COLLEGE: KCA UNIVERSITY

COURSE: Bsc. SOFTWARE DEVELOPMENT

UNIT CODE: BSD 2205

UNIT: SOFTWARE COMPUTING PROJECT

ST JOSEPH'S MISSION HOSPITAL - MIGORI

PATIENT'S RECORD MANAGEMENT SYSTEM

PROPOSAL

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STUDENT NAME: MAGIGE DEJAN ROBI

SUPERVISOR NAME: DR. SIMON MWENDIA

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CHAPTER 1

Introduction

St Joseph's mission hospital patient's record management system is a fully fledged system aimed to manage the information of all patients in the hospital and their service process. Its main goal is to streamline the flow of information across the hospital towards effective decision making for the patients in an efficient manner.

The hospital has three departments (the outpatient department, the in-patient department and the medical department). Services offered include casualty, ambulance, maternal health, day care surgeries, admission, discharges and transfers. Operation theater, wards, nursing, pharmacy, physiotherapy, eye clinic and the dental clinic. The proposed system will enhance efficiency in the delivery of the services mentioned above due to the ease at which the records will be stored and accessed.

1.1. Background

St. Joseph's Mission Hospital-Migori is a hospital dedicated to providing medical treatment for illness to migori county residents and patients outside Migori county. The hospital was founded at St. Joseph Catholic Parish, Migori Town in 1974 by Rev. Fr. Knap with the aim of improving the healthcare of Migori residents. Since then, the number of patients visiting the hospital has dramatically increased resulting in a slow delivery of services due to a lot of writing by the doctors and nurses.

1.2. Problem Statement

St. Joseph's Hospital is using a manual process to provide health services e.g. files and cards to track the records of continuing patients and setting up records for new patients in the hospital. This process has encountered various inconveniences such as files being misplaced and patients losing their health cards. Hence, an automated system will help keep track of the patient's records and their bills making it easy to determine the state of new and continuing patients.

1.3. Objectives

1.3.1 Main Objective

To implement a system that will enable St. Joseph's Mission Hospital to keep track of their patient's records.

1.3.2 Specific Objective

I.   To study the manual records currently used in St. Joseph's Mission Hospital so as to obtain the system requirements with the objective of coming up with a functional Patient's Record Management System.

II.   To design a model that will include the user requirements and the design specifications.

III.   To implement a working Patient's Record Management System for St. Joseph's Mission Hospital.

IV.   To test and validate the working Patient's Record Management System

1.3.3 System Objectives

I.   Storage and backup of patient's information

II.   Making available of the patient's information whenever needed.

III.   Provide security and confidentiality of patient's data and records.

IV.   Enable allocation of patient's to available doctors

1.4. Scope

This project will focus on implementing a system that will be used by St. Joseph's Mission Hospital to easily keep track of every patient's records.

1.5. The Importance of the Problem

The manual written process is time consuming and has a high degree of error and inconsistent layouts that keep changing to which the doctor's are not accustomed to. It has resulted in lack of enough storage to store hundreds of thousands of patient's records, lack of backups whenever physical files are damaged. With the development of the proposed system, the problems above will be solved because it will help to easily manage the patient's details.

The doctors will be able to easily follow the patient's records hence providing better prescriptions for the patients.

1.6. Beneficiaries

The developed system will be beneficial to the patient's, doctors, nurses and the management.

Patients

The system will ease the burden of carrying and safely keeping medical cards.

Doctors and Nurses

The system will help them to easily keep track of their patient's records. This will enable them to properly prescribe drugs to the patients and monitor their health.

Management

The system will help in keeping the overall operations hence improving service delivery

CHAPTER 2

Literature Review

Introduction

This chapter covers how the process in the hospital is currently carried out and the findings that were reviewed from various sources such as newspapers, online journals, magazines and the internet. It shows what other researchers had worked on, various systems used by different hospitals to automate their activities, various literature on different types of Patient's record Management Systems they operate on, their advantages, how they are managed and the value they bring to the hospitals.

