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Designing A Mobile Health Platform for Effective Medical Records Management in Hospitals

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Abstract

This research work aims to develop a Medical Records Management system for Android and IOS platforms, utilizing Low Code and No Code (LCNC) software development platforms. The system will facilitate efficient connectivity between doctors, nurses, and PGs, ensuring accurate and timely access to patient information. This approach aims to empower healthcare professionals to access, update, and retrieve patient information in a timely manner. Efficient management of medical records is crucial in healthcare settings proposes a solution to address these challenges by developing a Medical Records Management system for Android and iOS using Low Code and No Code software development platforms.

The Medical Records Management mobile app will be developed using a Low Code and No Code software development platform. The platform will enable the hospital's staff, including non-technical users, to create a customized application from scratch without the need for complex coding. The implementation of the MRD - Prototype App using Low Code and No Code software development platforms will provide connectivity between doctors, nurses, and PGs, facilitating efficient communication and data sharing. This research demonstrates the feasibility and benefits of using Low Code and No Code software development platforms in the healthcare industry, specifically in the context of Medical Records Management. Overall, the research contributes to improving medical record management, leading to better patient outcomes and increased quality of care in healthcare settings.

Keywords: Clinical Data Management, Low Code and No Code Development (LCNC), Medical Records Management (MRD), Mobile Health Applications (MHA), Electronic Medical Records (EMR)

Introduction

In recent years, there has been a growing need to digitize and streamline healthcare processes, including the management of medical records. The advancement of mobile technology has revolutionized various sectors, including healthcare. To address the inefficiencies and limitations of traditional paper-based medical record systems, a mobile health platform was developed to facilitate effective management of medical records in hospitals. Paper-based medical record systems are prone to errors, delays, and difficulties accessing and sharing patient information across different departments. [1-3]

These Systems Suffer from Several Challenges

1. Manual documentation leads to transcription errors and incomplete records.
2. Paper storage takes up significant physical space and risks damage or loss.
3. Records retrieval is time-consuming, affecting workflow efficiency.
4. Lack of interoperability hinders coordinated care across departments.

To Overcome These Limitations, Mobile Health Platforms for Medical Records Leverage Technologies Like Cloud Comput-

ing, Data Encryption, and Mobile Applications. Key Features Include

1. Integration with Electronic Medical Records (EMR) systems
2. Real-time record updates and access
3. Digital documentation and automated workflows
4. Secure sharing between healthcare professionals

These platforms aim to increase accessibility, efficiency, accuracy, and overall quality of care. Initial implementations have shown promising improvements across hospitals. The flexibility of these systems allows adaptation to diverse healthcare settings and transformation of traditional medical records workflow [4].

Developing a mobile application concept draws inspiration from the integrated workflows of "Google Form and Google Drive." This mobile app constructed using Zoho Creators (2023), a low-code and no-code platform, incorporates additional features. It facilitates the creation of applications with minimal coding, utilizing built-in components such as drag-and-drop, lookup, deluge script, run (workflow) script, refer field, and enable action, among others [5].

A meta-analysis assessed the efficacy of mobile health platforms in medical record management. The study identified 12 relevant studies, revealing significant enhancements in medical record accessibility, efficiency, and patient satisfaction. However, the authors emphasized the necessity for further research to explore long-term impacts and cost-effectiveness. Positive sentiments from both patients and healthcare professionals toward mobile health platforms, citing improved access to medical records and increased engagement was reported nevertheless, concerns were raised regarding data security and usability, suggesting the need for addressing these issues [6].

Diverse implementation approaches for mobile health platforms in medical record management, emphasizing customization based on organizational needs, infrastructure, and user considerations was highlighted. Conversely, underscored security and privacy risks associated with these platforms, advocating for robust security measures, clear privacy policies, and user education. Patient outcomes was explored related to mobile health platforms, noting positive impacts on patient empowerment, self-management, and health literacy. The review stressed the importance of additional research to assess long-term clinical impacts and patient satisfaction. Organizational factors were reviewed of implementation strategies, emphasizing leadership support, organizational culture, and effective communication for successful platform integration.

A narrative review synthesized finding from 18 studies, highlighting advantages such as improved accessibility and patient empowerment. Walker et al. (2022) conducted a systematic review of implementation challenges, emphasizing strategic planning and stakeholder involvement. Investigation on potential of mobile personal health records (mPHRs) during emergencies, recognizing benefits in minimizing errors and improving health behaviours. However, challenges such as integration into health technology infrastructure and legal concerns were identified [7].

