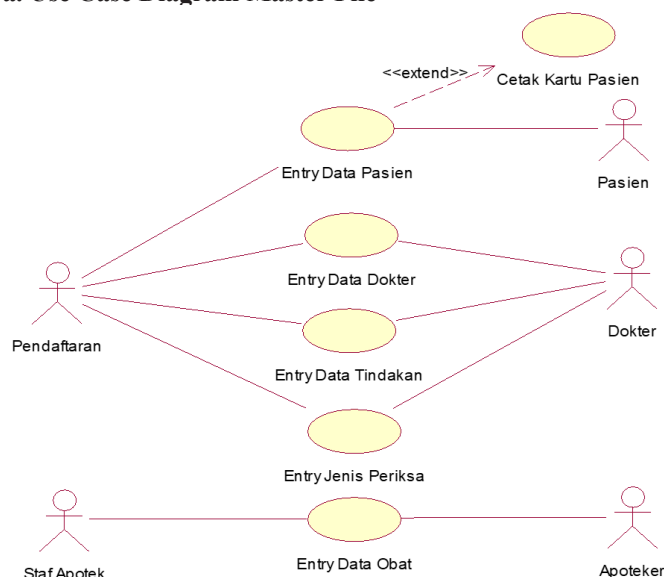
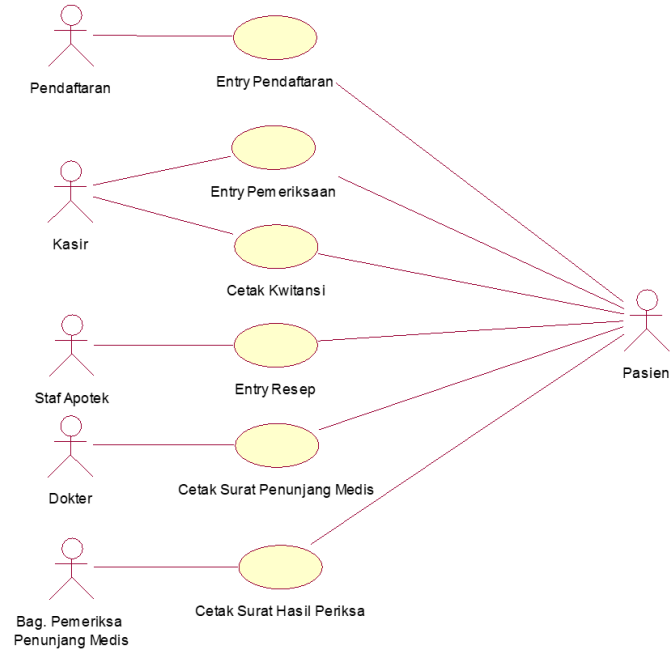
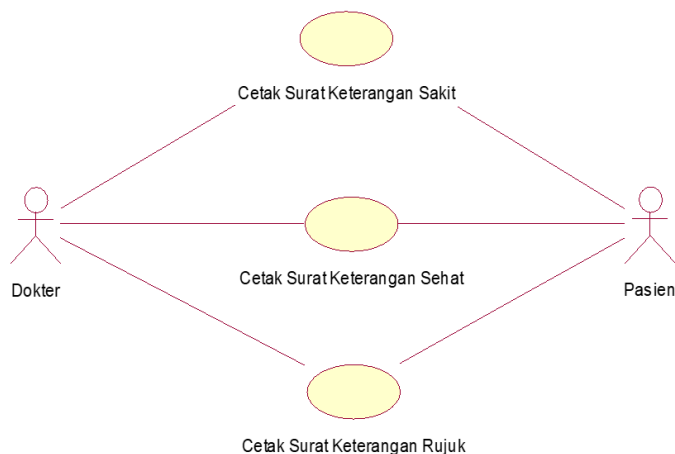
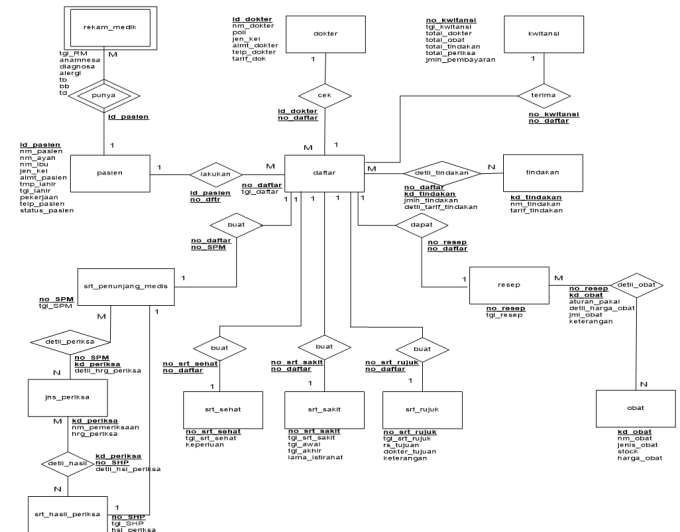
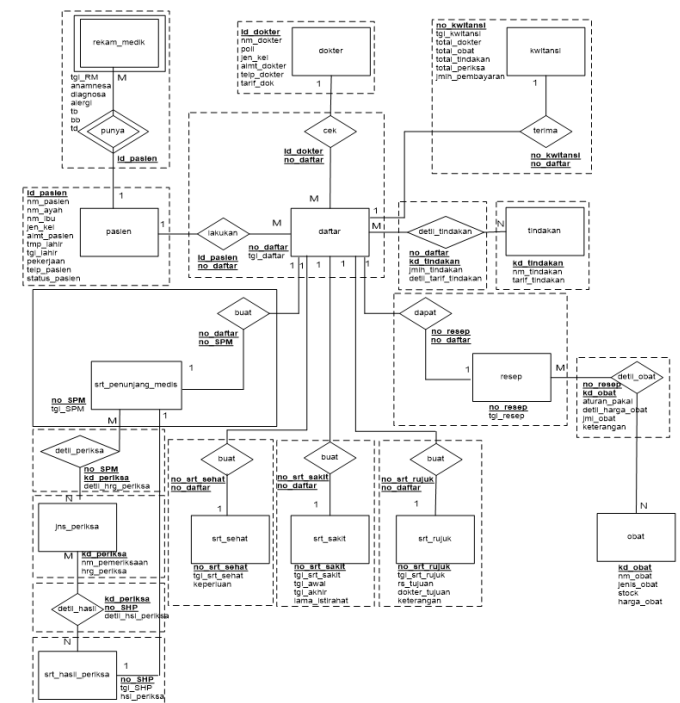


