University of the Armed Forces "ESPE"

Specification of
Software Requirements

MEDICAL CONTROL SYSTEM FOR NATURAL PEOPLE

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1. Introduction.

Today companies and institutions handle exorbitant amounts of information, hospitals and clinics today are not far behind.

They interact with a large number of people on a daily basis, including staff, doctors and patients.

The security and legitimacy of this information is essential in any of these establishments, for which today it is essential that the files have computerized services.

Thanks to the computerized data of Data Registration, we will be able to have the relationship between the medical record number and the patient's name and surnames through the Patient Master File. With this we get the 'location of the medical record by surnames and name and record number clinic', to facilitate and improve the attention of the clinic.

This program is based on an interface for better data management in the cloud, since without a system it is easy for us to understand the importance of having a good clinical record. It is also of great importance from a legal point of view.

The medical appointment system aims to achieve with users:

- Identification of patients treated.
- Reduction of errors in the handling of information.
- Record of patient signs and symptoms.
- Record of care acts and decisions made by doctors.
- Appropriate presentation and prescription of care instructions and reports for patients.
- Progressive creation of databases where medical staff can access to help in the clinical decision-making process.

1.1 Purpose

- Schedule a medical appointment system through a menu with an interface to register patients and doctors connected to a database to facilitate the management of clinic data.

    A. Control of registered patients
    B. Control of the doctors assigned to each patient
    C. Registration of medical history in a database
    D. Date and time of medical appointments
    E. Save the data of the administrative part and the patients
    F. Delete any recorded data in case an error has occurred

1.2 Scope and reach

Due to its main characteristics and in relation to the medical system to which it is focused, the medical appointment system will be called "MedicalPro".
And it is aimed at medical centers to facilitate and improve patient care

- The cost desktop program:
    - Login
    - Password
    - User
    - Menu
    - patients
    - Patient Registration
    - Administrative Staff Registry
    - Staff registration (Secretary/Doctors)
    - Delete patients/administrative
    - Save patients/administrative
    - Upload the recorded data to a database

1.3. Personnel Involved

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Responsibility	Review of the general project both the documentation and the code
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Approval	YES

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Role	Collaborator
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Responsibility	Code execution, documentation help
Contact information	
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1.4 Definitions, acronyms and abbreviations Definitions

Concept	Definition
desktop application	A desktop application is one that is installed on the computer or storage system (USB) and we can run it without internet in our operating system, unlike applications in the cloud that are on another computer (server) that we access via network or internet
Database	A database is a set of data belonging to the same context and systematically stored for later use. In this sense; A library can be considered a database composed mostly of documents and texts printed on paper and indexed for consultation.

1.6 Summary

This work presents a solution to medical units (clinics and hospitals) in the control of appointments as well as the management of clinical history through a desktop application, with this it will allow to better improve the process of appointment control and history management. clinical.
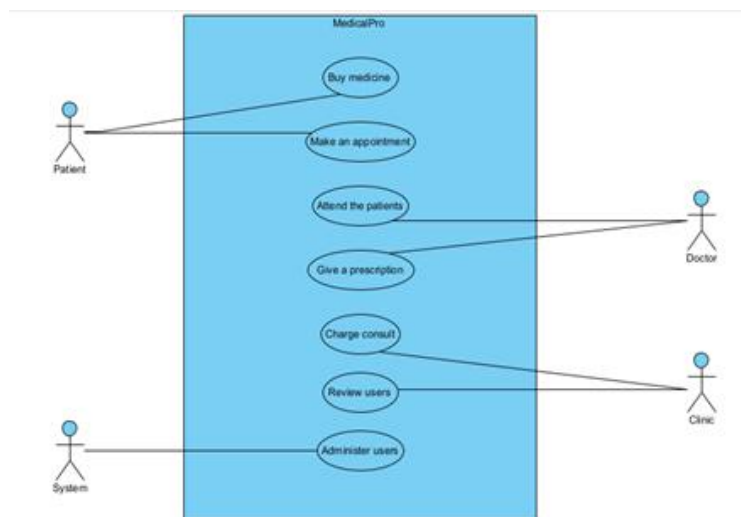
The development and implementation of the desktop application contains the following requirements that we are going to mention: administration, appointment scheduling, diagnosis and medical treatment, registration of patients and administrative personnel, database The main objective is to develop a desktop application so that can be accessed from any computer (laptop or PC) that has an internet connection. It was concluded with the desktop application to have better control in the scheduling of medical appointments and registration of clinical history of patients that favor the management of the medical area. The medical staff, after the corresponding training, proceeded to use the desktop application according to the scope established in the collection of information,

