National Technological Institute of Mexico

SOFTWARE REQUIREMENTS SPECIFICATION

for

Web App for Optometry clinic

Version 1.0 approved

Prepared by author's

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Contents

1 Introduction

1.1 Purpose

The purpose of this document is to write down the solutions we propose to the client given the size of their company and the requirements that they currently need.

1.2 Document Conventions

This document uses the following conventions.

- DB Database
- DDB Distributed Database
- ER Entity Relationship
- TCNM National Technological Institute of Mexico

1.3 Intended Audience and Reading Suggestions

This project is in a prototype stage for the development of our client page and it is restricted within our university. This has been implemented under the guidance of different Tijuana institute of technology teachers. Is in our best interest for this paper to be approachable as possible to any reader regarding their background

1.4 Project Scope

The scope of this project is to create a web solution to our client needs some of them are a way to store customer data, appointment management and given the costumer to know when their upcoming appointment. having a concise DB is critical for this project and all the benefits derive from having a easy way to interact with this data. .

1.5 References

List any other documents or Web addresses to which this SRS refers. These may include user interface style guides, contracts, standards, system requirements specifications, use case documents, or a vision and scope document. Provide enough information so that the reader could access a copy of each reference, including title, author, version number, date, and source or location.

2 Overall Description

2.1 Product Perspective

This client doesn't have a easy way to interact with their data everything is being done by hand and paper. Is up to the appointed person to keep track of any appointment to every client.
The client lacks a web page where we must provide an interactive way for costumers to check their appointments prescriptions, and attract new ones.
Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be helpful.

2.2 Product Functions

The key features of the product are:

- Data Storage and retrieval: Our web app will serve as a secure and scalability. Give a repository for the client valuable data. Store, organize, and retrieve information effortlessly, ensuring data integrity and accessibility.
- User Authentication: Protect sensitive data with user validation controls. Grant and manage access privileges to ensure that only authorized users can view, edit, or manipulate specific data sets.
- Automated Reminders: Generate custom remainders notifications for patients appointments.
- Integration: Seamlessly integrate with the Web application and services.

Summarize the major functions the product must perform or must let the user perform. Details will be provided in Section 3, so only a high level summary (such as a bullet list) is needed here. Organize the functions to make them understandable to any reader of the SRS. A picture of the major groups of

related requirements and how they relate, such as a top level data flow diagram or object class diagram, is often effective.

2.3 User Classes and Characteristics

We identify three user classes

- Patients should have to capability's of
  - Check their respective data
  - Schedule new appointments
  - Receive information about appointments and prescriptions
- Doctors can perform different task like
  - Schedule appointments
  - Retrieve patient data
  - Make a prescription
- Administrative personnel
  - Register new users
  - View specific parts of the patient clinical history

Identify the various user classes that you anticipate will use this product. User classes may be differentiated based on frequency of use, subset of product functions used, technical expertise, security or privilege levels, educational level, or experience. Describe the pertinent characteristics of each user class. Certain requirements may pertain only to certain user classes. Distinguish the most important user classes for this product from those who are less important to satisfy.

2.4 ER Diagram

2.4.1 Main tables:

Patients: This table will store general information about patients, such as their first name, last name, date of birth, social security number, address, etc. Physicians: This table will store information about physicians, such as their first name, last name, specialty, license number, etc. Appointments: this table will store information about appointments, such as date, time, duration, doctor, patient, etc. Hospitals : this table is to differentiate where the doctor is from and the address of the appointment. Related tables:
General Medical Records: This table will store general information about patients, such as their medical history, allergies, medications, etc. Specific medical records: this table will store specific information for each specialty, such as test results, prescriptions, etc. Relationships between tables:

