	PROJECT REPORT Code: .--. .-. --- -.-- . -.-. - --- / ..--- ----- .---- ....- -...- .---- ..--- -...- .---- ..--- Version: 0003 Author: ********** Adviser: ******** Entity: ********** Country: ***** City: *** date: ********

Project Protection and Usage License

This report and the project described within are intellectual property of the company **GR**. Its use, distribution, and modification are allowed exclusively under the terms of this license, which is focused on ensuring that any improvements or edits to the project are made solely for the purpose of optimizing its functionality and educational value.

Terms of Use

1. **Reproduction and Distribution:** Reproduction and distribution of this project are permitted as long as the integrity of the original content is maintained and proper credit is given to the company **GR** as the creator.
2. **Allowed Modifications:** Modifications and adaptations to the project are allowed only when intended to improve its design, functionality, or implementation. Any changes must be documented and shared with **GR** for evaluation and potential integration into future versions.
3. **Commercial Use:** This project may not be used for commercial purposes without prior written authorization from **GR.**

User Responsibilities

Users accessing the content of this report and modifying the project must:

• Ensure that any improvements respect the original development principles.

• Document the changes made clearly and in detail.

• Notify **GR** of any proposed improvements, in order to maintain a centralized record of contributions to the project.

Authorization for Commercial Use

Although the project is freely accessible for educational and improvement purposes, any commercial use must be authorized in advance by **GR**. Authorization requests will be evaluated to ensure compliance with the company's ethical and legal principles.

Charges and Penalties

Improper use of this project, including unauthorized commercial exploitation or modifications that negatively affect its original purpose, may result in legal actions. These actions may include:

• Fines proportional to the harm caused.

• Legal proceedings for breach of license terms.

Intellectual Property Statement

The company GR retains ownership of this project and its associated rights. This licensing framework aims to foster collaboration and continuous improvement, always under an ethical and responsible scheme.

Contact

For notifications, improvement suggestions, or authorization requests, users can contact GR through the following channels:

- Email: **********
- Phone: **********
- Address: **********

Table of Contents

SUMMARY

The Web System of the Estrella de Jerusalén Medical Center is a comprehensive platform developed using HTML5, CSS3, JavaScript, and PHP/MySQL, designed to optimize the medical and administrative management of the institution. It is organized into three main user roles: patients, doctors, and administrative staff. Patients can request appointments, review their medical history, and access services. Doctors register consultations, use ICD-10 coding, and generate PDF documents. Administrative staff manage schedules and internal resources.

The system includes digital medical records, real-time appointment management, and a catalog of medical services. Security is ensured through role-based authentication, data validation, and protection against SQL injection. It also guarantees encrypted password storage. The interface is responsive and compatible with both mobile and desktop devices. It integrates Google Maps and allows for the generation of dynamic documents. Developed in XAMPP with MySQL, it has proven to be a scalable, robust, and efficient solution.

INTRODUCTION

This report presents the development of a web system for the Estrella de Jerusalén Medical Center, created to optimize the management of medical and administrative services. The platform aims to improve internal organization, facilitate access to medical care, and offer an efficient digital tool. It was developed using technologies such as HTML, CSS, JavaScript, PHP, and MySQL, with XAMPP as the local development environment. The system is designed to benefit both staff and patients. It centralizes processes, automates tasks, and enhances institutional efficiency. Additionally, it provides a clear and intuitive user experience.

JUSTIFICATION

The implementation of the web system at the Estrella de Jerusalén Medical Center is justified by the need to modernize processes that, in their traditional paper-based form, were inefficient and prone to errors. This negatively affected patient care and created a high administrative burden.

The new digital platform centralizes the management of appointments, medical records, medical services, and patient communication, using web technologies such as HTML, CSS, JavaScript, PHP, and MySQL. This solution not only improves operational efficiency and user experience but also ensures the security of clinical information through authentication and data validation.

OBJECTIVES

General Objective

To develop and implement a comprehensive web system for the Estrella de Jerusalén Medical Center that optimizes the management of its medical and administrative processes through the use of modern web technologies, with the goal of improving operational efficiency and the quality of patient care.

Specific Objectives

1. Design and implement a responsive and accessible user interface (frontend) using HTML5, CSS3, and JavaScript that ensures an intuitive experience for patients, doctors, and administrative staff.
2. Develop robust business logic and backend functionality with PHP, establishing a secure and efficient connection to a MySQL database for reliable information management.
3. Implement a role-based authentication and authorization system that enables differentiated and secure access to system features based on the user profile (patient, doctor, administrator).
4. Create specific modules for the centralized management of medical appointments, electronic medical records, and the service catalog, streamlining the clinic's core processes.