2. Overview
2.1. Desktop App Perspective

The "MedicalPro" desktop application is an independent software product, which will allow access to authorized persons with a username and password, the display of the menu, the interface to access the menu; On the part of the user application, it has your registration, medical history and information such as your ID number.

2.2. Product functionality

2.3 User characteristics

Tipo de usuario	Administrator
Formación	Educación Básica
Habilidades	Facilidad de manejo en aplicaciones con interfaces Java
Actividades	Es el único usuario autorizado en tener un completo manejo del sistema, es capaz de agregar nuevos administradores o secretarios, también cuenta con la opción de buscarlos y removerlos.

Tipo de usuario	Secretary
Formación	Educación Básica
Habilidades	Facilidad de manejo en base de datos y experiencia en aplicaciones como MongoDBCompass y MongoDBAtlas
Actividades	Agregar nuevos pacientes a la lista existente en la clínica, buscarlos por el número de cedula y removerlos del sistema.

2.4 Restrictions

- The system is developed in the Java programming language.
- The information is intended to be stored in the MongoDBAtlas database.
- The system must have the mongodb-driver-3.12.10.jar, jcalendar-1.4.jar libraries incorporated.
- The system must be installed on operating systems such as Windows, Linux and Ubuntu.

2.5 Assumptions and dependencies

- The system is designed only for operation on computers, therefore, it is not compatible with Android systems of any kind.
- The system is designed to establish a connection with MongoDBAtlas, in case you choose to use another database, the system connection must be modified.
- The system needs to maintain internet connection for all data changes to be successfully stored.

2.6 Foreseeable evolution of the system

The system is designed to store data of the patients that are registered in the care of the clinic, in terms of the data limit that this system can store will be delimited by the database service that is intended to be implemented.

3. Specific Requirements

3.1 Functional Requirements

Admin Application

RF1: Enter the system

The home screen will ask you to enter the username and password to access.

RF2: Enter new user

When entering, a menu will be displayed, in which you will find the options to add new users or exit the system, when entering from an administrative account this user is the only one that is enabled to register new administrative users.

RF3: Enter administrative user

In this interface the administrator fills in the data of the new user and once finished clicks save, in this same window there are buttons to search for administrative users, this button will show all registered users and specify their type (Administrator or Secretary), finally it also has the option to remove the user, for this you must select the user to remove and click on this option

Secretary application.

RF1: Enter the system

The home screen will ask you to enter the username and password to access.