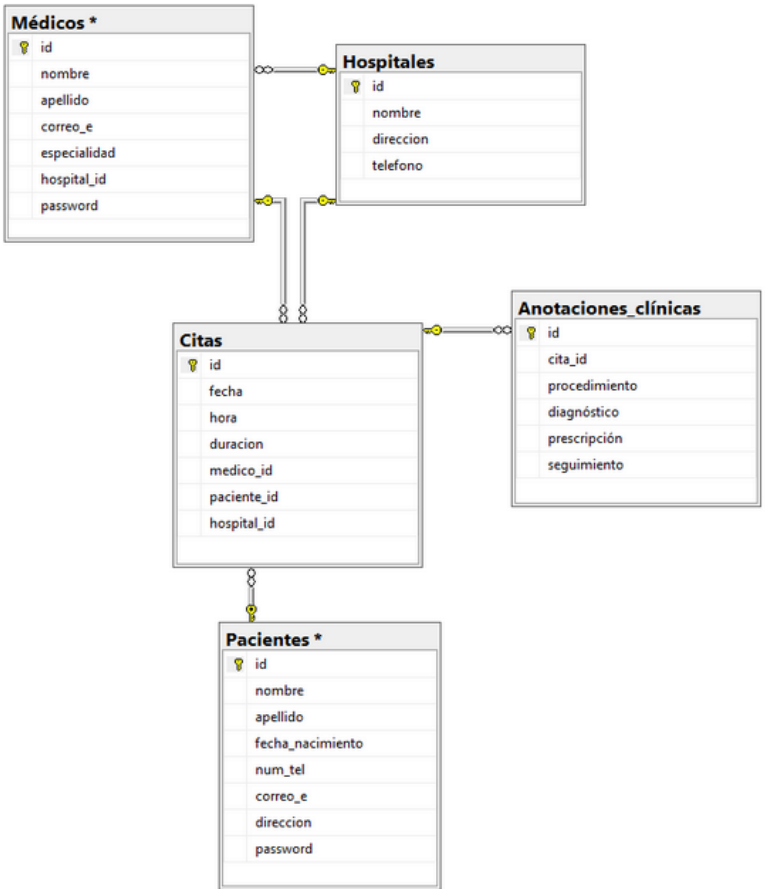


Figure 2.1: ER diagram

2.4.2 Patients:

The Patients table has a one-to-many relationship with the General Medical Records table. This means that a patient can have several general medical records. Physicians: The Physicians table has a one-to-many relationship with the Appointments table. This means that a physician can attend several appointments.

2.4.3 Appointments:

The Appointments table has a one-to-one relationship with the Specific Medical Records table. This means that an appointment can have only one specific medical record. Hospitals: will store appointment addresses and doctors.

2.5 Operating Environment

The system for the ophthalmology clinic is designed to operate within a specific operating environment that must meet a range of technical and software requirements to ensure efficient and reliable operation. Below are detailed key components and considerations of the operating environment:

- Web server: The system utilizes a web server to provide access via a web browser. It can be deployed on common web servers such as Apache, Nginx, or other Python-compatible web servers like Flask or Django. The web server configuration should be appropriate to handle the expected traffic load, including multiple user requests, and ensure secure communication via HTTPS.
- Supported web Browsers: Users interact with the system through modern web browsers like Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari. The web application should be compatible with these platforms and popular browsers. The use of standard web technologies and web standards is recommended to ensure compatibility.

2.6 Design and Implementation Constraints

Describe any items or issues that will limit the options available to the developers. These might include: corporate or regulatory policies; hardware limitations (timing requirements, memory requirements); interfaces to other applications; specific technologies, tools, and databases to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards (for example, if the customer's organization will be responsible for maintaining the delivered software).

2.7 User Documentation

user documentation provides comprehensive guidance on using the appointment scheduling and clinical history management system for the ophthalmology clinic. It aims to help users, including medical professionals, staff, and administrators, make the most of the system's features and capabilities.
Target Audience This documentation is intended for all users of the system, including:
Ophthalmologists Clinic Staff (Assistants, Secretaries) System Administrators
For the patients they will require an easier guide to the activities that they can perform at the web page

2.8 Assumptions and Dependencies

In the development and implementation of the appointment scheduling and clinical history management system for the ophthalmology clinic, these are the important factors to consider as they can impact the project's scope, timeline, and successful execution.