2.1 Description of the Current System

Accessing patient's records at St. Joseph's Mission Hospital is done manually at all the departments which is labor intensive and time consuming. There is a problem of patient's record retrieval and loss of the records because the nurses handle a large amount of records manually. This problem should be dealt with in order to provide better services for the patients in the hospital. The patients have also lost or misplaced their health cards hence they are not able to properly continue with their initial prescriptions that were stated in the lost cards.

Therefore, an automated system will enable the hospital to easily keep the patient's records and their medical bills. The following are the reasons why the manual process should be replaced with an automated system.

The current process encounters various problems such as:

I. Loss of patient's records and files due to misplacement and various disasters e.g. fire outbreaks

II. Time consuming. The process of capturing, analyzing, verifying details about patients, scheduling their appointments takes a lot of time.

III. The process is faced by human error caused by doctors in their prescription.

IV. Expensive. High administrative costs are encountered e.g. high stationary costs, printing patient's cards and large storage spaces required for the large amount of data.

St. Joseph's Mission Hospital should be able to easily keep track of the patient's records. Hence, the system will provide a mechanism for the doctors to easily retrieve the prescriptions made earlier thus avoiding making wrong prescriptions. The project will develop a Patient's Record Management System that will help St. Joseph's Mission Hospital to keep track of their patient's records.

2.2. St. Joseph's Mission Hospital Patients Record Management System

This is a system that will help keep track of all patient's records and enables easy access and retrieval of each patient's information.

2.2.1 The need for a Patients Record Management System

According to Encarta Dictionaries, a need is a pressing requirement of something in order to achieve a certain goal(Encarta Dictionaries, 2008). St. Joseph's Mission Hospital needs the proposed system in order to improve its service process. The system will enable the hospital to efficiently keep, track and retrieve the patient's records.

2.2.2 Features of a Patient Record Management System

According to Warken, a system that has different variety of features will make it suitable to the users in an organization (Warken A, 2009).

These features include:

i.   **Easy Usability**

   This is the degree to which a given system assists the person using it to accomplish a specific task.

ii. Reliability

This is a measure of stability of a system

iii. Programming Logic

This consists of one server program, scripts used to validate data, perform calculations and navigate the users through the system. (Introduction to Programming Logic, 2009)

iv. Database

This is a shared collection of logically related data with their description designed to meet the needs of an organization.(Connolly & Begg, 2004). The database may consist of database tables or a set of flat files.

v. Secure user-login and management interface

The system should ensure the integrity and security of the information captured by implementing restricted logins and rights to particular entities given according to St. Joseph's Mission Hospital

2.2 Related Systems (Existing Systems)

2.2.1 Chronic Patient's Management System

This is a system developed to manage Chronic Diseases.

This system consists of two main elements:

a) **A virtual cooperative working space** to help coordinate and place all professionals of the multidisciplinary care team at different hospitals. All of them having a common target centered on the patient with a predefined plan and making use of various tools to optimize all the available resources.

b) **A multi-access system** to enable professionals and patients access to the services available and adapted to their needs

2.2.2 Patient's Management Software

This is a software used to acquire Medical Information from a medical device and used for the diagnosis of a patient. This software directly contributes to the treatment of a patient by performing analysis and the diagnosis functionality replacing the decisions and judgement of a physician.

This system is implemented on a server where multiple accesses can be done or runs on a desktop. It implements the use of QR codes to confirm payments and records patient's diagnosis results.

2.3. Types of Record Management Systems

	Patients Record Management System	Document Management System	Library Management System	Digital Imaging System
Effectiveness	☑			☑
Compliance	☑	☑	☑	
Completeness	☑			☑

Accuracy	☑		☑	
Accessibility	☑	☑		☑
Comprehensiveness	☑			☑
Security	☑	☑	☑	
Speed	☑	☑		☑
Authenticity	☑			☑

Different record management systems were reviewed and Patients Records Management System was adopted.

2.4 Conclusion

The proposed system will keep track of all patients, the hospital's information, enable doctors and nurses to easily access patient's records hence simplifying the management of patient's information.

