ANALYZING AND IMPLEMENTING AN IN-HOUSE CLINIC MANAGEMENT SYSTEM FOR PT. XYZ

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Abstract—As one of the largest manufacturing company in Indonesia, PT. XYZ employs thousands of workers and staff, this has led to PT. XYZ is responsible for organizing and recording these thousands of workers and staff from PT. XYZ. Therefore, the In-House clinic of PT. XYZ must have all medical facilities requested by PT. XYZ to monitor the health of its workers. Therefore, a good management must be implemented to record and report all medical activities. This thesis will discuss the development of a Medical Management System to manage several aspects of a medical activity and follow the business needs of the PT. XYZ. Some aspects that will be regulated by this system management are: medical activity records, medical result documents, and data reports. This Management System will help PT. XYZ from the aspects already mentioned.

Keywords- Web-Based, Analyzing In-House Clinic Management, Implementing In-House Clinic Management

I. INTRODUCTION

Medical System Management is a form of administrative management to record all forms related to medical activities. Hospitals or clinics that use medical system management have the aim of finding ways to record all their activities effectively by creating digital records of all the activities they do.

The rise in equipment, medicines, activities, patient visits, and medical services is one of the reasons why hospitals and clinics are looking for a better management system. Medical Management Systems are divided into two, namely the Medical Practice Management System and the Electronic Health Record (EHR). These two management systems are in the form of digital records and reports that involve the entire hospital or clinic business process to achieve better medical records. The Medical Management System records all activities including recording patient visitations and complaints, recording medical treatments and diagnoses, and also recording the use of drugs and other medical equipment.

The scope of this thesis is:
1. Develop a management system for the PT. XYZ follows existing business needs.
2. The users of this system are the parties directly involved in the clinical process

The limitations of this thesis are:
3. Members or patients cannot access this management system.

II. THESIS METHODOLOGY

RAD or Rapid Application Development, is a software development method used to develop a system in a short time, and the RAD method focuses more on creating prototype software and minimizing planning.

The methodology used in the preparation of this thesis is the RAD methodology. This methodology was chosen because it is the best methodology to develop software that only has a short time like this thesis.
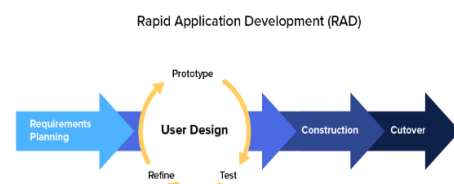

Figure 1. RAD Methodology Illustration

From the explanation above about RAD, the RAD Model is in accordance with the needs of students to complete this thesis because the time given is limited. Projects using RAD appear to be relatively small in scale and of short duration spanning two to six months. The RAD model focuses more on prototyping rather than planning, so as to maximize the short time that has been given to complete the thesis development.

III. LITERATURE REVIEW

This section focuses on the theoretical basis to explain the concepts and objectives related to those used in the development of this thesis. Based on the regulation of the Minister of Health No. 269 Year 2008 about Medical Record, in chapter 1 elaborate the contents of Medical Record and how Electronic Medical Record must be aligned with conventional Medical Record standards and Constitution of electronic information and transaction (UU ITE). In article 2 about the types and content of Medical Record, states that Medical Record must be written completely and clearly or electronically, and administration of Electronic Medical Record will be regulated with other law (Until now the regulation of Electronic Medical Record still not yet passed). In article 3 is mainly focused on the types and contents of the Medical Records, and there are 6 types of Medical Record :

1. Outpatient Medical Record
2. Inpatient Medical Record
3. Emergency Room Patient Medical Record
4. Patient is in a stat of disaster Medical Record
5. Medical Specialist or Dentist Medical Record
6. Medical Services provided in an amnulance or mass treatment medical record.

Because until now there has been no law regulating electronic medical records, many health institutions are implementing electronic medical records using the UU ITE Law as a legal basis..

1. Article 5 paragraph 1: Electronic information and / or electronic documents and / or printouts thereof are valid legal evidence.
2. Article 5 parahraph 4 : Provisions regarding electronic information and / or electronic documents as referred to in paragraph 1 do not apply to:
   a. A letter which according to the law must be in handwriting, and
   b. A letter and its documents which according to the law must be made in the form of a notary deed or a deed prepared by the deed-making officials.

