

ANDROID APPLICATION FOR MONITORING MEDICAL RECORD. A CASE STUDY OF FINE PHARMACY**WAKISO****Ategeka Benard¹, Kyomuhendo Charlotte²****1, 2 Metropolitan International University****Abstract**

The study aimed at android application for monitoring medical record with a case study of fine pharmacy wakiso and it was guided by the following objectives; To analyze the importance of records monitoring practice to Fine Pharmacy Wakiso, to analyze the state of records monitoring practice at Fine Pharmacy Wakiso, to determine how record monitoring affects the quality of health service delivery at the

Fine Pharmacy Wakiso and to design an android electronic records management system. The study employed qualitative approach and descriptive methods to describe the characteristics of the research variables. It was qualitative in that opinions of the people were required and the researcher contextualized them according to his/her understanding. Quantitative data included annual company reports. The existing system is studied to establish its weak and strong points. The system was designed on Microsoft widow platform using SQLite for database design and java language that accepts running on virtual device. Once the application is installed, any authenticated user can access it from any work station by clicking on its icon on the interface of his android screen. The system was composed of two sections, the database and the graphic user interface as is architecture with input-output modules containing the user interface, the medical records system needed to be efficient in retrieving relevant data for medical record monitoring. The purpose of the design phase was to plan the solution of the problem specified by the requirements document. This phase was the first step in moving from the problem domain to the solution domain.in other words, starting with what was needed; design took us towards satisfying the needs. The design of a system was the most critical factor affecting the quality of the software. It has impact on the late phases as well as testing and maintenance of the software. The system should be well maintained and protected from unauthorized users.

Key words: android, application, monitoring and medical record**Background of the study**

The practice of tracking records has always been a core asset of an organization (Wegulo et al., 2023). In its absence, a modern organization basically cannot function very efficiently and effectively. Increasingly, the practice of records management is considered a critical business practice that makes it easier for organizations to establish and verify their business dealings and related actions. Each institution is captured in its record-making processes (Christopher et al., 2022). Therefore, the practice of monitoring records is one of the by-products of institutional processes. Organizations, together with a commonly known organizational, past and present purpose, keep records to

realize the legal needs of their operations and protect the rights of stakeholders.

All countries have records laws that establish a call for effective records management, provide authority to dispose of records, and establish a structure for state records management. While not all records are uniformly necessary, they are all records that must be authentically maintained in accordance with state law. The primary task of records management is to help workers manage records very well. This includes helping staff to be aware of how to systematize materials so they can be found by those who

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need them, not just staff, and to identify which records are relevant and useful to use. Poor record monitoring has created serious obstacles in many aspects of the public and private sectors. This adversely affected prompt payment and service practices, restoration of government functions and organizational structures, strengthening of financial management and national legal and regulatory structures. In the absence of a habit of monitoring, managing and evaluating records, quality control and authentication, there cannot be a flawless record that offers the basis for all these aspects that also stimulate the rule of law and accountability. Proper storage of a patient's medical records facilitates

effortless retrieval and reduces patient wait times in the hospital and ensures continuity of care (Cand et al., 2022). It is therefore very important that medical documentation is always kept in the interest of both the doctor and the patient. The medical file must always be in the custody of the medical facility, while the patient has the right to information. Studies in other developing countries have found that their record keeping systems are inadequate, with around half (52.2%) of records being retrieved within one hour (Aziz & Rao, 2002) and many records being poorly designed and using more patient health records according to patients (Richard et al., 2022).

Problem Statement

Effective monitoring of medical records is a critical factor in ensuring the Pharmacy's capacity for efficiency, accountability, transparency and information security. Currently, findings suggest that there is no adequate record monitoring practice at Fine Pharmacy simply because it was found that many of the pharmacy's existing record keeping systems are not designed to collect information on some diseases (Richard, 2022b). As a result, health professionals often do not provide certain services because the patient's medical history is not included in the medical record. This is due to the fact that if medical personnel continue to treat patients without sufficient information about the patients' health, individuals could end up providing poor health care that may be dangerous to the patients' health. For this reason, this study examines the record monitoring practices in Fine Pharmacy Wakiso Uganda which contribute to bridging the research gap identified in the study of records monitoring general pharmacies with the aim of suggesting effective and efficient ways to deal with this problem as little research has been done (Richard, 2022a).

