
Specification of software requirements

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Review



Revision history

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1 Introduction

1.1 Purpose

Serve as a key instrument to plan patient care and contribute so that this is continued a means of communication between the doctor and other professionals such as the nurse so that they contribute to patient care by testing the documented evidence through the system during the course of the disease and treatment of the patient among other aspects.

1.2 Scope

- The system is made for a single health entity with data from the medical doctor, nurse and patient records of the health entity.
- The system to be developed will cover only in the area of medical records data of medical personnel among others, in the long term it could be extended to some other intities in the sector where we are applying the system
- With the execution of this project, the use and dissemination of the system is intended to reach various medical users, patients, and members of various medical health entities for the organizational context of medical records. The idea is that users use the system, covering aspects that are required in an entity with computerized management.

1.3 Involved personnel

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1.4 Definitions, acronyms and abbreviations

- Program: It is a sequence of instructions, written to perform a specific task on a computer.
- Hospital It is an establishment designed for the care and assistance to patients through medical, nursing, auxiliary and technical service personnel 24 hours a day, 365 days a year.
- Physician: A professional who practices medicine and who tries to maintain and restore human health through the study, diagnosis, and treatment of the patient's illness or injury.
- Nurse: Person whose job is to assist or care for the sick, wounded or injured under the prescriptions of a doctor, or to help the doctor or surgeon
- Surgeon: Treat diseases, injuries and deformities through invasive methods, such as manual manipulation or through the use of instruments and devices
- Medical diagnosis: it is the procedure by which the health professional identifies a disease or the patient's condition with the help of various tools that allow defining their clinical picture.



- Medical History: It is a legal document of the medical branch that arises from the contact between a patient and a health professional, where all the relevant information about the patient's health is collected, so that correct care can be offered and personalized.
- Code Qr: It is a square two-dimensional barcode that can store the encoded data. Most of the time the data is a link to a website

Abbreviations

- Doctor = Dr /Dra

1.5 References

Reference	Title	Route	Date	Author

1.6 Summary

It is necessary to have a database system with QR access that allows the administration, management and updating of the diagnoses and clinical records of patients who are treated in a medical institution, to avoid the very common diagnostic errors and confusion with them, which often end up in irreparable damage to patients.

2 General description

2.1 Product perspective

This document will detail how this product works and to whom it is addressed, so that we can efficiently analyze the total scope to which it can reach.

2.2 Product functionality

The "Optimized Diagnostic System" system will allow the following functions to be performed:

- a) Patient administration: The doctor or nurse will be able to manage the patients (add, modify, delete, search, list).



- b) Coordination of medical examinations: The doctor in charge of the patient will request the necessary examinations to make the corresponding diagnosis to the patient.
- c) Proportion of Information: The doctor will issue the corresponding diagnosis and their respective medical prescription to the patient, said data will be updated in the patient's clinical history.
- d) Navigation: Process by which the doctor or nurse may use the "Optimized Diagnostic System".

2.3 User characteristics

The system “Optimized Diagnostic System” will contain 2 types of users that will interact and administer it: Doctor, Nurse.

Type of user	Doctor
Training	Doctor’s degree endorsed by any third level educational institution
Skills	Medical skills
Activities	recording and editing patient records

Type of user	Nurse
Training	Nursing degree endorsed by any third level educational institution
Skills	Medical skills
Activities	recording and editing patient records

2.4 Restrictions

Our optimized diagnostic system will be developed only in Java programming language with the use and implementation of the topics and tools covered in the class given by engineer Edison Lascano at the University of the Armed Forces ESPE.

2.4.1 Hardware limitations

This system requires a mobile device such as a cell phone or tablet that has a camera in optimal conditions to detect the QR code.

2.4.2 Control functions

The system must control the permissions that each user has for their accessibility in a correct way, so that they can access the information that corresponds to them according to their role.

2.4.2 Language requirements

All the material that is made for the user and the application must be in Spanish for the moment



2.4.3 Application credibility

To ensure good credibility, the system must undergo a series of tests in several medical centers to establish adjustments or modifications that they require and that have not been taken into account.

2.4.4 Security considerations

Each user must be registered with a username and a password, data that will later be used for the creation of the medical history and its modification.

2.5 Assumptions and dependencies

At the moment the system is intended for android devices so not owning a device with this operating system could cause problems at the time of implementation.

2.6 Predictable evolution of the system

Some of the implementations that will be made in the future on our system; It is according to how it can evolve over time, for example we will have a QR code to access specific medicines and in the same way for the entry and exit of authorized personnel.