- Clinic Infrastructure: It is assumed that the clinic already has the necessary hardware infrastructure, including servers or hosting services, network connectivity, and workstations, to support the system's operation.
- Internet Connectivity: Users are expected to have reliable internet access to use the system effectively. This includes both clinic staff and ophthalmologists who may access the system remotely.
- Data Accuracy: It is assumed that patient data provided to the system, such as personal information, medical history, and contact details, is accurate and up-to-date. Data inaccuracies can affect appointment scheduling and clinical record management.
- Compliance: The system is developed with the assumption that the clinic staff and users will adhere to all relevant legal and regulatory requirements, including data privacy laws such as HIPAA or GDPR, to ensure the confidentiality and security of patient information.
- User Training: Users are expected to receive adequate training and support to effectively use the system. Training materials and resources will be provided to assist users in becoming proficient with the system.

3 External Interface Requirements

3.1 User Interfaces

User Interface Design Considerations:

- User-Centered Design: Place the user at the center of your design process. Understand the needs and preferences of ophthalmologists, clinic staff, and other users to create interfaces that cater to their workflows and tasks.
- Consistency: Maintain a consistent look and feel throughout the application. Consistency in design elements, such as buttons, fonts, and colors, helps users navigate the system intuitively.
- Accessibility: Ensure that your interfaces are accessible to all users, including those with disabilities. Follow WCAG (Web Content Accessibility Guidelines) for accessibility standards.
- Responsive Design: Design interfaces that are responsive to different screen sizes and devices, including desktop computers, tablets, and smartphones.
- Information Hierarchy: Organize information logically, using clear hierarchies, headings, and grouping to help users find what they need quickly.
- Feedback and Confirmation: Provide feedback to users when actions are taken (e.g., successful appointment creation) and seek confirmation for critical actions (e.g., deleting a patient record).
- Efficiency: Streamline repetitive tasks and offer shortcuts to help users perform their duties efficiently. Consider keyboard shortcuts and quick actions.
- Error Handling: Clearly communicate errors to users with informative error messages. Suggest solutions or corrective actions when possible.

3.2 Hardware Interfaces

The appointment scheduling and clinical history management system for the ophthalmology clinic interacts with various hardware components and devices to

support its functionality. This section describes the hardware interfaces and dependencies required for the system's operation.

3.3 Server Hardware

Description: The system operates on one or more servers machines that host the application and store data.
After rolling the first prototype into production we plan to use a single server

3.4 Software Interfaces

The appointment scheduling and clinical history management system for the ophthalmology clinic interacts with various software systems and components to support its functionality. This section describes the software interfaces and dependencies required for the system's operation.

3.5 Communications Interfaces

The appointment scheduling and clinical history management system for the ophthalmology clinic relies on various communication interfaces to facilitate data exchange, notifications, and interactions with external entities. This section describes the communication interfaces and protocols used by the system.

User-System Communication Description: User-System Communication refers to how users interact with the system's user interfaces through web browsers or client applications.
Protocols and Interfaces:
HTTP/HTTPS: User interactions with the system are primarily conducted via web browsers using the HTTP/HTTP protocol.

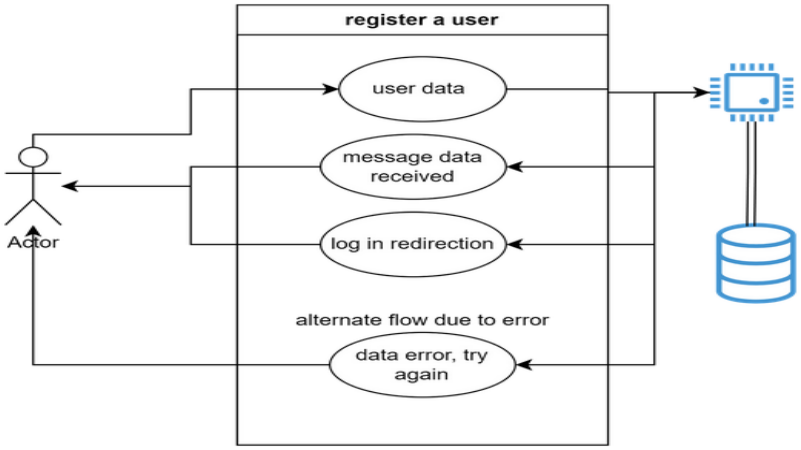
4 System Features

4.0.1 Use Cases

Use cases are different uses where an actor can interact with the system.