Objectives of the Study

1. To analyze the importance of records monitoring practice to Fine Pharmacy Wakiso.
2. To analyze the state of records monitoring practice at Fine Pharmacy Wakiso.
3. To determine how record monitoring affects the quality of health service delivery at the Fine Pharmacy Wakiso.
4. To design an android electronic records management system

Methodology

The study employed qualitative approach and descriptive methods to describe the characteristics of the research variables. It was qualitative in that opinions of the people were required and the researcher contextualized them according to his/her understanding. Quantitative data included annual company reports. The existing system is studied to establish its weak and strong points. The information that was acquired from this study gave the basis for the design of the application. The target population for this study was the medical records since pharmacies have different records and must be kept carefully to ease management and disease treatment. Stratified sampling together with purposive sampling methods were used as the major sampling techniques, grouping population into different levels. The records sample was divided into distinct, independent levels that can enable the researchers to

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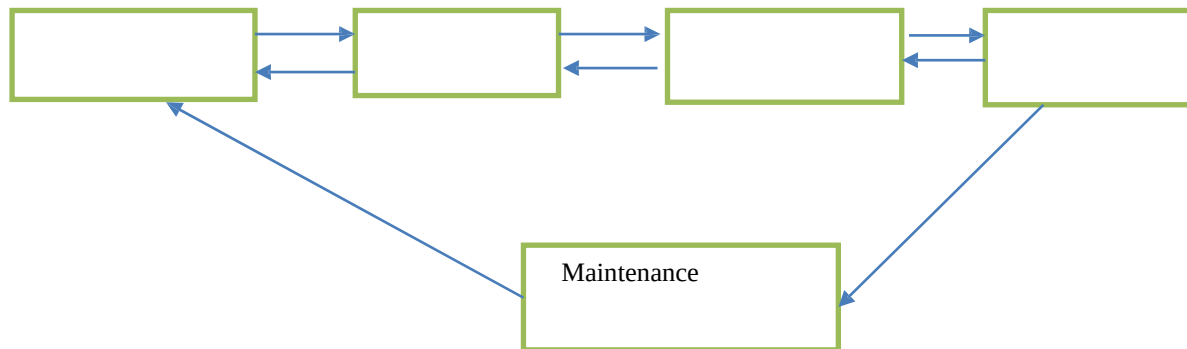
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draw suggestions about specific subgroups like the patients and the organization administrators.

Table 1: showing the different levels and number of people in the level.

Levels	Total number of people in that level
Patients	15
Company Administrators	2
Casual workers	3
Total	20

Testing and validation



Requirements identification

System study and investigation

There was thorough study of the existing systems in order to understand the loop holes before developing the application for availing medical record monitoring. This was achieved by use of Data Collection Methods like questionnaires, interviews, observations, and documentary review.

Data Collection Methods

The researcher used the following methods during data collection: Observation, Interviewing, Questionnaires and documentary review as our research methods.

Observation

The researcher moved around different departments at the Fine Pharmacy to see how data record is being handled, how records are managed and which methods are in place for producing reports. Through observation the researcher found out how data is collected and the methods used for monitoring medical records.

Interviews

Oral interviews were conducted between the researcher and the members of staff of Fine Pharmacy limited. This were instrumental

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in gathering information about the current manual system of record monitoring and its gaps since it gives the researcher a chance to interact with the system users. Different staff members were asked questions about how useful or tiresome their current medical record monitoring method is if compared to other systems. This helped the researcher to take the decision of developing the standard mobile medical record monitoring system. The researcher interviewed about 8 patients and 2 staff members to clearly understand how the current system works.