Mobile health platforms are increasingly being used for medical record management, though their effectiveness, implementation challenges, and impact require further evaluation. Recent research indicates mobile health platforms may enhance record management through improved recruitment, retention and usage, though traditional interventions remain an important comparison. Guiding implementation and evaluation is crucial, with focus on user perspectives, organizational factors, security, patient outcomes and cost-effectiveness. Comparing platforms and summarizing evidence is key to determining best practices. Established research methods and information systems concepts should inform this work [8].

By carefully considering these challenges, organizations can increase the likelihood of success when implementing mobile health platforms for medical record management.

Overall, the research on mobile health platforms for medical record management is still in its early stages. However, the existing literature suggests that these platforms have the potential to improve patient outcomes, efficiency, and patient satisfaction. However, it is important to be aware of the security and privacy risks associated with these platforms, as well as the implementation challenges that organizations may face. Therefore, the following objectives are put forward [9].

- To understand the processes involved in the medical records management and how to streamline using the mobile prototype application.
- To develop a mobile app-based medical record portal or dashboard using Low Code and No Code software development platform.
- To assess the potential causes in medical records management system using the FMEA tool

MRD – Mobile App

In this research, the prototype of this mobile app will keep tracking and maintaining the patient's medical records from the registration process to discharge process in hospital. This mobile app will work with clouds storage platform, so that it can connect with all the employees involved in patients care like (Doctors, Nurses, Physicians, Nutritionist, Physiotherapist, Specialist, Administrative officers) in various shift timings. In this mobile app, there are 3 modules in this mobile app – User ID, Patients Registration Form, Patients Medical Records, this module can differentiate various categories access like environment access, admin access, MRD access and master access (control panel) [10].

Zoho Creator Platform

1. Zoho website [14] is a tool that allows to create an integrate app with external systems and services. This feature provides a way to connect different databases, applications, and software solutions to MRD prototype app.
2. Zoho Creator is a tool for building custom mobile apps for this research. Its low-code development approach makes it accessible to users with little or no coding experience, while its robust features and integrations make it a versatile tool for research studies of all kinds.
3. Some interconnected features that can included in the app – prototype (application) for registration, admission, and medical records management in a hospital setting.

Developed Mobile App

By creating a user-friendly mobile application that enables real-time communication and data sharing among healthcare professionals, the system enhances the accuracy and efficiency of patient care. Empowering non-technical staff to develop customized applications reduces dependence on traditional coding methods and promotes a more agile and responsive approach to healthcare software development [11].

Cloud-based low-code Development Platform :(Deluge Script)

Figure 1: Low Code Development & Create User Script (Initial Process)

Zoho Creator is a cloud-based low-code development platform (Figure 1) that allows users to build custom mobile apps without writing any code. It offers a variety of features and tools that make it a great option for research projects that require custom mobile app development. Here are some ways Zoho Creator can be used to build a mobile app for research. It's a cloud-based platform that allows users to create custom applications and websites without the need for extensive coding or programming knowledge. It provides a user-friendly interface and a range of tools to build, customize, and deploy web applications for various purposes.

Figure 2: MRD Basic Prototype App logo

Figure 2 depicts the Medical Records Department (MRD) Basic prototype App logo and "Streamlining medical records for a healthier future." This tagline emphasizes the app's focus on improving healthcare through efficient medical record management.

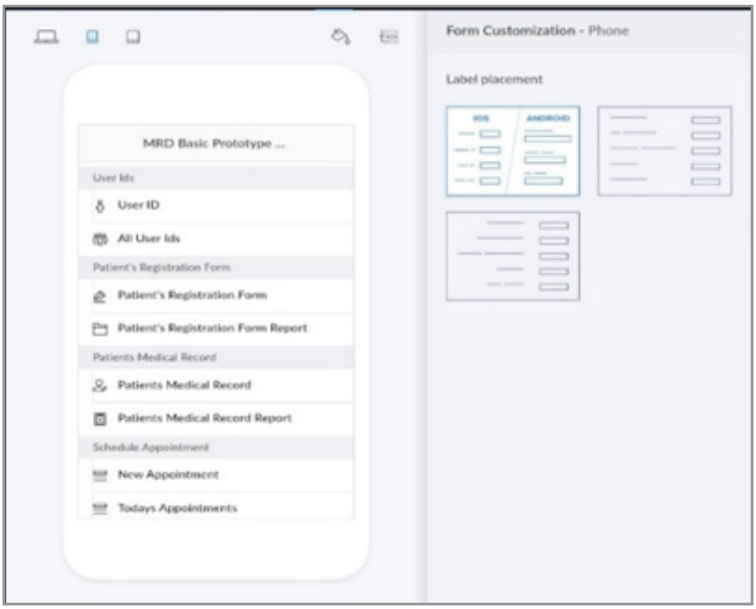

Figure 3: 4-Modules in Master Access (Control Panel)

Figure 3 shows the patients registration officer to register by providing their basic information, such as name, date of birth, gender, and contact details. This feature can be linked to the admission process to streamline the registration and re-registration process. The app can include a feature that allows patients to schedule appointments with their healthcare providers. This can help reduce wait times and improve patient satisfaction. The patient admission management allows the hospital staff to manage the admission process by viewing patient registration details, scheduling appointments, and assigning rooms. This feature can be linked to the patient registration process to ensure that the patient data is accurate and up-to-date [12].