RF2: Enter new user

Upon entering, a menu will be displayed, in which you will find the options to add new users or exit the system, this user is enabled to register new patients.
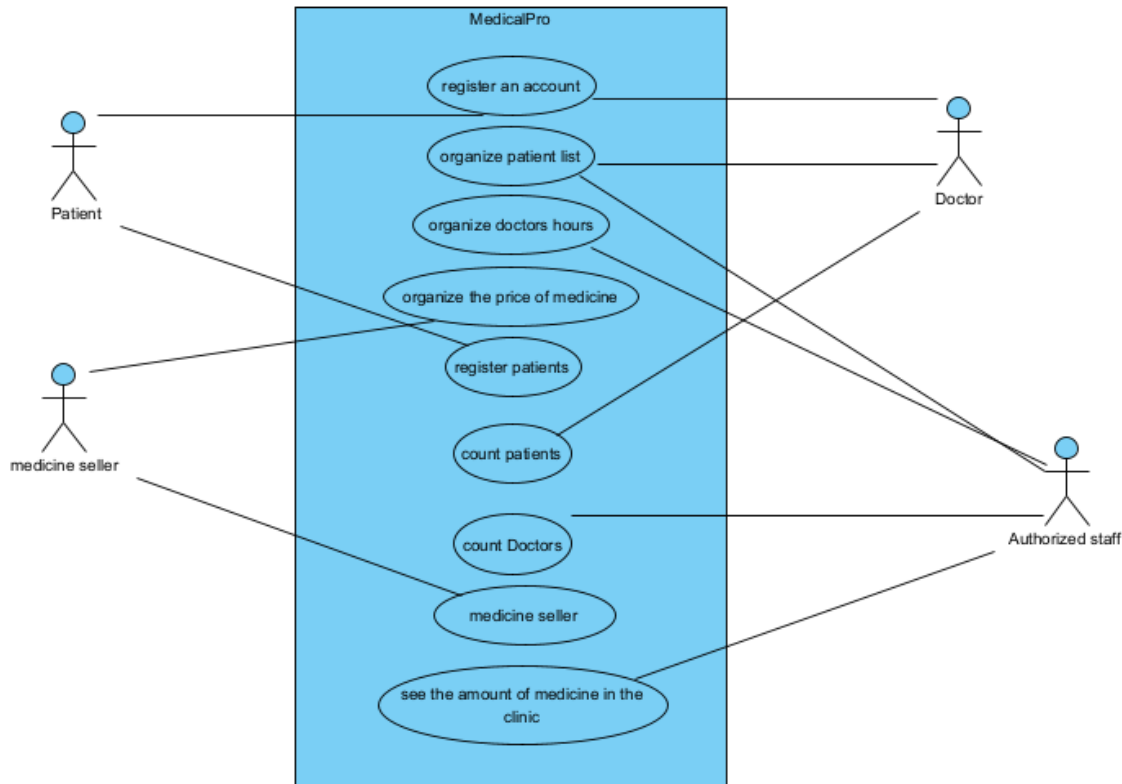
RF3: Enter patient

In this interface, the secretary fills in the data of the new user and once finished clicks save, just as in the administrators interface, the secretary has the same functions described above, with which he can search for and delete patients.

3.2. Non-Functional Requirements

- The application allows us that the user can interact with the application for data entry.
- The system must allow the user to register patients and administrators.

- The system allows the entry of a new patient by storing the name, paternal surname, paternal surname, identification document, date of admission and diagnosis.
- The system should not present response times greater than 5 seconds.
- The system must have an internet connection via Wi-fi.
- The system must have an availability of 90% High Availability.
- The system must not allow access to unregistered users.

4. Use case diagrams

5. Specification of Use Cases

5.1. Application of the Medical Service Enter the system

identifier	RF1
Name	Login to the system

Description	The system allows the user to enter the system requesting a username and password.
Actors	User
Preconditions	The user must have login credentials or can use the trial version.
Preconditions	Be registered in the users.
Postconditions	The user is registered and the application will not ask him to register again
normal data flow	1. Login to the system with the username and password. 2. Check that there are no empty fields. 3. Validate user. 4. Validate key. 5. The main interface of the application is displayed.

Alternate flows and exceptions	A. There are empty fields
	If the field is empty
	1. The system displays enter missing field.
	B. Incorrect password
	1. The system displays the message: This user is not registered

5.2. Application of the Medical Service Registration Enter new user

identifier	RF2
Name	Enter new user
Description	The system allows the user to enter a new patient in the system requesting Name, Surname, Identity Card, Pathology, Date of Birth.
Actors	User - Patient

Preconditions	The user must have login credentials or can use the trial version to be able to enter patients into the system.
Preconditions	Be registered in the system users and have access to the system.
Postconditions	The user is registered and the application will not ask him to register again
Alternate flows and exceptions	6. Login to the system with the username and password. 7. Check that there are no empty fields. 8. Validate Name surname, Identity Card, Pathology, Date of Birth. 9. The main interface of the application is displayed.
Alternate flows and exceptions	C. There are empty fields If the field is empty 2. The system displays enter

	missing field.
	