THEMATIC DEVELOPMENT

General Details of the System

The clinical registration and management system for the Estrella de Jerusalén Medical Center focuses on optimizing the administration of patients, medical appointments, and clinical records, using web technologies to enhance efficiency in user care. The system is structured into three main areas: patients, medical services, and users. Each area is supported by relational tables in a MySQL database, managed through XAMPP. The main functionalities include:

- **Patient management** (registration, consultation, updating, and deletion of personal and clinical information).
- **Medical appointment management** (scheduling, cancellation, rescheduling, and real-time availability validation).
- **Medical service management** (catalog of specialties, service requests, and assignment of professionals).
- **Responsive web interface** (accessible and intuitive, developed with HTML5, CSS3, and JavaScript, to facilitate user interaction according to their roles).
- **Authentication and security** (role- and permission-based system, data validation, and protection against vulnerabilities).

Explanation of Each Database Table

Table: Clients

The "Clients" table serves as the contact directory of the clinic. It stores the personal information of each individual who interacts with the institution, such as name, national ID (DNI), phone number, and email. It also includes demographic data like date of birth, gender, and address. This record allows for an organized history of patients and contacts, facilitating communication, appointment scheduling, and service tracking. It forms the foundation for the clinic's relational and administrative management.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**nombre**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
3	**email**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
4	**telefono**	varchar(15)	utf8mb4_general_ci		No	*Ninguna*		
5	**dni**	varchar(8)	utf8mb4_general_ci		No	*Ninguna*		
6	**fecha_nacimiento**	date			No	*Ninguna*		
7	**genero**	varchar(20)	utf8mb4_general_ci		No	*Ninguna*		
8	**direccion**	text	utf8mb4_general_ci		Sí	*NULL*		
9	**estado_civil**	varchar(20)	utf8mb4_general_ci		Sí	*NULL*		
10	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Consultations

The "Consultations" table is the core of the medical system, where each patient visit to a doctor is recorded. It logs which doctor attended the consultation, which patient was seen, the appointment date, and the reason for the visit. It also documents important details such as symptoms, patient history, observations made during the consultation, and whether rest, follow-up, or additional tests are required. Additionally, the next appointment is scheduled if necessary, serving as the immediate clinical record for each consultation.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id**	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**medico_id**	int(11)			No	*Ninguna*		
3	**paciente_id**	int(11)			No	*Ninguna*		
4	**fecha_consulta**	date			No	*Ninguna*		
5	**motivo_consulta**	text	utf8mb4_general_ci		No	*Ninguna*		
6	**enfermedad_actual**	text	utf8mb4_general_ci		No	*Ninguna*		
7	**antecedentes**	text	utf8mb4_general_ci		Sí	*NULL*		
8	**observaciones**	text	utf8mb4_general_ci		Sí	*NULL*		
9	**reposo_medico**	tinyint(1)			Sí	0		
10	**control_medico**	tinyint(1)			Sí	0		
11	**examenes_auxiliares**	tinyint(1)			Sí	0		
12	**interconsulta**	tinyint(1)			Sí	0		
13	**proxima_cita**	date			Sí	*NULL*		
14	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Contact

The "Contact" table functions as the clinic’s message inbox. It stores all inquiries, requests, or comments submitted by individuals through the website or contact forms. It records the sender’s name, email, phone number, subject, and full message, along with the date and time it was sent. This allows clinic staff to review, respond to, and follow up on public concerns in an organized and timely manner.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id**	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**nombre_completo**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
3	**correo_electronico**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
4	**telefono**	varchar(20)	utf8mb4_general_ci		No	*Ninguna*		
5	**asunto**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
6	**mensaje**	text	utf8mb4_general_ci		No	*Ninguna*		
7	**fecha_envio**	timestamp			No	current_timestamp()		

Table: Diagnoses

The "Diagnoses" table is where the doctor records the outcome of their evaluation of the patient’s health condition after each consultation. It stores a descriptive text explaining the patient’s condition based on symptoms and tests performed during the consultation. Each diagnosis is linked to a specific consultation, allowing for an accurate history of each identified health issue and its progression over time.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**consulta_id**	int(11)			No	*Ninguna*		
3	**texto_diagnostico**	text	utf8mb4_general_ci		No	*Ninguna*		
4	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Specialties