Questionnaires

In this approach where printed questionnaires were given to some of the patient and staff members to fill in the blank spaces. This helps the researcher to know the operation of the existing system. Questionnaires allowed the analysts to collect data from large number of people while maintaining uniform response, when dealing with large audience, no other fact-finding technique can tabulate the same facts as efficiently.

System Analysis & Design

The system designs

The overall objective in the development of database technology has been to treat data as an organizational resource and as an integrated whole. DBMS allow data to be protected and organized separately from other resources. Database files are the key source of information into the system. It is the process of designing database files, which are the key source of information to the system. The files should be properly designed and planned for collection and retrieving the required information.

System analysis

During system analysis phase, we analyzed and then after designed and developed a new system that was tested and implemented in order to cater for the gaps that were prevailing

System specification

This section contains the functions the website system is expected to perform; these include User requirement, and system requirement

User requirement

The system is useable and simple to use by those with smartphones and computations skills
And have the capacity to handle expansion in case of further modification in future

Functional requirement

The system should manage records about the pharmacy, workers, test for diseases and blood and patient diagnosis. For example, it allows entering of new records and preview of the saved data.

Hardware requirement

This section discusses the computer hardware that is required for the system to run smoothly

Hardware	Minimum system requirement
Memory	8.00GB

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Hard Disk	500GB
Processor	Intel(R) core(TM) i5 3230M CPU @2.60Hz 2.60Hz
System type	64-bit operating system, X64-Based processor
Flash Disc	32GB

Table 2: Shows the hardware requirements for the system to run effectively**Software requirement**

Software	Minimum requirement
Integrated Development Environment (IDE)	Android Studio
Languages	XML, SQLite and java
Operating system	Windows 10Pro

Table 3: showing the software requirements for the system development**System Design Techniques**

The system was designed using Entity relationship diagrams as explained below:

These helped the researchers to show the relationship between the various entities within the system. The major entity components are organized according to the researchers' appropriate classification and relevance. In the database, the tables are used to design corresponding entity or table structure with column names, primary keys, foreign keys if any, column size, constraints on the columns, the data types on these columns and description of each column.

Testing

It is necessary to test the methods and to make various practical preparations. Tests or pilot studies allow us to identify potential problems in the proposed study or system. Testing refers to the process of executing the developed System in order to ensure that it conforms to the user requirements and that it is functioning correctly. The goal of testing is to ensure the system's reliability and conformity to the user requirements.

System Implementation

The purpose of the design phase was to plan the solution of the problem specified by the requirements document. This phase was the first step in moving from the problem domain to the solution domain. In other words, starting with what was needed; design took us towards satisfying the needs. The design of a system was the most critical factor affecting the quality of the software. It has impact on the late phases as well as testing and maintenance of the software.

Tools used in a system design and implementation**SQLite**

Preferred because

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Is an open-source data base to the application.

- ✓ Is gives a system the database that is embedded and not require connecting Local host. A language called structural query language

Android studio

It is used in creating android application because it has the best platform for running different versions of virtual devices and its ease to understand.

System design

The system was designed on Microsoft widow platform using SQLite for database design and java language that accepts running on virtual device. Once the application is installed, any authenticated user can access it from any work station by clicking on its icon on the interface of his android screen.

The system was composed of two sections, the database and the graphic user interface as is architecture with input-output modules containing the user interface, the medical records system needed to be efficient in retrieving relevant data for medical record monitoring. The system allow only administrator to loin in using a special user name and password only made for the administrator and are recognized by the system. He has a number of privileges on the system such as inserting and editing the system details.

Register page

The system admin fills the information here to get admit a new administrator.