The manual system will be replaced by the new system which is more efficient, saves time and works under all conditions.

Chapter 3

Methodology

3.1 Overview

This chapter focuses on different methodologies for the research project and the system design methods to be used. The main goal is to implement a project that will be used by St. Joseph's Mission Hospital to organize and keep track of the patient's Records.

A literature review of the existing systems with the same functionalities is performed in the first section with the aim of obtaining the shortcomings of the current system.

In the second section, system requirements are addressed followed by the design techniques then the techniques used to implement a Patients Record Management System and lastly the testing and validation section.

3.2. Literature Review

Review existing literature and the current system will be achieved through observation, conducting interviews, examining documents, conducting research and questionnaires. Examining documents is preferred for verification of facts collected and the information about the existing system.

3.3. Requirements Determination

3.3.1 System Study

The objective of system study is to obtain the requirements for designing St. Joseph's Patient's Record Management System. A system analysis and study for St. Joseph's Mission Hospital will carried out.

3.3.2 Observations

An observation on how doctors and nurses do prescriptions for patients daily will be done to examine the process that takes place in order to execute various activities. Researchers will interact with the current system and give a detailed report.

Reasons for using the observation method are as follows:

a. To collect different types of onsite data over a given period of time

b. To obtain a source of questions that can be addressed to St. Joseph's Mission Hospital's management.

c. To get a feel on how different things are prioritized and organized throughout the entire process.

3.3.3. Interviews

This is a conversation between two or more people whereby questions are asked by the interviewer in order to obtain information from the interviewee. (Free dictionary, et al, 2021). Interviews will be carried out on various groups e.g. St. Joseph's Mission Hospital's Staff.

Interviews are used because:

- They enable the interviewer to document the personalities the St. Joseph's Mission Hospital's management and staff.

- They will help expand the understanding of hospital operations hence aid in the collection of system requirements.

3.3.4 Questionnaires

This are forms containing a set of questions addressed to a number of subjects in order to gather information for a survey. (Free dictionary, 2021). Questionnaires will help in capturing data from individuals in the shortest time possible. They will help confirm the data collected using observation and interviews.

The following are advantages of the questionnaires methods:

- They are familiar to most people because nearly every person has had some experience completing questionnaires.
- They reduce bias because the researcher's opinion will not influence the respondent to answer questions in a certain manner thus offers great anonymity.
- They are easy to analyze once completed.

3.4 System Design

The objective of System analysis and Design of the proposed system will be achieved by designing a database using physical, conceptual and logical design of the database.
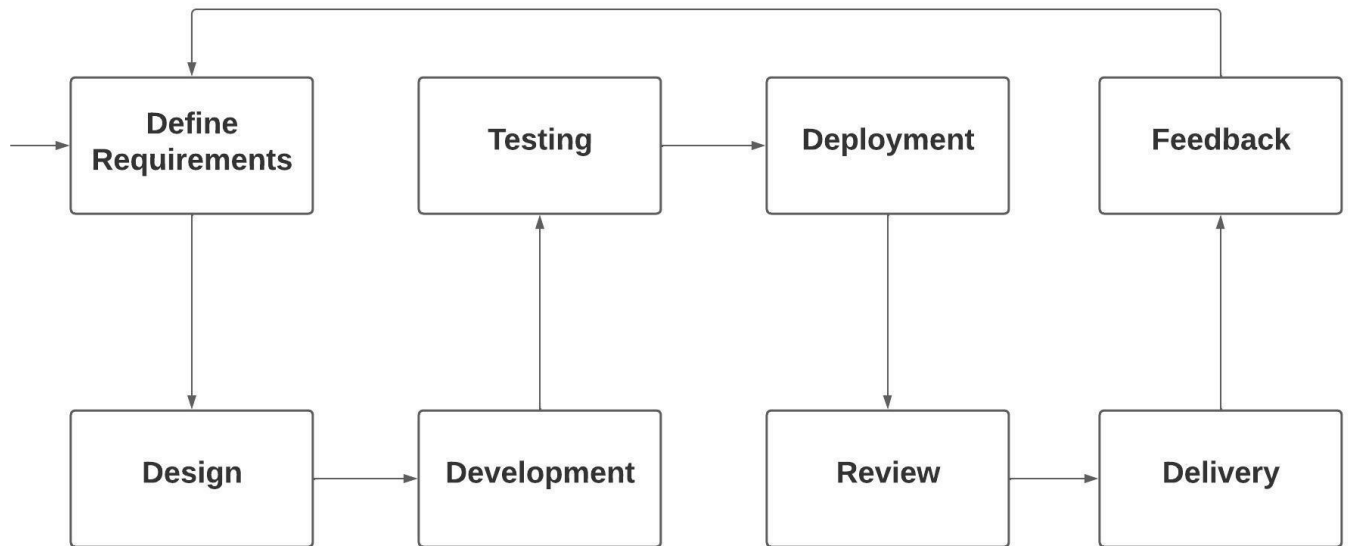
Data collected will be analyzed and integrated using an Entity Relationship Diagram and an Enhanced Entity Relationship Diagram.