The "Specialties" table serves as the catalog of medical services offered by the clinic. It defines the different types of care available, such as general consultation, ultrasound, or pediatrics, along with their price and the approximate duration of each service. Each specialty has a clear name and a unique identifier that simplifies the management of appointments and services. This table helps organize and clearly present care options to patients.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(10)		UNSIGNED	No	*Ninguna*		AUTO_INCREMENT
2	**slug**	varchar(50)	utf8mb4_general_ci		No	*Ninguna*		
3	**nombre**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
4	**especialidad**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
5	**precio**	decimal(8,2)			No	*Ninguna*		
6	**duracion**	varchar(20)	utf8mb4_general_ci		No	*Ninguna*		

Table: PhysicalExams

The "PhysicalExams" table records vital signs and clinical observations collected during the medical consultation. It includes values such as blood pressure, pulse, temperature, and patient weight, along with a general description of their physical condition. This information is directly linked to a specific consultation, serving as objective evidence of the patient's health status at that time.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**consulta_id** 🔗	int(11)			No	*Ninguna*		
3	**presion_arterial**	varchar(20)	utf8mb4_general_ci		Sí	*NULL*		
4	**frecuencia_cardiaca**	int(11)			Sí	*NULL*		
5	**temperatura**	decimal(4,1)			Sí	*NULL*		
6	**peso**	decimal(5,2)			Sí	*NULL*		
7	**descripcion_examen_fisico**	text	utf8mb4_general_ci		Sí	*NULL*		
8	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Doctors

The "Doctors" table is the directory of all healthcare professionals working at the clinic. It stores their name, medical specialty, and professional license number, which is unique for each doctor. This table allows identification of who attended each consultation and ensures that only registered and valid doctors can provide services. It is essential for organizing schedules, assigning appointments, and guaranteeing traceability of medical care.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**nombre**	varchar(255)	utf8mb4_general_ci		No	*Ninguna*		
3	**especialidad**	varchar(100)	utf8mb4_general_ci		No	*Ninguna*		
4	**cmp** 🔗	varchar(50)	utf8mb4_general_ci		No	*Ninguna*		
5	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Patients

The "Patients" table stores essential medical information of the individuals treated at the clinic. It records data such as name, national ID (DNI), age, gender, phone number, and type of health insurance. This table focuses on aspects relevant to clinical care, allowing medical staff to quickly access key information during consultations. Each patient is uniquely identified to maintain a consistent and personalized medical history.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**nombre**	varchar(255)	utf8mb4_general_ci		No	*Ninguna*		
3	**dni** 🔑	varchar(8)	utf8mb4_general_ci		No	*Ninguna*		
4	**edad**	int(11)			No	*Ninguna*		
5	**sexo**	varchar(10)	utf8mb4_general_ci		No	*Ninguna*		
6	**telefono**	varchar(20)	utf8mb4_general_ci		Sí	*NULL*		
7	**seguro**	varchar(50)	utf8mb4_general_ci		Sí	*NULL*		
8	**fecha_registro**	timestamp			No	current_timestamp()		

Table: Service_Requests

The "Service Requests" table serves as the record of medical appointment bookings or service orders made by patients. It logs the requested services (such as consultation or ultrasound), the preferred schedule, and contact phone number. Each request is saved with the date and time it was made, allowing the clinic to organize schedules, confirm appointments, and follow up on patients' needs in an orderly manner.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(10)		UNSIGNED	No	*Ninguna*		AUTO_INCREMENT
2	**servicios**	varchar(255)	utf8mb4_general_ci		No	*Ninguna*	lista de slugs separados por comas	
3	**horario**	varchar(50)	utf8mb4_general_ci		No	*Ninguna*		
4	**telefono**	char(9)	utf8mb4_general_ci		No	*Ninguna*		
5	**created_at**	timestamp			No	current_timestamp()		

Table: Treatments

The "Treatments" table stores the medical instructions that the doctor recommends to the patient after each consultation. It records prescriptions, therapies, medications, or procedures that should be followed to improve the patient's health. Each treatment is linked to a specific consultation, ensuring that the medical history is well documented and easy to reference in the future.