Related Work – Control panel settings for main page of MRD (Basic-Prototypes) mobile app. It has a three Category It can change by host of the application; these settings can be customisable

- System
- Mobile
- I-Pad or Tablet

"It is only applicable for control panel", The basic concept of this MRD mobile app is paper to paper less in medical records department in hospital and healthcare services

The 4 modules are interconnected with each other, the run (work flow) script design from

- **Module -1:** User ID (Entry level data) & All User IDs (Overview Reports)
- **Module -2:** Patients Registration Form (Entry level data) & Patient's Registration Form Report (Overview Reports)
- **Module -3:** Patients Medical Records (Entry level data) & Patients Medical Record Report (Overview Reports)
- **Module -4:** Appointment Booking for Patients before registration process (Admin Access) , it's include New Appointment , Today Appointment, Appointment Request – (Pending , Confirm, Cancelled, Delete or Other)

Then input data – "fill the form" (Entry level data) then reports will generate in (overview reports) output data. These four modules are connecting features like "1st module to 2nd module" then "2nd module to 3rd module", 4th module is separately access only (Admin use).

Methods

The study employed a qualitative approach using a combination of primary and secondary data collection methods to gain in-depth insights into the current state of medical record management in a private multi-specialty hospital in Chennai.

Method of Collecting Data

Primary Data

Direct observation of the medical records department workflow was conducted, focusing on aspects such as file storage, maintenance processes, file tracking, staff performance, and frequency of errors. Semi-structured interviews were held with staff working in the medical records department to gather their perspectives on the current system, including its strengths and weaknesses, challenges faced, and suggestions for improvement [13].

Secondary Data

Existing documents and registers related to patient flow and standard procedures within the medical records department were reviewed to provide context and background information. Annual reports and other official documents published by the hospital were analysed to understand its organizational structure, policies, and procedures related to medical record management.

This combined approach ensured a comprehensive understanding of the current state of medical record management in the hospital, enabling the identification of opportunities for improvement and the development of mobile app to enhance the quality healthcare delivery.

Study Design and Sampling

To comprehensively capture diverse perspectives and ensure the inclusion of a range of viewpoints, we employed a purposive sampling strategy. We targeted participants from various departments within the hospital, including mid-level and senior managers responsible for overseeing healthcare delivery across their respective departments. Potential participants were identified through a two-part process.

1. Departmental Selection: We initially selected key departments whose functions are significantly intertwined with the medical records department, such as clinical departments (e.g., Emergency Medicine, Surgery), administrative departments (e.g., Medical Records, IT), and patient care departments (e.g., Nursing).
2. Managerial Selection: Within each selected department, we identified managers holding key decision-making roles due to their extensive knowledge and experience in managing healthcare processes and systems. Their direct or indirect involvement with the medical records department further strengthened their relevance to the study's focus.

The semi-structured interview process was conducted between May 2023 and June 2023, resulting in a sufficient sample that provided insightful and representative data for the study's objectives.

Results

This mobile app successfully underwent a one-week trial implementation within the hospital. During this pilot phase, test users provided feedback, which the host used to progressively address and improve the app through a dedicated control panel. To effectively analyse and prioritize user concerns, tools like the Urgent Matrix, FMEA (Failure Mode and Effects Analysis), and Fishbone diagrams were employed.

With further security enhancements and a revamped control panel featuring categorized channels, this mobile app demonstrates strong potential for implementation within the medical records department as an Electronic Medical Record (EMR) system [14].