Figure 2: Use Case Diagram Master File

b. Use Case Diagram Transactions**Figure 3: Use Case Diagram Transactions****Figure 4: Use Case Diagram Medical Support Card****Figure 5: Use Case Diagram Reports****Entity-Relationship Diagram**

Entity Relationship Diagram (ERD) is a model approaches which states or describes the relationship of a model[9]. In the relationship of the main stated ER-D depiction diagram. ER-D diagram is used to show data objects (entities) and relationships that exist in the other entity. Next is the transformation of the ERD to LRS is the stage to change the ERD into LRS, things must be considered as affecting the level relationships (cardinality) is 1: 1, 1: M or M: N. After subsequent transformation is the formation of LRS. Here is a ERD obtained based on the analysis results, which can be seen in the image below:

**Figure 6: Entity-Relationship Diagram****Figure 7: Transforming ERD to LRS**

Logical Record Structure

Having already established the transformation of the ERD to LRS, the next step is the formation of d Logical Record Structure (LRS), the diagram is the basis of the establishment of the database.[10]

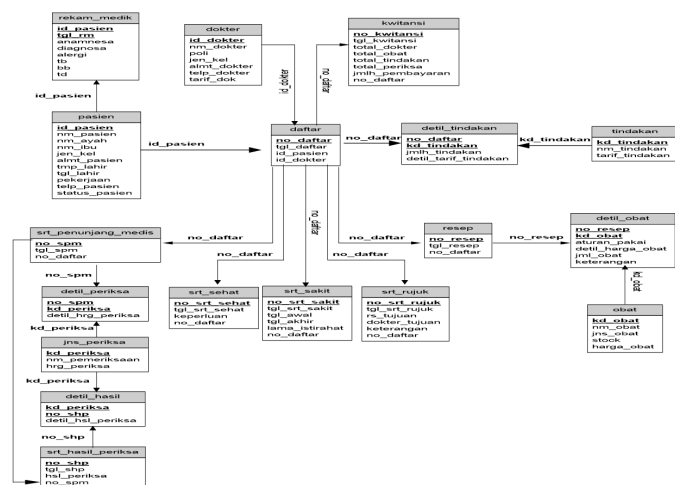


Figure 8: Logical Record Structure

Design Interface

a. The structure of the display

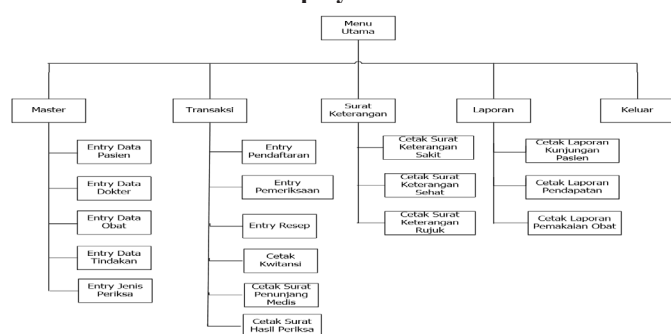


Figure 9: Display Structure

b. draft screen

Id Pasien	<Autonumber>	CARI	Tempat Lahir	X-20-X
Nama Pasien	X-30-X		Tgl Lahir	dd/MM/yyyy
Nama Ayah	X-30-X		Pekerjaan	X-50-X
Nama Ibu	X-30-X		Telp. Pasien	X-12-X
Jenis Kelamin	X-10-X		Status Pasien	X-10-X
Alamat	X-50-X			