#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios	Extra
1	**id** 🔑	int(11)			No	*Ninguna*		AUTO_INCREMENT
2	**consulta_id** 🔗	int(11)			No	*Ninguna*		
3	**texto_tratamiento**	text	utf8mb4_general_ci		No	*Ninguna*		
4	**fecha_registro**	timestamp			No	current_timestamp()		

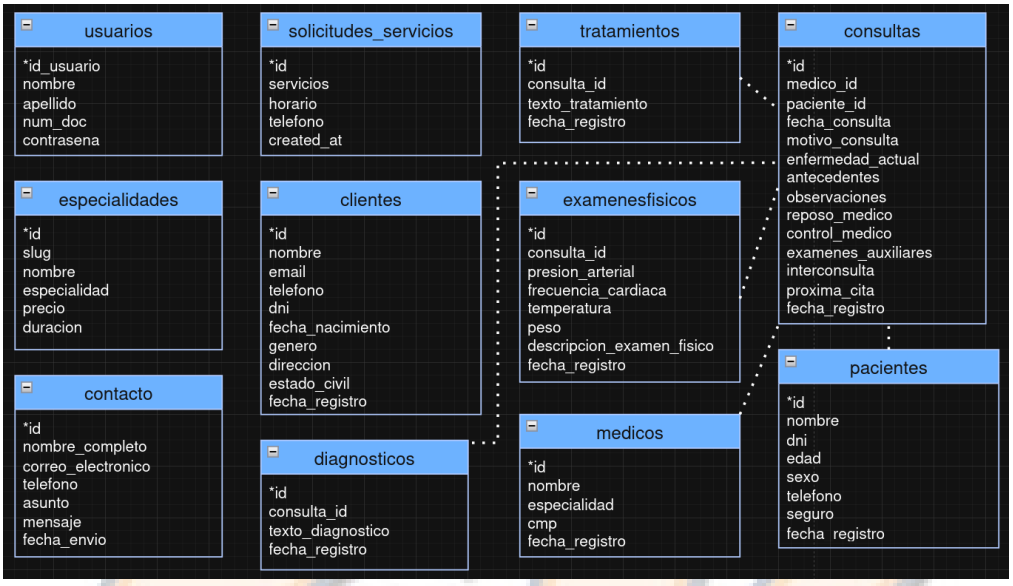
Table: Users

The "Users" table stores the data of individuals who can access the clinic's system, such as doctors or administrative staff. It holds basic information like first name, last name, document number, and password to enable secure access. However, this table has serious issues: passwords are stored without protection, and there are duplicate records, compromising the system's security and reliability.

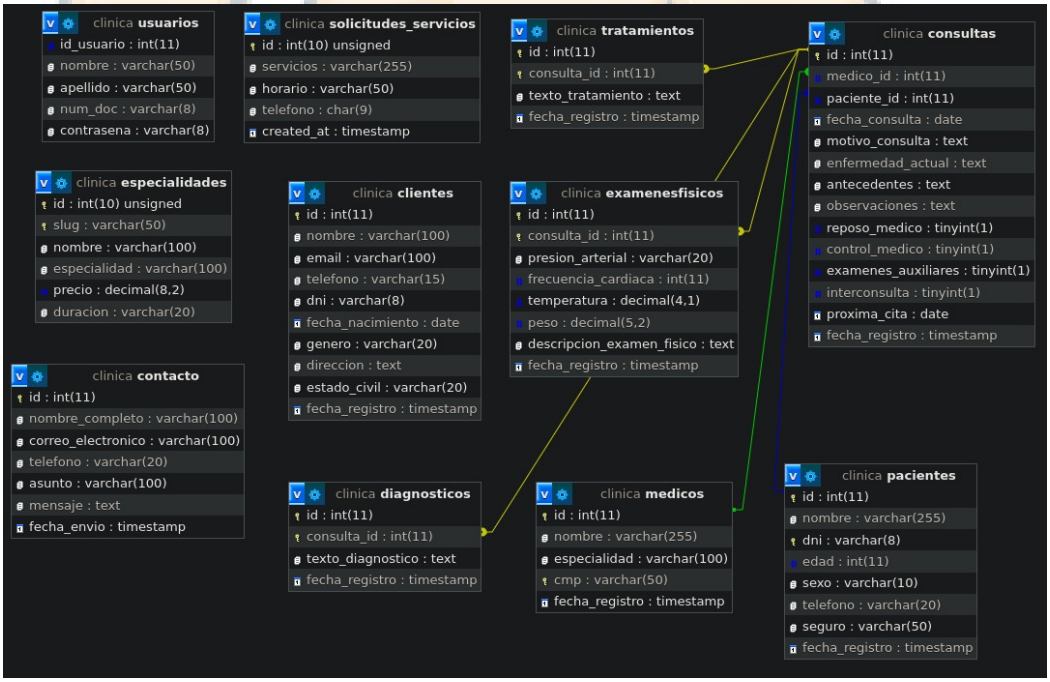
#	Nombre	Tipo	Cotejamiento	Atributos	Nulo	Predeterminado	Comentarios
1	**id_usuario**	int(11)			No	*Ninguna*	
2	**nombre**	varchar(50)	utf8mb4_general_ci		No	*Ninguna*	
3	**apellido**	varchar(50)	utf8mb4_general_ci		No	*Ninguna*	
4	**num_doc**	varchar(8)	utf8mb4_general_ci		No	*Ninguna*	
5	**contrasena**	varchar(8)	utf8mb4_general_ci		No	*Ninguna*	