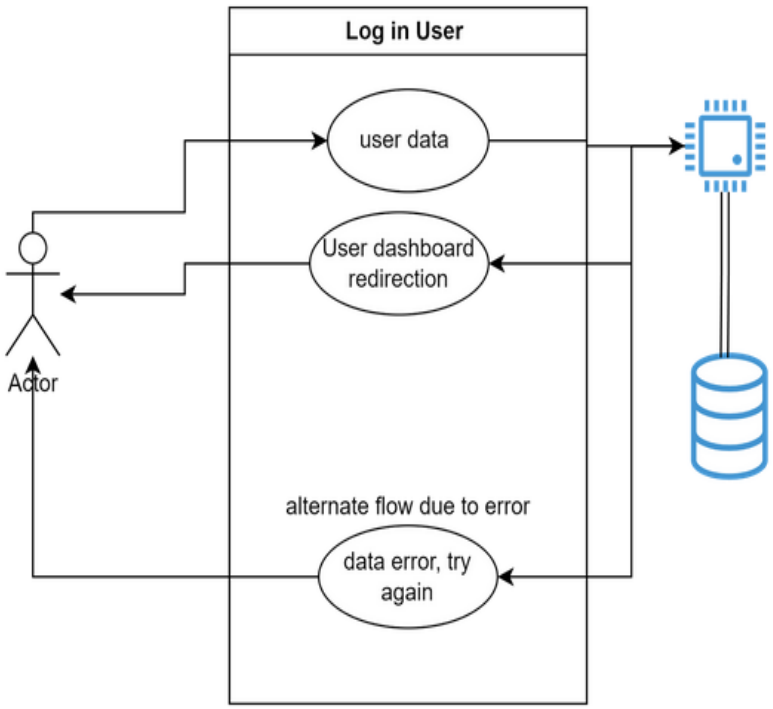
Flow for Creating Patients

Use Case Flow for Creating Patients Actor: Clinic Staff Preconditions:
Clinic staff must be authenticated in the system. Main Flow:
Clinic staff enters patient information such as first name, last name, date of birth, address, and phone number. The system validates the patient's information. The system creates the patient in the database. The system displays a confirmation message.
Extensions:
If the patient information is incorrect, the system displays an error message.



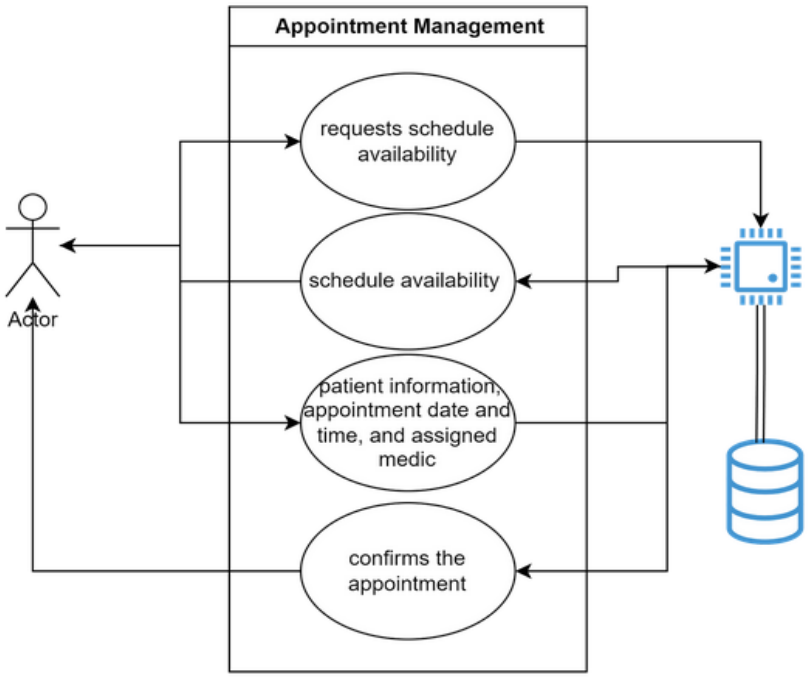
Flow for Logging In

The doctor must have an account registered in the system. Main Flow:
The user enters their username and password. The system validates the login information. The system authenticates user . The system displays the user interface corresponding to the user´s role.
Extensions:
If the login information is incorrect, the system displays an error message.It will also give the option to register