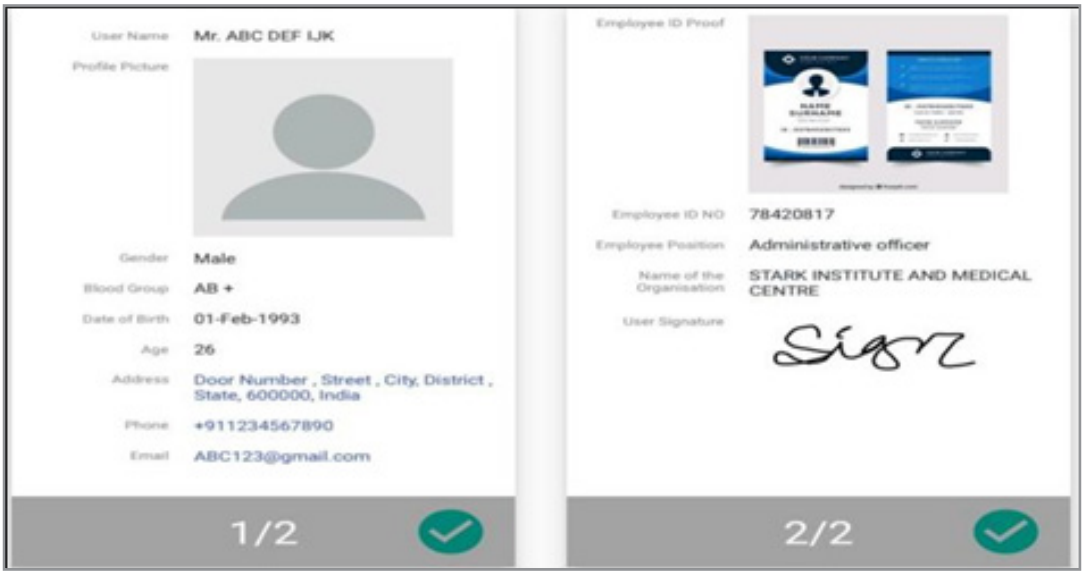

Figure 4: Design: MRD –Basic Prototype - Mobile app Module -1: Users Results: (Overview)

Module-1 (User ID)

The mobile app's (Figure 4) intended audience comprises various individuals who interact with patients within the hospital setting and utilize the app on their mobile devices. These include doctors, nurses, physicians, nutritionists, physiotherapists, administrative officers, medical record department staff, and even some additional referral doctors based on specific patient needs.

To Cater to These Diverse User Groups, the app is Designed to Address Various Functions Throughout the Patient Journey. This includes

- Registration: Facilitating patient registration and data entry.
- Appointment: Managing appointment scheduling and booking.
- Admission: Streamlining the admission process and information access.
- Patients Enquiry: Enabling real-time patient information access and communication.
- Treatment Process: Supporting lab report integration and treatment information management.
- Medical Record Department: Providing a central hub for electronic medical records (EMR) access and management.

By integrating these diverse functionalities, the mobile app aims to enhance communication, streamline workflows, and improve care delivery across all departments involved in patient care.

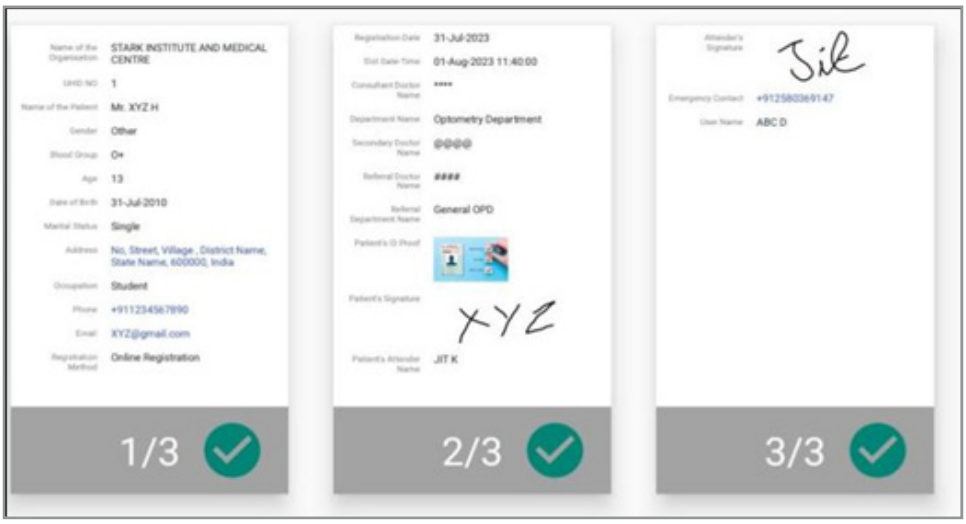

Figure 5: Module -2: Patients Registration Form Results: (Overview)

Module-2 (Patient Registration)

Patients can now conveniently register with our new mobile app. Simply provide basic information like name, date of birth, gender, and contact details to complete the registration process. This feature seamlessly connects with our admissions system, streamlining registration for both new and returning patients (Figure 5).