Article 6 : In the event that there are provisions other than those stipulated in Article 5 paragraph (4) which require that an information must be in written or original form, Electronic Information and / or Electronic Documents are considered valid as long as the information contained therein can be accessed, displayed, guaranteed its integrity, and can be accounted for so as to explain a situation.

1. Article 11 : 11 mainly stated that Electronic Signature have legal force and legal consequences.
2. Article 12 : regulated the Electronic Signature that every individual that is involved in Electronic Signature obliged to provide security on the Electronic Signature that is used.

Based on the Standard Operation Procedure in PT. XYZ In-House Clinic, all of the medical activities must be recorded in a status paper and stored in a status book. Status book and status paper in PT. XYZ In-House Clinic has the same purpose as a Medical Record.

Following the format of the PT. XYZ In-House Clinic status paper, the status paper must contain :

1. Employee's Identity
   a. Employee ID
   b. Employee Name
   c. Employee Department
2. Detail penyakit :
   a. Disease ID
   b. Disease ID
3. Date and Time
4. Registration and Medical Treatment Location
5. Doctor's Identity :
   a. Doctor ID
   b. Doctor's Name

IV. RESULT AND DISCUSSION

This section will explain the system development process on the system and show the results of the user interface that will be created. This section will explain the system development process that has been passed and will display the results of the User Interface that will be developed.

A. System Analysis

In the system analysis section describes the functions and features of system management based on pre-made business requests to develop this management system.
   a. System Overview
   This desktop application can be accessed by application installation. This application was developed using Visual Basic as the programming language and MySQL as the database for this management system. Users of this application are Administrators and Doctors. The features contained in this application:
   For Administrator:

   a. Manage user data :
      Admin can manage the list of the user

(administrator / doctor) and can be used by the user to log in to the system.

b. Patient Registration :
Admin can register the patient for doctor visit or consolation

c. Add new member :
Admin can add PT. XYZ employees as a clinic member

d. OTC Transaction
Admin can serve a OTC medicine transaction

e. Master data management :
Admin can manage the list of Medicine, Medical Service, Diagnose, and Provider master data.

f. Monitoring & Reporting :
Admin can filter clinic activity data and export the results in excel format

g. For Doctor :
  a. Medical Treatment :
     Doctors can record the results of consultations and medical services.

  b. DC Entry :
     Doctors can print sick notice for employee's sick leave

  c. Recommendation Letter Entry :
     The doctor can print a letter of recommendation for examination to another hospital if the PT clinic. XYZ was unable to perform the inspection.

  d. Prescription Entry :
     Doctors can print prescriptions for patients.

B. Use Case Diagram

Use case diagrams serve to briefly describe who uses the system and what they can do.
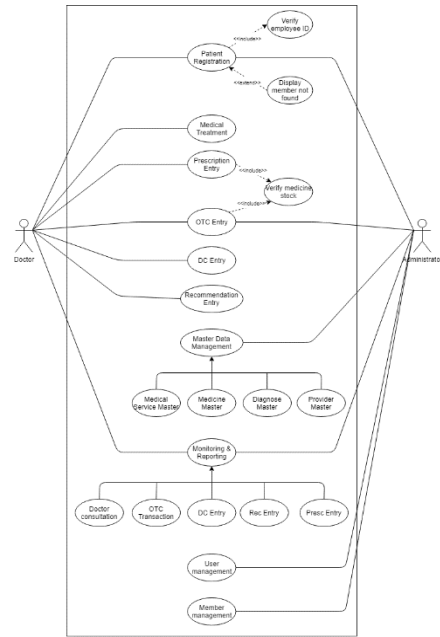
Figure 2. Use Case Diagram Picture

C. System Design

The system design aims to display the components and features to the client what the programmer has created.