Database Diagram

The following is the logical diagram of the Estrella de Jerusalén Clinic system, designed with the program 'draw.io':



Below is the physical diagram of the database, obtained from the MySQL database management system:



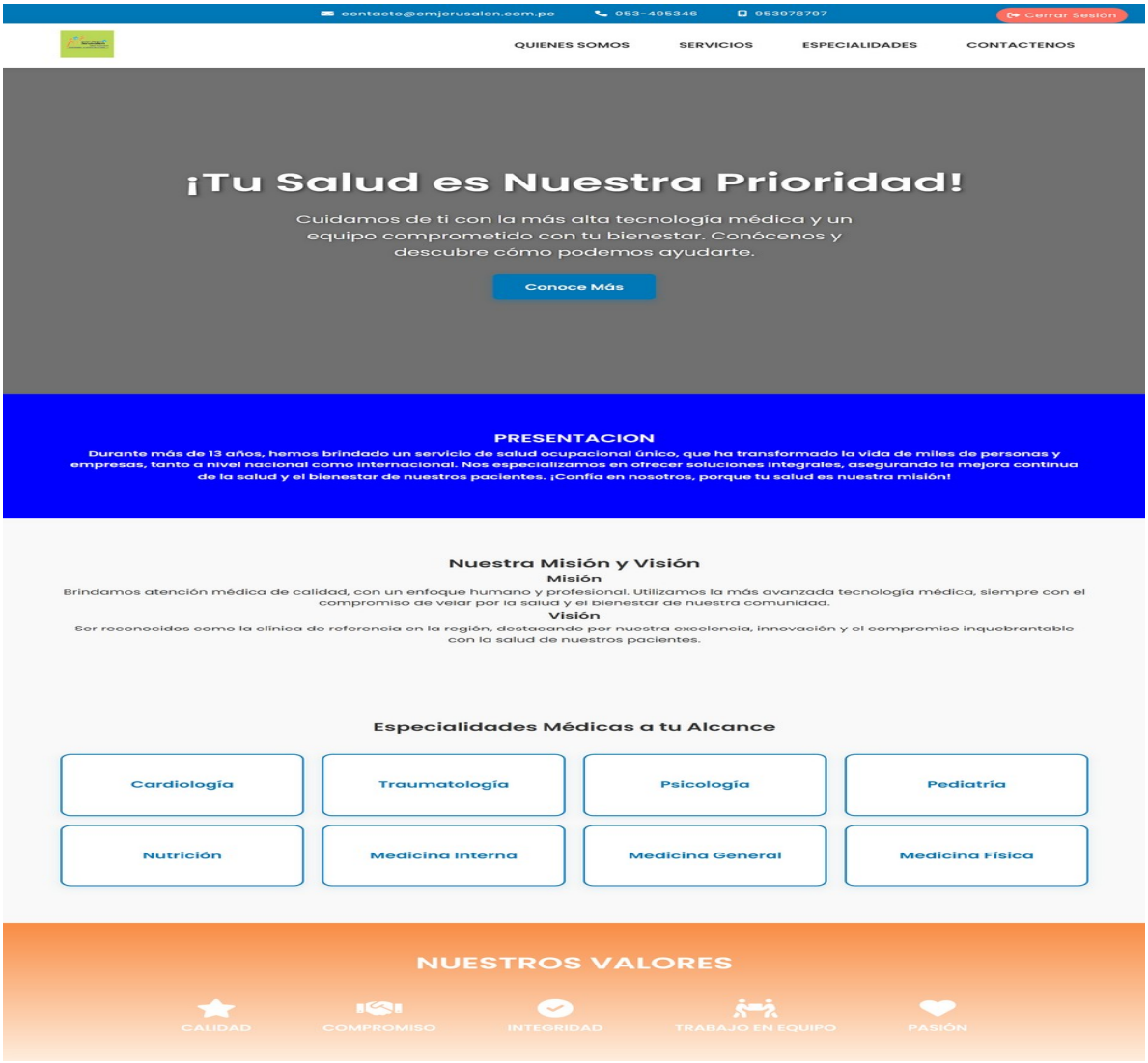
System Interfaces

When starting the system, a login interface is displayed where the user must enter their document number along with their password. Once this is done, they click the login button, which will redirect them to different modules depending on whether they are a patient, doctor, or administrator.