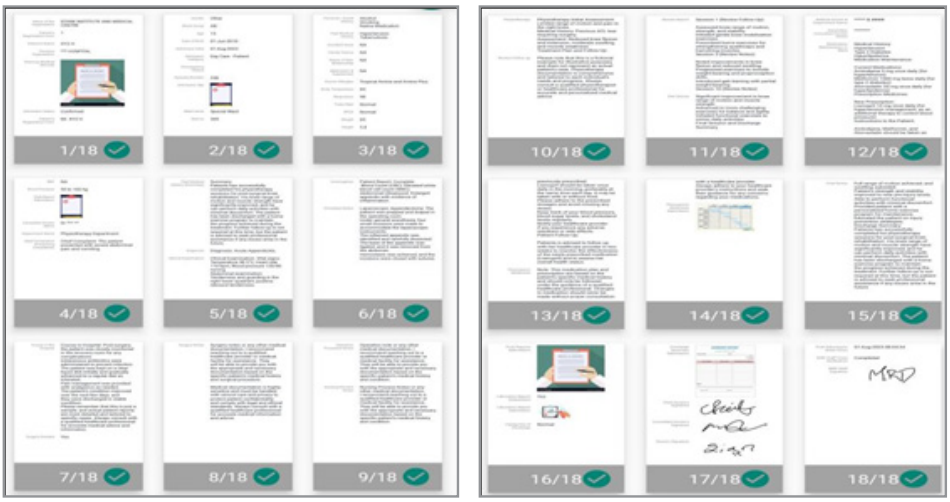

Figure 6: Module -3: Patients Medical Record Results: (Overview)

Module-3 (Patient Medical Records): Patients Dashboard for Medical Information

The mobile app empowers hospital staff to efficiently manage the admission process. They can access and review patient registration details, schedule appointments seamlessly, and assign rooms with ease (Figure 6). This feature seamlessly integrates with the patient registration process, ensuring accurate and up-to-date patient data throughout their admission journey.

Secure Communication

Patients can connect directly with healthcare providers via secure messaging to discuss medical concerns, ask questions, and receive personalized advice. This feature integrates with medical records management, providing a centralized platform for patients to access information and communicate with their care team.

Prescription Management

Patients can conveniently access their prescriptions, request refills, and track their medication history directly through the app. This feature seamlessly connects with medical records, ensuring accurate and up-to-date medication information.

Medical Records Management

Hospital staff can access, edit, and update patient health information directly within the app, streamlining the medical records management process. This feature integrates with patient registration and admissions, ensuring consistent and accurate patient data throughout their care journey.

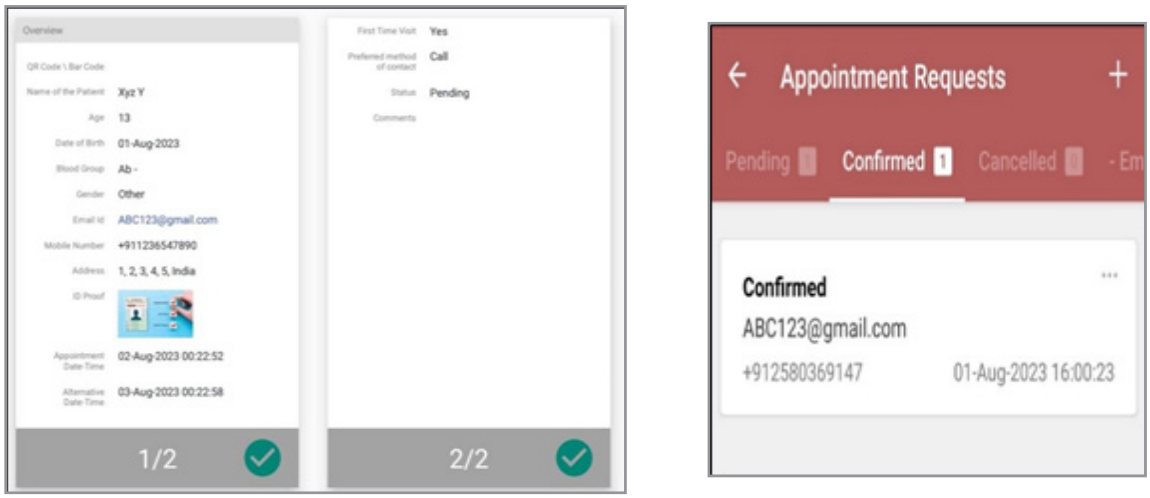

Figure 7: Module -4: New Appointment, Today Appointment, Appointment Request – Pending, Confirm, Cancelled, Delete or Other: (Overview)

Module-4 (Appointment Scheduling)
The mobile app integrates a convenient appointment scheduling feature, allowing patients to book consultations with their healthcare providers directly (Figure 7). This feature offers several benefits:

Reduced Waiting Times
Patients can schedule appointments at their own convenience, minimizing wait times in the clinic. This allows them to better manage their time and schedules.

Improved Patient Satisfaction
The ability to book appointments online reduces stress and frustration for patients, leading to a more positive healthcare experience.