a. User Interface Design
The user interface is a prototype description of what will be displayed on the system
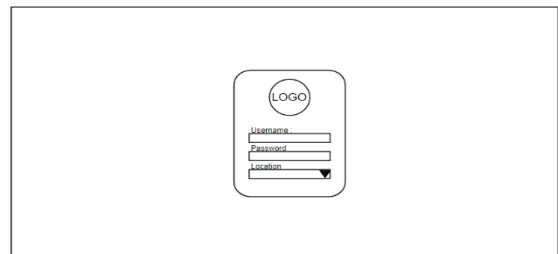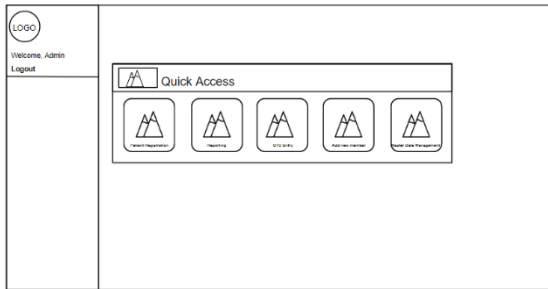

Figure 3. Login Page

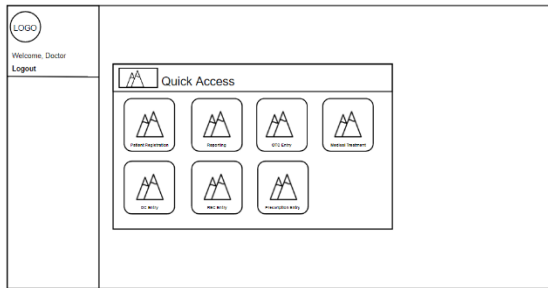Figure 4. Admin Homepage

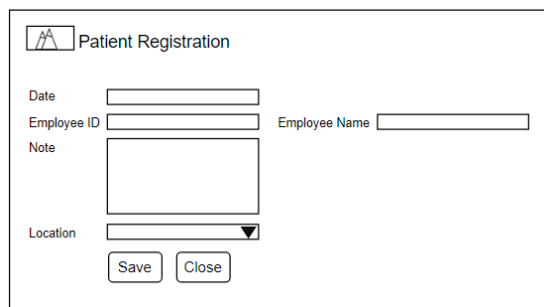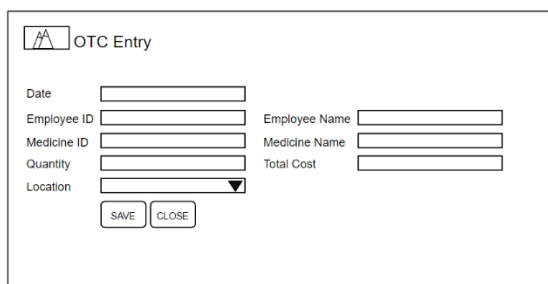Figure 5. Doctor Homepage

Figure 6. Patient Registration Page

Figure 7. OTC Transaction Page

Figure 8. Member Management Page

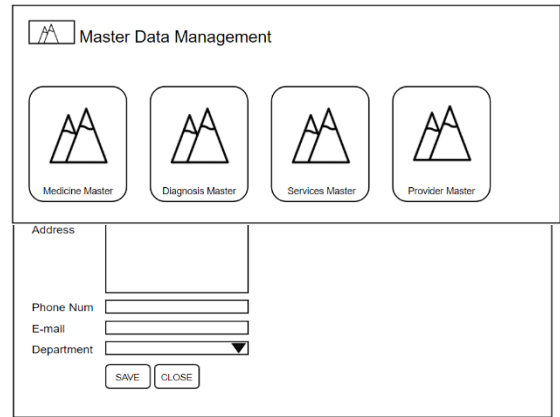Figure 9. Master Data Management Page
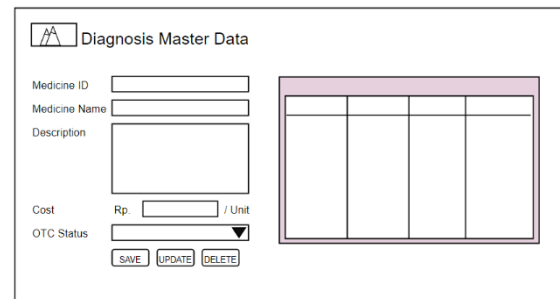