Algunas de las implementaciones que se harán en el futuro sobre nuestro sistema; es de acorde a cómo puede evolucionar con el paso del tiempo, en ejemplo tendremos, código QR para acceder a medicamentos específicos y de igual manera para la entrada y salida de personal autorizado.

3 Specific requirements

Requirement number	01		
Requirement name	java language		
Type	X Requirement	<input type="checkbox"/> Restriction	
Requirement source	A developer who knows and masters java programming language.		
Requirement priority	X High / Essential	<input type="checkbox"/> Average / Desired	<input type="checkbox"/> Low / Optional

Requirement number	02		
Requirement name	Designed for mobile devices with Android operating system		
Type	<input type="checkbox"/> Requirement	<input checked="" type="checkbox"/> X Restriction	
Requirement source	Devices with the latest Android OS given the ease with which new applications can be deployed		
Requirement priority	<input checked="" type="checkbox"/> High / Essential	<input type="checkbox"/> Average / Desired	<input type="checkbox"/> Low / Optional

Requirement number	03		
Requirement name	The system must export a .csv file		
Type	<input checked="" type="checkbox"/> Requirement	<input type="checkbox"/> Restriction	



Requirement source	This facilitates the visualization of the patient's medical history, given that there are readers of this type of files such as exce		
Requirement priority	<input checked="" type="checkbox"/> High / Essential	<input type="checkbox"/> Average / Desired	<input type="checkbox"/> Low / Optional

3.1 Common interface requirements

The medical staff will need to register with a username and password that will later be used for the elaboration of the medical history and its respective modifications, which can be visualized in a csv file that can be opened with any Excel spreadsheet program.

3.1.1 User interfaces

The specific description for the system is to create a QR code in the virtual platform of the clinical history system of the hospital in question, which requires immediate access through a QR code scanner, it will be 3x3 size, and with it the entire clinical history, both doctor or nurse.

3.1.2 Hardware interfaces

It is necessary to use android mobile devices to run the system properly.

3.1.3 Software interfaces

The “name of the system” system will be a product designed to work in WEB environments, that used its use in a decentralized way, in addition to working in a independent therefore it will not interact with other systems

3.1.4 Communication interfaces

No communication or data exchange with other systems has been considered at this time.

3.2 Functional requirements

The SIS-WEB system will allow to perform the following functions:

- User Administration: The system administrator can manage many patients (add, modify, delete, search, list).
- Coordination of Medical Procedures: The coordinator of medical procedures will plan resources necessary for the intervention, such as: operating room reserves, medical resources and resources in general. The speaker of the operating room, will be responsible for the publication of information regarding the himself and the postoperative care of each patient in their respective ward.
- Publication of Information: Anyone who can access the system will update the general information of the platform at all times.



- d. Admission: Process that will allow a doctor or nurse to enter the patient's data for hospitalization.
- e. Navigation: Process by which an authorized person may use the “Optimized Diagnostic System” system.

3.3 Non-functional requirements

3.3.1 Performance requirements

It is expected that 100% of interactions in the system will be completed in less than 1 second, given the initial stage of implementation of the system could be carried out in smaller medical institutions.

3.3.2 Security

- In the aspect of security in the registry of files with activity "logs" of activity, we can work with the free version of EVENTLOGANALYZER that allows us to track when someone is trying to enter our server or system or steal confidential data (doctor, patients). etc., providing a central repository for the analysis of events that occur in our system due to the fact that it has several specific functions such as file integrity monitoring that centrally tracks all changes and generates alerts in real time when files and folders are created, accessed, viewed, deleted, modified, renamed, etc

3.3.3 Reliability

The number of permissible incidents should be minimal, for the moment we could not specify the exact figure since we have not yet reached the final stage of project development.

3.3.4 Availability

The software will be available 24 hours a day, i.e. 100% of the time.

3.3.5 Maintainability

Regarding maintenance, we will work in some stages depending on the time our system is working, first of all, we will start with preventive maintenance to avoid possible problems (safety, operability, or functionality, etc.) that may arise in the future, the latter being the case. If we present problems, we will enter into a corrective maintenance that consists of the review and correction of security, stability, operability or errors in the code and finally, if the entity requires it, we would enter into a perfect maintenance that users require to have new functionalities.

Regarding who should carry out the maintenance, it will be the group in charge called FailOverflow who are in charge of said system and regarding the maintenance time, a statistic will be kept, we will start weekly and if there are no



errors during the activation of the system we will go monthly until we get to review it every six months.

3.3.6 Portability

El sistema está basado totalmente en el lenguaje de programación Java y por el momento orientado a dispositivos con el sistema operativo Android

3.4 Other requirements

We would be governed solely by the internal policies of each clinic or hospital in which the system is implemented.

4 Appendices

All the necessary information for the development of this system is included in this document.