	D. Wrong ID
	
	    1. It does not allow to register another type of data in the field
	
	E. Admission date
	
	    1. The system does not support dates prior to the day of execution

5.3. Application of the Medical Service Registry of Officials

identifier	RE 3
Name	Register Patient
Description	The system allows user registration by entering the following data: Name, surname, Identity Card, Pathology, Date of Birth
Actors	Official

Preconditions	The official must be registered in the application
Preconditions	

normal flow of events
1. The system displays the login window with the username and password fields, in addition to the login button. 2. The wizard enters the corresponding username and password. 3. Validate that there are no empty fields 4. Validate password 5. Login
Alternate flows and exceptions

Application of the Medical Service Entry of Common Officials

identifier	RE 4

Name	Login to the cloud system
Description	The system allows entering the Mongo Database to add records in which Names are found.
Actors	Official
Preconditions	The Official must be registered in the application
Preconditions	

normal flow of events
1. The system displays a menu in the entry of Officials
2. The wizard enters the corresponding username and password.
3. Validate that there are no empty fields
4. Validate password
5. Login

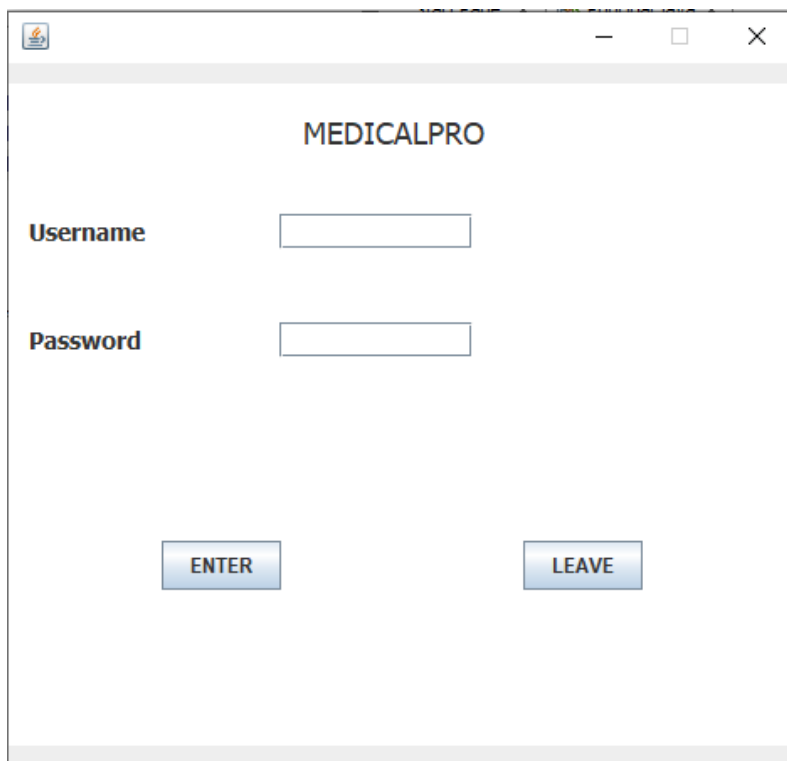| Alternate flows and exceptions |
| --- |
| A. There are empty fields