Figure 10. Diagnose Master Data Page

Figure 11. Medical Service Master Data Page

Figure 12. Provider Master Data Page

Figure 13. User Management Page

Figure 14. Prescription Entry Page

Figure 15. Medical Treatment Page

Figure 16. DC Entry Page

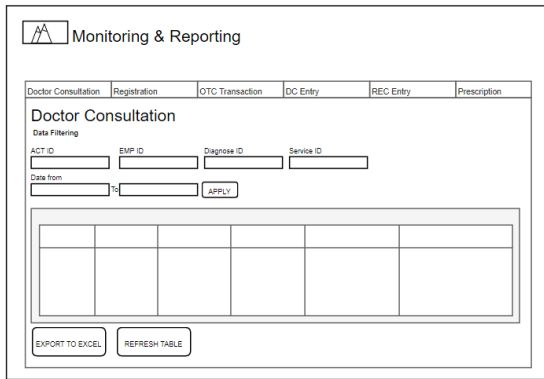Figure 17. Recommendation Letter Entry Page
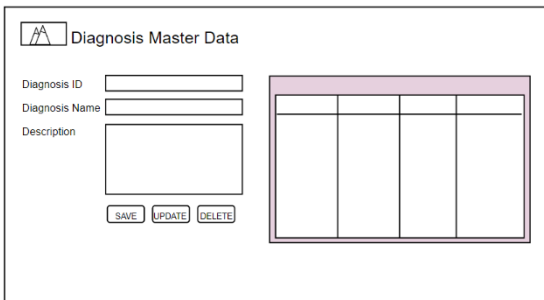
Figure 18. Monitoring Page

Figure 19. Medicine Master Data Page

b. Entity Relationship Diagram

Entity Relationship Diagram or ERD is a diagram to determine the relationship between one entity and another.
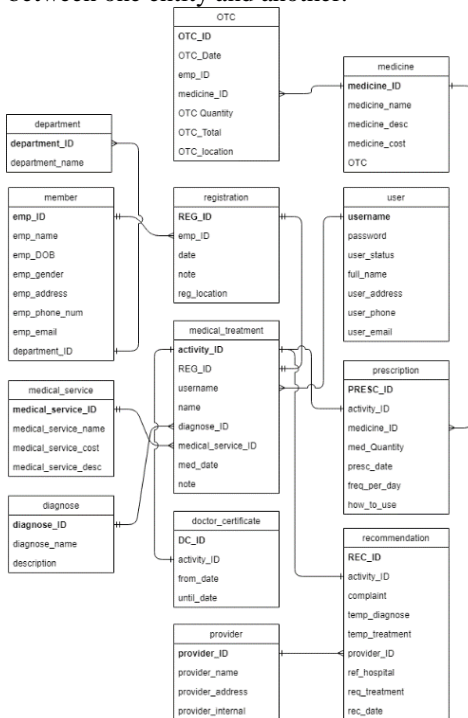

Figure 20. ERD Picture

V. EVALUATION

In the evaluation section, the finished program is tested again from start to finish and all the features in the test, to determine whether the program is running well or not.

Table 1 Evaluation

Scenario	Expected Result
Account Login	User is able to log on into home page menu
User Management	Admin can manage user data
OTC Transaction	User can create a OTC Transaction
Patient Registration	User is able to register the patient for consultation
Member Management	Admin is able to manage member data
Medical Treatment	Doctor is able to record medical treatment result
DC Entry	Doctor is able to save and print a sick leave
Recommendation Letter Entry	Doctor is able to save and print a recommendation letter
Prescription Entry	Doctor is able to save and print prescription
Master Data Management	Admin is able to manage the master data list
Reporting	User is able to filter the data and export the result in excel format

VI. CONCLUSION

This thesis was written with the aim of helping to solve the management and administrative problems at PT. XYZ. With the establishment of this medical system management, it is hoped that it can help business processes at the PT. XYZ In-House Clinic

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