Increased Efficiency
By managing appointments online, healthcare providers can optimize their schedules and allocate resources more efficiently. This leads to improved patient flow and reduced wait times overall.

Enhanced Accessibility
The mobile app provides 24/7 access to appointment scheduling, allowing patients to book appointments at any time, regardless of location. This is particularly beneficial for busy individuals or those living in remote areas.

Streamlined Communication
The app can send appointment reminders and updates to patients, further enhancing communication and ensuring they don't miss their scheduled consultations.

Reduced Administrative Burden
By automating the appointment scheduling process, the mobile app reduces the administrative workload for healthcare providers, allowing them to focus on patient care.

Findings

Table 1: Urgent Matrix

Urgent Matrix	Urgent	Not- Urgent
Important	Quadrant 1 Addressing data security breaches System crashes Critical user	Quadrant 2 Implementing new features to enhance user experience. Optimizing performance Improving data accuracy
Not- Important	Quadrant 3 Could be resolving minor bugs Addressing user feedback Handling non-critical user support requests	Quadrant 4 Include cosmetic changes. Non-critical feature requests Non-essential the documentation updates

Urgent Matrix for Task Prioritization, categorizing tasks based on their Urgency Level and Important Level. The Priority column shows the prioritization code assigned to each task.

Source: Primary Data.

Interpretation of Urgent Matrix
Quadrant 1 – Urgent and Important
This quadrant includes critical issues that require immediate attention (Table 1). The items listed are:

1. **Addressing Data Security Breaches:** Data security breaches pose a significant risk to patient privacy and should be addressed urgently to prevent unauthorized access and protect sensitive information.

2. **System Crashes:** System crashes can disrupt the app's functionality and impact user experience. Resolving system crashes promptly is crucial to ensure uninterrupted service and user satisfaction.
3. **Critical User:** User experience flaws that significantly impact usability and functionality should be addressed urgently to improve user satisfaction and prevent potential issues or frustrations.

Quadrant 2 – Important and Not Urgent

Items in this quadrant are important but don't require immediate attention. They should be planned and addressed strategically. The mentioned items are:

1. **Implementing New Features to Enhance User Experience:** Enhancements to user experience can improve engagement and satisfaction. While important, these additions can be scheduled and prioritized based on development cycles or user feedback.
2. **Optimizing Performance:** Performance optimization focuses on improving the app's speed, responsiveness, and efficiency. It is crucial for long-term success but can be planned and executed as part of optimization efforts or future releases.
3. **Improving Data Accuracy:** Data accuracy is vital for reliable medical records management. While it's important to maintain accurate data, improvements can be made over time through data validation processes and periodic updates.

Quadrant 3 – Not Important and Urgent

This quadrant includes items that are urgent but not necessarily important in the long run. They should be handled efficiently, but their long-term impact may be relatively lower. The mentioned items are:

1. **Resolving Minor Bugs:** While minor bugs may not significantly impact the overall functionality, addressing them promptly can enhance the app's stability and user experience.
2. **Addressing User Feedback:** Responding to user feedback in a timely manner demonstrates attentiveness and improves user satisfaction. User feedback should be considered, but urgency may vary depending on the nature of the feedback.
3. **Handling Non-Critical User Support Requests:** Non-critical user support requests, while urgent from the user's perspective, may have a lower long-term impact. Efficiently handling these requests ensures satisfactory user support without diverting excessive resources.

Quadrant 4 – Not Important and Not Urgent

Items in this quadrant have lower priority and can be addressed when resources and time permit. The mentioned items are:

1. **Cosmetic Changes:** Cosmetic changes, such as visual enhancements or minor design adjustments, can improve aesthetics but may have minimal impact on the app's functionality or user experience.
2. **Non-Critical Feature Requests:** Feature requests that are not essential or have a lower demand can be prioritized based on feasibility and long-term strategic planning.
3. **Non-Essential Documentation Updates:** Documentation updates that are not critical to the immediate use or understanding of the app can be scheduled for when there is available time and resources.

Table 2: FMEA (Failure Mode and Effects Analysis)

S. No.	Process step or variable or key input	Potential failure mode	Potential effect on customer	Severity	Potential causes	Occurrence	Current Detection	Detection	Risk Priority Number	Recommended Actions
1	User Authentication (details verification)	Incorrect password validation	Unauthorized access to patient records	9	Insufficient input validation	5	User login credentials	6	270	Implement stronger password validation and encryption method
2	Data Syncing (Field connect to another field)	Incomplete data synchronization	Inaccurate or missing patient information	7	Network interrup-tions, server errors	4	Automatic Syncing process	4	112	Improve error handling and retry mechanisms during data synchronization
3	User Interface (Data transfer errors)	Confusing layout and navigation	User frustration, data entry errors	6	Inconsistent design, lack of user feedback	5	User feedback, usability testing	5	150	Improve user interface design, conduct usability testing and gather user feedback for iterative improvements
4	Data Backup (Storage)	Failure to backup data	Data loss in case of system failure	8	Insufficient backup frequency, storage limitations	3	Automated backup process	4	96	Implement regular and automated data backup procedures with redundancy
5	Data Security (Safety and confidential files)	Data breach	unauthorized disclosure or theft of patient data	10	Insufficient encryption, vulnerabilities in data storage	2	Intrusion detection systems, security audits	5	100	Strengthen data encryption, conduct regular security audits, and implement robust intrusion detection mechanisms