Tools such as Microsoft Visual studio will be used in the development. Microsoft Project Professional will be used to present time schedules for task dissemination, ordering and the development procedures.

3.5. Software Implementation

Software Implementation will be achieved by the use of Agile Architecture

Agile Development Methodology

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        ┌──────────────┐    ┌──────────┐    ┌──────────────┐    ┌──────────┐
    →   │   Define     │    │ Testing  │  → │ Deployment   │    │ Feedback │
        │ Requirements │    │          │    │              │    │          │
        └──────────────┘    └──────────┘    └──────────────┘    └──────────┘
        ┌──────────────┐    ┌──────────┐    ┌──────────────┐    ┌──────────┐
        │   Design     │  → │Development│   │   Review     │  → │ Delivery │
        └──────────────┘    └──────────┘    └──────────────┘    └──────────┘
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The system will be developed using Visual Basic.Net and MySQL

i.   Visual Basic .Net

I chose Visual Basic.Net because it enables quick development of an application, creation of the

client's interface, its very flexible and convenient. It also has advantages that falls under Object

Oriented Programming Languages. Features of the objects in the program can be added

independently without the need of reorganizing the system.

ii. Database

The system will have a database on which the entire application will be based on. MySQL will be used as a database to store all the patient's information.

iii. User Interface

The user interface will provide the means by which the user will interact with the system. The interface will connect with the database. The Interface will be developed using Visual Basic.Net

3.6 Testing and Validation

Testing and validation of the system will be done via integration testing. The modules of the application will be grouped together and tested as a whole in order to test the functionality of the user interface and the database.

Test data will be filled in the required fields and check if the system realizes the expected output upon execution. This will help in recognizing whether the functionality of the system has been achieved and check for any errors.

Validation of the system will be done by deploying the system on various computers and actual users should be able to interact with the system and provide an actual feedback.

4. Project Schedule

This is an estimate of the duration of each task in hours. A work breakdown schedule will be

formulated and a task schedule prepared.

Task No.	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	No Of Hrs
Proposal	25/09/2021	30/09/2021	3/10/2021	_	12
Srs	4/10/2021	_	6/10/2021	_	24
Design	7/10/2021	_	14/10/2021	_	42
Test Plan	15/10/2021	_	19/10/2021	_	24
Implementation Plan	20/10/2021	_	14/11/2021	_	84
Maintenance Plan	14/11/2021	_	15/11/2021	_	6
User Manual	16/11/2021	_	17/11/2021	_	6
Final Report	17/11/2021	_	18/11/2021	_	7

5. Budget Estimates

Item	Quantity	Amount
Stationary	–	400
Word Processing and Printing	–	300
Photocopying	–	200
Data Analysis	–	200
Binding Books 4	100 @	400
Grand Total		**1500**

References

1. The free dictionary,(2021)

2. Introduction to Programming Logic , (2020).

3. Microsoft student with Encarta premium Dictionaries of current English, (2021)

4. Michael J. Hernandez(2021). *Database Designs for Mere Mortals*