Figure 10: Patient Data Entry Screen design

ID Dokter	<Autonumber>	CARI	Alamat	X-50-X
Nama Dokter	X-30-X			
Poli	X-20-X		Tarif Dokter	99,999,999
Jenis Kelamin	X-10-X			
Telp. Dokter	X-12-X			
<div> <div>Simpan</div> <div>Ubah</div> <div>Hapus</div> <div>Batal</div> <div>Exit</div> </div>				

Figure 11: Doctor Data Entry Screen Design

Sequence Diagram

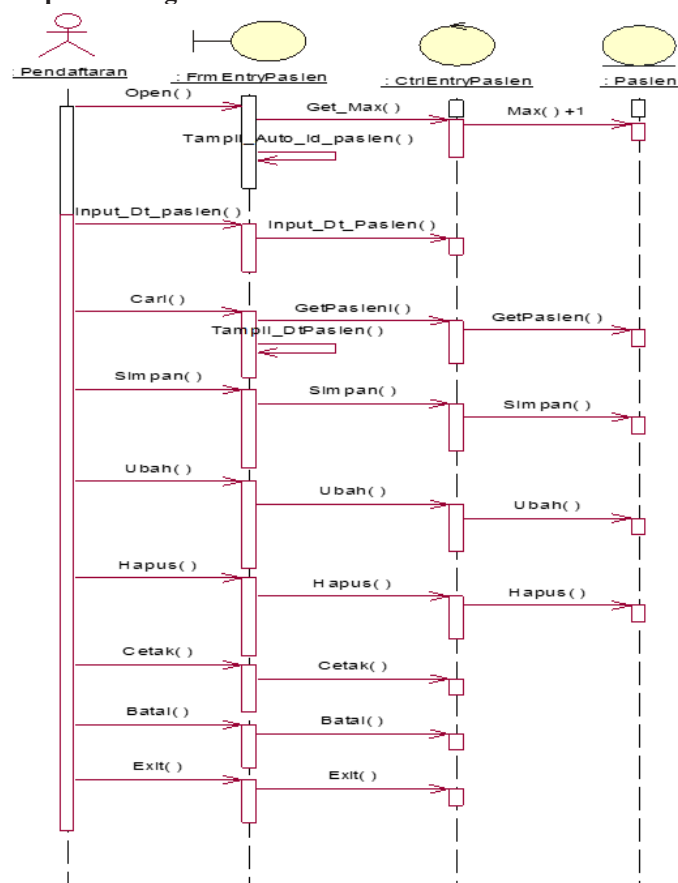


Figure 12: Patient Data Entry Sequence Diagram

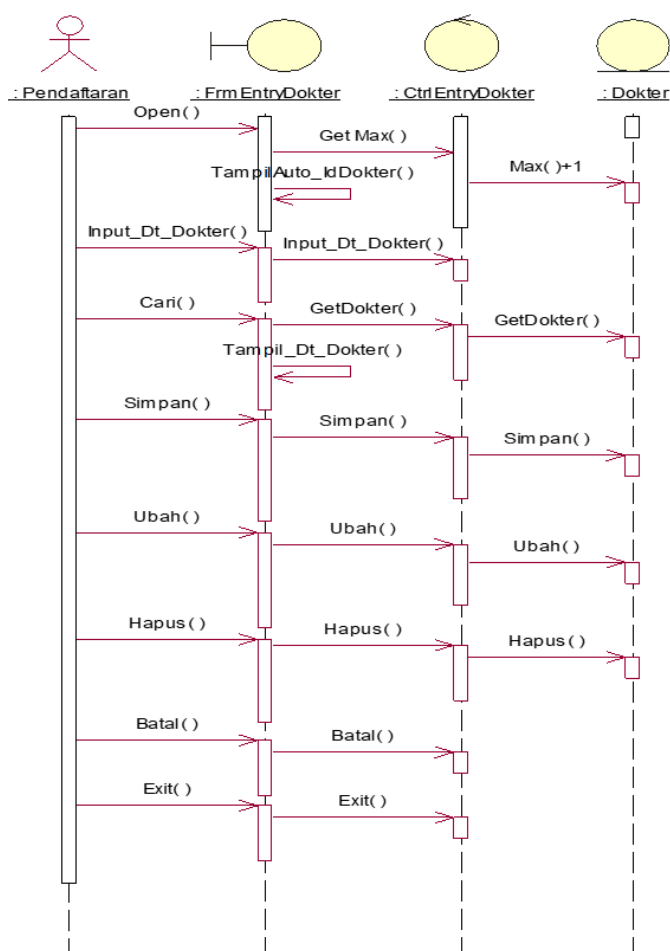


Figure 13: Sequence Diagram Physician Data Entry

6. CONCLUSION

After doing the analysis and design of outpatient administration information system, there are many things that writers get for conducting this research, things can be concluded include:

a. With the outpatient computerized system, it can speed up the process of outpatient services to patients, so that the resulting data more quickly and precisely.

b. The errors caused by human error or an accident can be reduced with the use of a computerized system, because the system performs data validation input and take over the job tally.

c. The difficulty in making the original report manually, can be facilitated and accelerated by the computerized system resulting in more accurate data.

d. Data storage on a computerized database will yield accurate information and more secure in the data storage.

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