1. The system shows the user a text in red to identify that no data was entered.

2. The system allows you to enter the login data again (returns to the normal flow) |
| B. Wrong password

if the password is wrong

1. The system displays the message "There is no registered Official".

2. The system allows you to enter the password again in the login window (returns to the normal flow)

3. The system allows the user to exit the system by not entering the users |

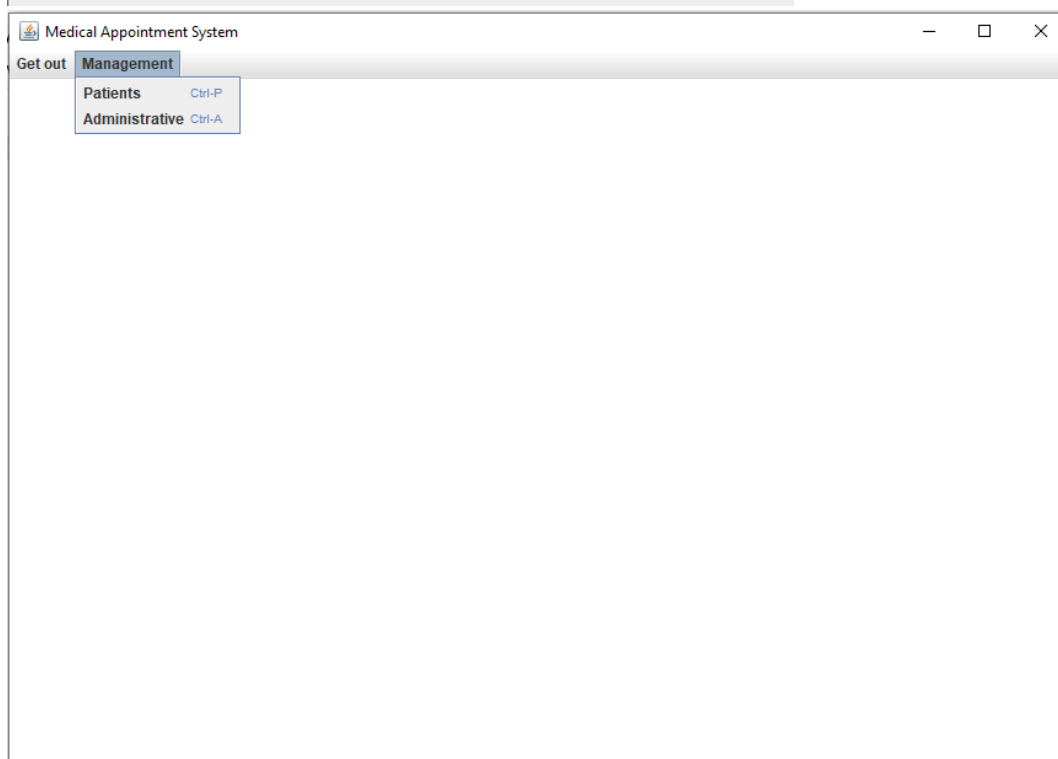| **identifier**	RE 5
Name	Show Patient List
Description	The system will show the patients registered in a list in which the names, surnames, identity card, date of birth, pathology are

	found.
Actors	Official
Preconditions	The Official must be registered in the application
Preconditions	Identify the patient to show or Edit

normal flow of events
1. The system displays a list of Patients
Alternate flows and exceptions
A. The system will present an empty list with a message with no data in the list 1. The system allows you to enter the login data again (returns to the normal flow)
B. Allows you to enter new data to display more data in the list

6. User interfaces

MEDICALPRO

Username

Password

ENTER   LEAVE

Medical Appointment System

Get out   Management

Patients   Ctrl-P
Administrative Ctrl-A

Medical Appointment System

Get out   Management

Personal

Name

Father Last Name

Mother Last Name

Document ID

Type of charge   Secretary ▼

Secretary
Administrator

Username

Password

| Save | New | Cancel |

Personal List

| Search | |

Name	Father Last N...	Mother Last N...	Document ID	Funcion

Remove

Medical Appointment System

Get out   Management

Patient   *Personal Information*

Name

Father Last Name

Mother Last Name

Document ID

Date of admission   17/01/02022

Diagnosis

| Save | New | Cancel |

Patient

| Search | |

Name	Father ...	Mother ...	Docum...	Diagno...	Date of ...

Remove