Failure Modes and Effects Analysis (FMEA) as each row corresponds to a potential failure mode, its effects, and the associated

severity, occurrence, detection ratings, and Risk Priority Number (RPN). Higher RPN values indicate higher risks

Source: Primary Data

Interpretation of FMEA (Failure Mode and Effects Analysis)
The RPN (Risk Priority Number) is calculated by multiplying the severity, occurrence, and detection rankings together. The higher the RPN, the greater the risk. Based on the RPN scores given in the table 2, the most critical failure modes are:

Incorrect Password Validation
This failure mode has the highest RPN score of 272. This means that it has the potential to cause a major impact if it occurs. It is also difficult to detect, which makes it even more risky.

Confusing Layout and Navigation
This failure mode has an RPN score of 150. It is a high-risk failure mode that can occur occasionally. It is difficult to detect.

Incomplete Data Synchronization
This failure mode has an RPN score of 112. It is a medium-risk failure mode that can occur frequently. It is also moderately difficult to detect.

Data Breach
This failure mode has an RPN score of 100. It is a high-risk failure mode that can occur rarely. It is also moderately difficult to detect.

These failure modes should be addressed as a priority to reduce the overall risk of the system.

Some Recommendations for Addressing these Failure Modes
Implement strong password requirements, such as minimum length and complexity requirements. Use multi-factor authentication to add an extra layer of security. Improve the data synchronization process to make it more reliable. Implement retry mechanisms and error handling to recover from failures. Implement strong security controls to protect sensitive data. This includes encryption, access controls, and intrusion detection/prevention systems. Regularly back up data to ensure that it can be recovered in the event of a breach. By addressing these failure modes, we can significantly reduce the risk of system failure and improve the overall security and reliability of the system.

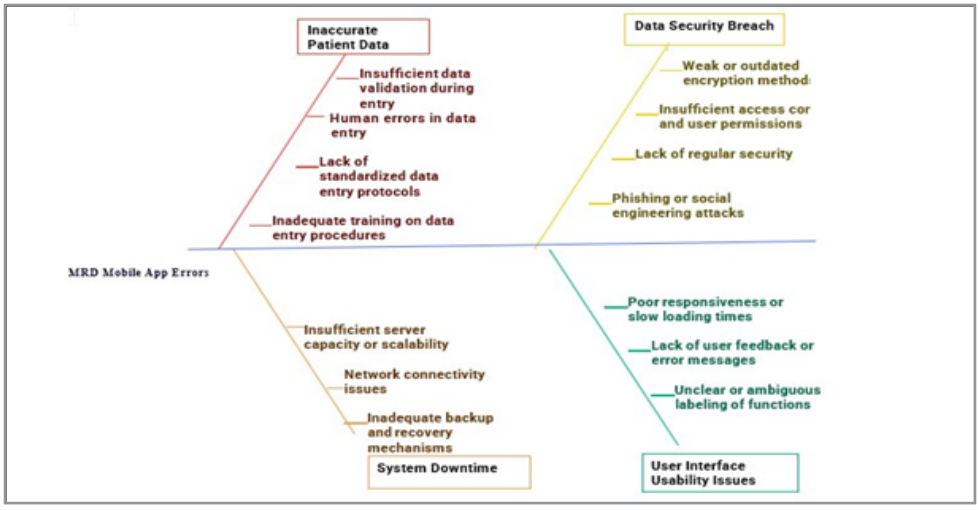

Figure 9: Cause and Effect Analysis (Fish Bone)
Source: Primary Data

Interpretation for Cause-and-Effect Analysis (Fish Bone)

- **Naccurate Patient Data:** Effect: Inaccurate patient data can negatively impact healthcare decisions, treatment outcomes, and patient safety.
- **Sub Cause:** Insufficient Data Validation During Entry: This suggests that there might be inadequate checks or validation processes in place during the entry of patient data, leading to inaccuracies.
- **Sub Cause:** Human Errors in Data Entry: Human errors can occur during the manual entry of patient data, resulting in inaccuracies.
- **Sub Cause:** Lack of Standardized Data Entry Protocols: If there are no established protocols or guidelines for data entry, inconsistencies and errors can arise.
- **Data Security Breach:** Effect: A data security breach can compromise patient privacy, lead to identity theft, and undermine trust in the healthcare system.
- **Sub Cause:** Weak or Outdated Encryption Methods: Outdated or weak encryption techniques can make the system vulnerable to unauthorized access and data breaches.