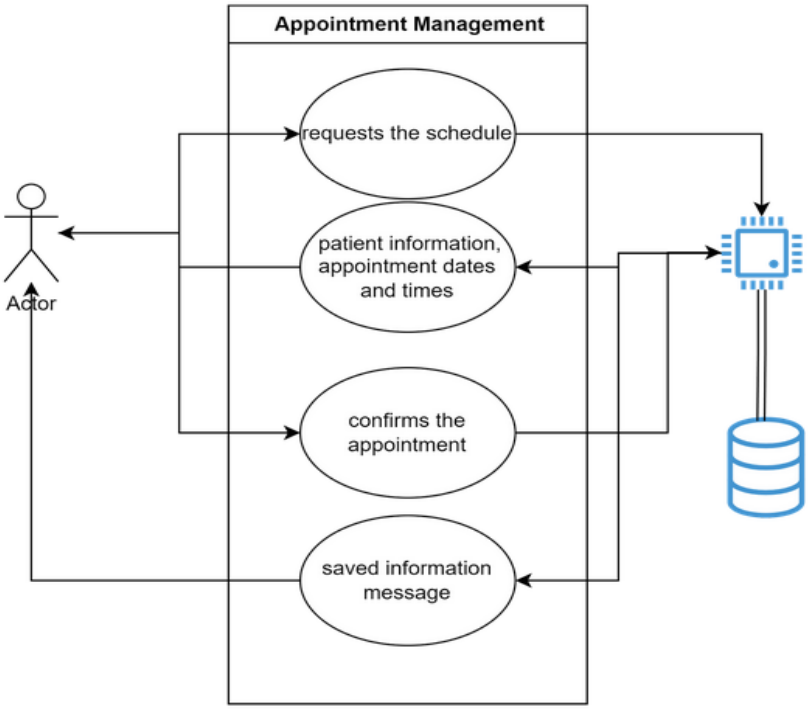
Schedule an Appointment

Actor: Clinic Staff
Main Flow: Staff requests schedule availability. System responds to schedule availability Clinic staff enters patient information, appointment date and time, and assigned medic The system confirms the appointment and assigns it to the patient.



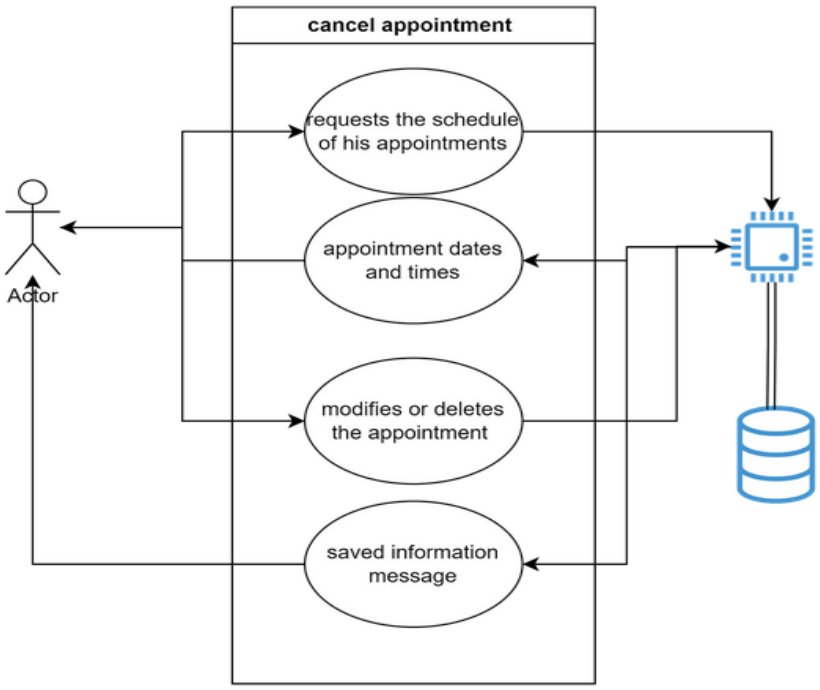
Appointment Management

Use Case: Revise schedule Actor: Clinic Staff Precondition: User has the role of doctor. Main Flow: User requests the schedule system responds with patient information, appointment dates and times User confirms appointment system responds with saved information message