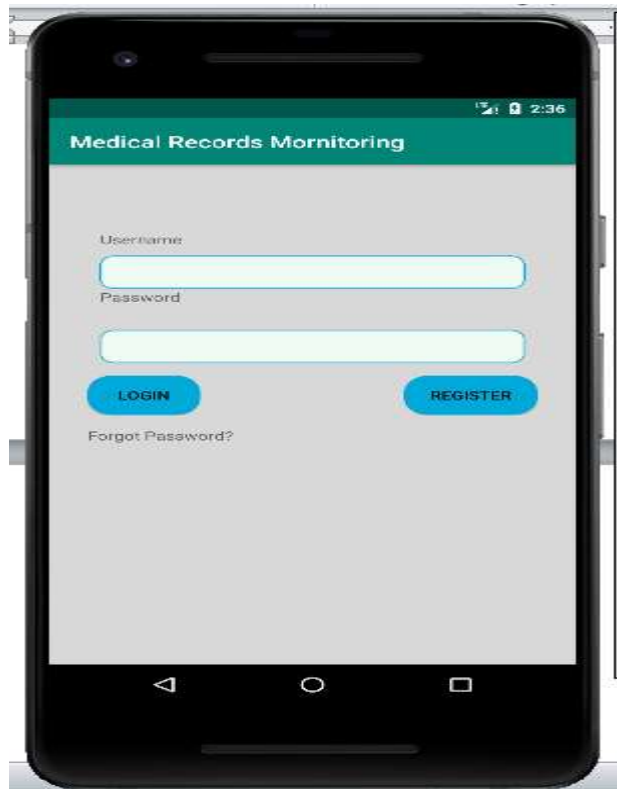
Figure 2: Registration page of the application



Login

The admin fills in her credentials to access the system

Figure 3: Login part of the android for medical record monitoring



Home page

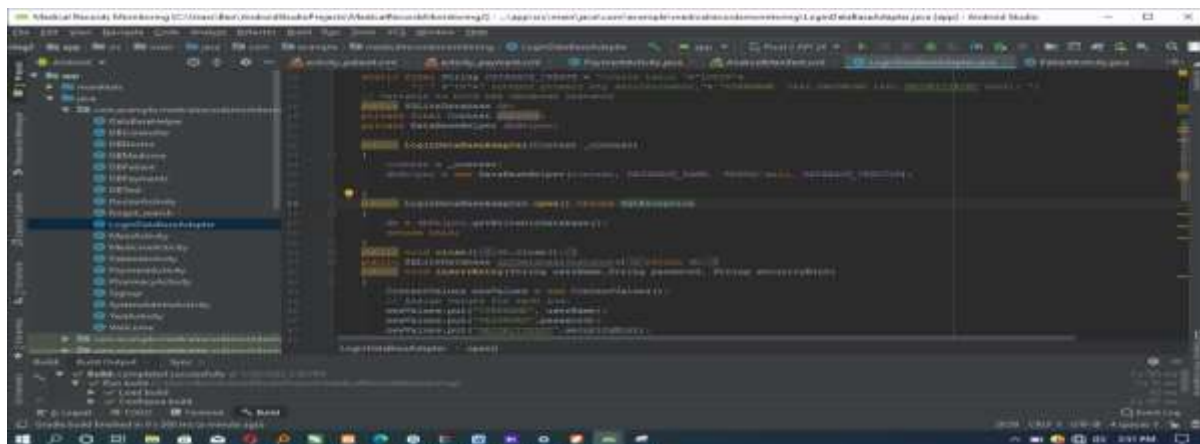
The user clicks on icons to access its contents

Figure 4: Show the welcome page for the application



Software development

Figure 5: Shows the software development Process of the android app for medical records monitoring



Conclusion

Basing on the ending and analysis, an android medical records monitoring system was a venture to invest worth taken seriously and included, there was a lot of benefits to be realized there in. The management would benefit from the system since everything is done electronically and it is time saving.

Recommendations

As the system designers and implementers, we made the following recommendations on how the system should be used. The system should be well maintained and protected from unauthorized users.

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Whenever the system needs to be updated, literate and skilled personnel should be contacted for updating process.

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