- **Sub Cause:** Insufficient Access Controls and User Permissions: Inadequate management of user access rights and permissions can result in unauthorized users gaining access to sensitive data.
- **Sub Cause:** Lack of Regular Security Audits and Updates: Failure to regularly assess and update security measures can leave the system susceptible to emerging threats.

- **System Downtime:** Effect: System downtime can disrupt healthcare services, impact patient care, and cause frustration for users.
- **Sub Cause:** Insufficient Server Capacity or Scalability: If the system lacks the necessary resources or cannot handle increased user demand, it may experience downtime.
- **Sub Cause:** Network Connectivity Issues: Problems with network connections or infrastructure can disrupt the system's availability.
- **Sub Cause:** Inadequate Backup and Recovery Mechanisms: Insufficient backup and recovery processes can prolong system downtime in case of data loss or system failures.

User Interface Usability Issues

- **Effect:** User interface usability issues can lead to user frustration, decreased productivity, and potential errors in medical records management.
- **Sub Cause:** Inconsistent Design and Navigation: Inconsistent user interface design and navigation patterns can confuse users and hinder their ability to perform tasks efficiently.
- **Sub Cause:** Unclear or Ambiguous Labeling of Functions: Poorly labelled functions or buttons can lead to user confusion and difficulty in understanding the system's capabilities.
- **Sub Cause:** Lack of User Feedback or Error Messages: Inadequate feedback or error messages make it challenging for users to understand and address any issues or errors.

Interoperability Challenges

- **Effect:** Interoperability challenges can limit data sharing, hinder coordination of care, and impede the efficiency of medical records management across different systems and healthcare providers.
- **Sub Cause:** Lack of Standard Data Exchange Formats: Incompatibility between different systems can arise when there are no established standards for exchanging data.
- **Sub Cause:** Incompatible Systems or Protocols: Systems that cannot communicate or exchange data due to incompatible protocols can lead to interoperability challenges.

Advantages of MRD Mobile App

This system offers a clear advantage in terms of error detection and rectification. Through the mobile app, doctors can readily identify any mistakes made by nurses or postgraduate trainees while entering diagnosis or treatment information. This allows for prompt correction of medical records remotely, minimizing the risk of medical negligence.

Furthermore, the mobile app provides doctors with real-time access to valuable patient information. They can easily monitor routine treatment plans, review ongoing medication schedules (complete with medication checklists and timetables), and readily identify the progress of diagnoses, procedures, and other key details [14].

Opportunities of MRD Mobile App

The MRD mobile app unlocks a wealth of opportunities. It streamlines the verification process for corrections, doctor signatures, and checklists, significantly reducing time spent on administrative tasks. Additionally, the app champions a paperless environment by promoting efficient digital record management. The ability to generate a single hard copy for MRD storage ensures readily accessible essential patient information whenever needed [15].

Conclusions

The implementation of the MRD mobile app offers a promising solution to streamline medical record management and improve patient care within healthcare facilities. By providing a user-friendly interface and secure access through unique identification numbers, the app enables doctors, nurses, and PGs to efficiently access and update patient records. This connectivity between healthcare professionals fosters collaboration and enhances the accuracy and completeness of medical reports.

Implementing the MRD mobile app presents a compelling solution for streamlining medical record management and elevating patient care across healthcare institutions. The app's user-friendly interface and secure access facilitated by unique identification numbers empower doctors, nurses, and postgraduate trainees to efficiently access, update, and share patient records. This interconnectedness fosters collaboration amongst healthcare professionals, ultimately enhancing the accuracy and completeness of medical reports.

Implications for Future Research

- **Integration:** Exploring the integration of medical technologies and systems within other departments with the mobile app for comprehensive healthcare data management.
- **Health Bot:** Introducing a dedicated Health Bot to the mobile app to further enhance patient care. This AI-powered tool has the potential to significantly impact healthcare delivery, offering readily accessible health information and assessments to the general public. With an estimated accuracy level of 80-90%, the health Bot empowers patients to understand their health status even before visiting the hospital, facilitating informed decisions and proactive treatment. Additionally, the development of the health Bot will complement and expand upon the existing features of the mobile app, creating a more holistic and patient-centric healthcare experience [16].

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Ethical Consideration

The study was approved by the Institute Ethical Committee (IEC), SRIHER(DU) CSP/23/MAY/128/465

Additional Information

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