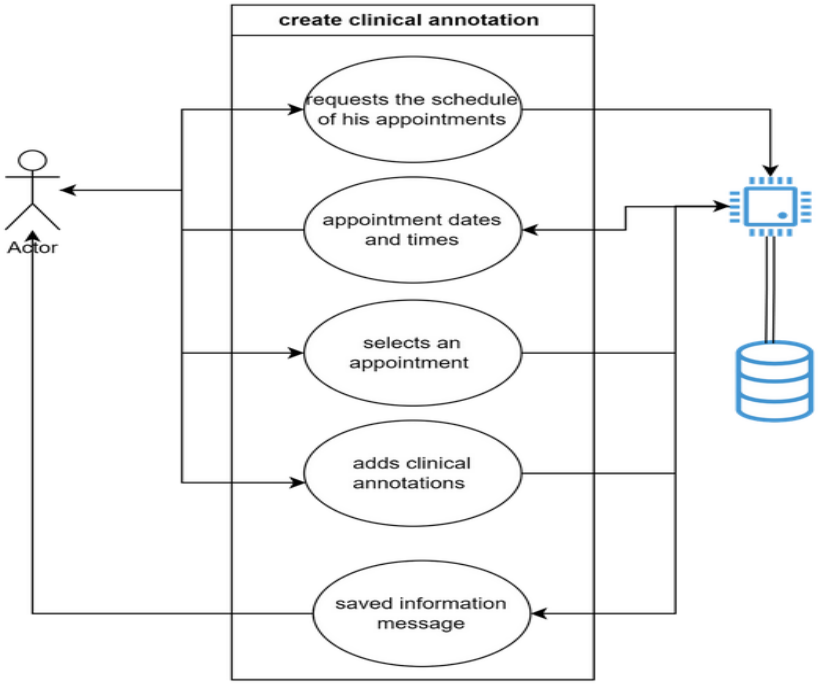
modify or delete appointment

Actor: patient or doctor precondition: user has the role of patient or doctor Main Flow: The user requests the schedule of his appointments The system responds with the appointment dates and times. User modifies or deletes the appointment system responds with saved information message



create clinical annotation

Actor: doctor precondition: user has the role of doctor
Main Flow: The user requests the schedule of his appointments The system responds with the appointment dates and times. User selects an appointment user adds clinical annotations system responds with saved information message



Appointment Management

- The system must allow clinic staff to schedule new appointments for patients, specifying the patient, date and time of the appointment.
- It must be possible to modify or delete existing appointments.
- The system should display appointment availability and avoid scheduling appointments at overlapping times.

4.0.2 Description and Priority

The system needs a way to organize appointments and be checked by different users to ensure this we require the database to store information and the Web app to access it.
This is the top priority of the system. The client states that has lost many data entries and had to be individual call for clarification meaning a crucial waste of resources.

4.0.3 Stimulus/Response Sequences

Patient comes or calls to the clinic makes a registry in the web app and is scheduled an appointment with their doctor witch checks the patient clinical history, makes a prescription and is giving the option to schedule another appointment for the next visit.

4.0.4 Functional Requirements

- Web app where to register and summit clinical data
- Have a way to check when is the next appointment and re-scheduled a new one if necessary

5 Other Nonfunctional Requirements

5.0.1 Usability

The user interface must be intuitive and easy to use for clinic staff, even those with little technical experience.

5.0.2 Performance

The system must be able to handle a significant number of appointments and clinical records without performance degradation.

5.0.3 Scalability

The system must be able to adapt as the clinic grows, allowing for the addition of more physicians, patients and appointments.

5.0.4 Data backup

A data backup strategy should be implemented to ensure recovery in the event of data loss.