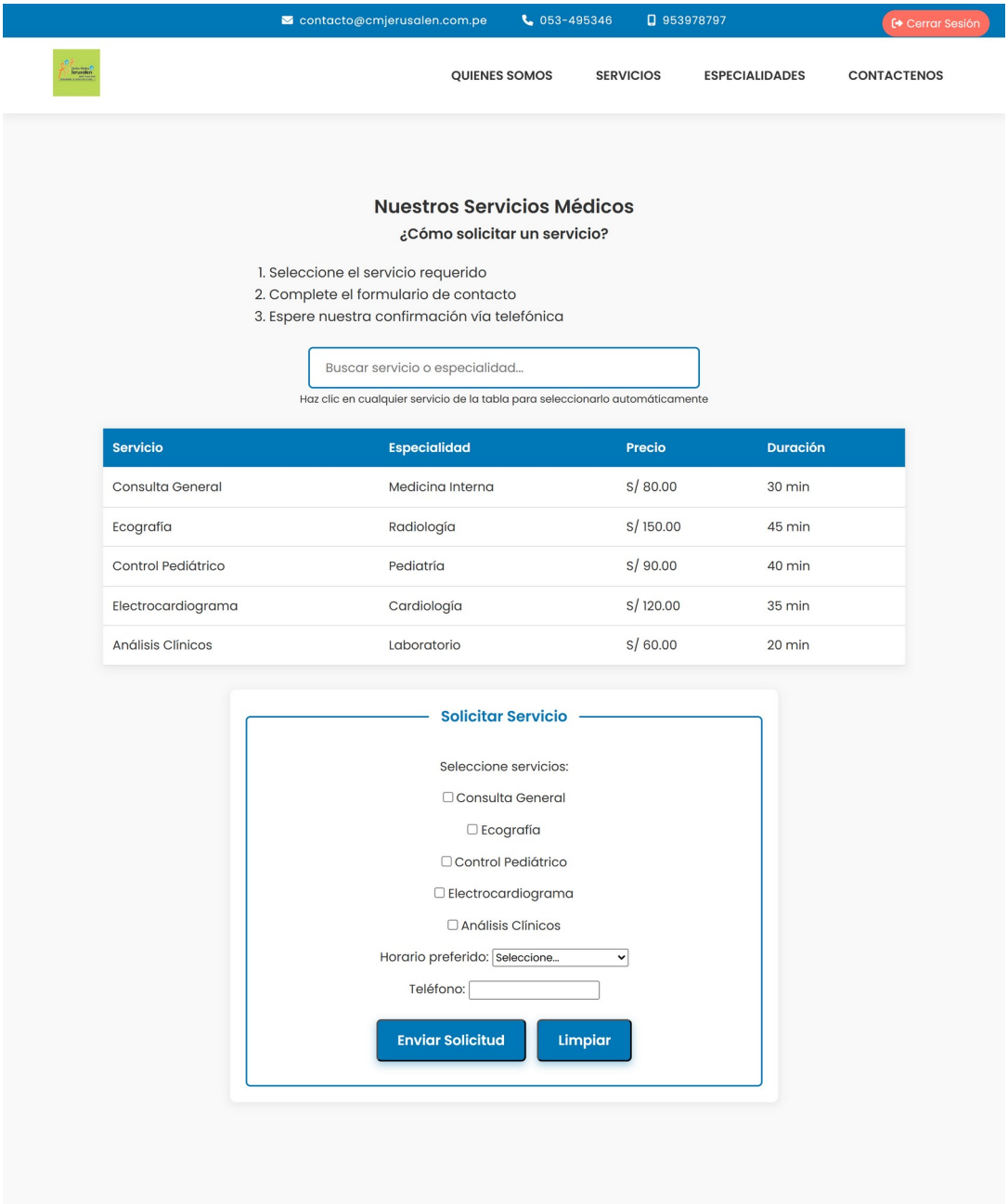
If the credentials are incorrect, a "data not found" message will be displayed. Otherwise, the system will redirect the user to their respective module based on their role.

1) Patient Management:

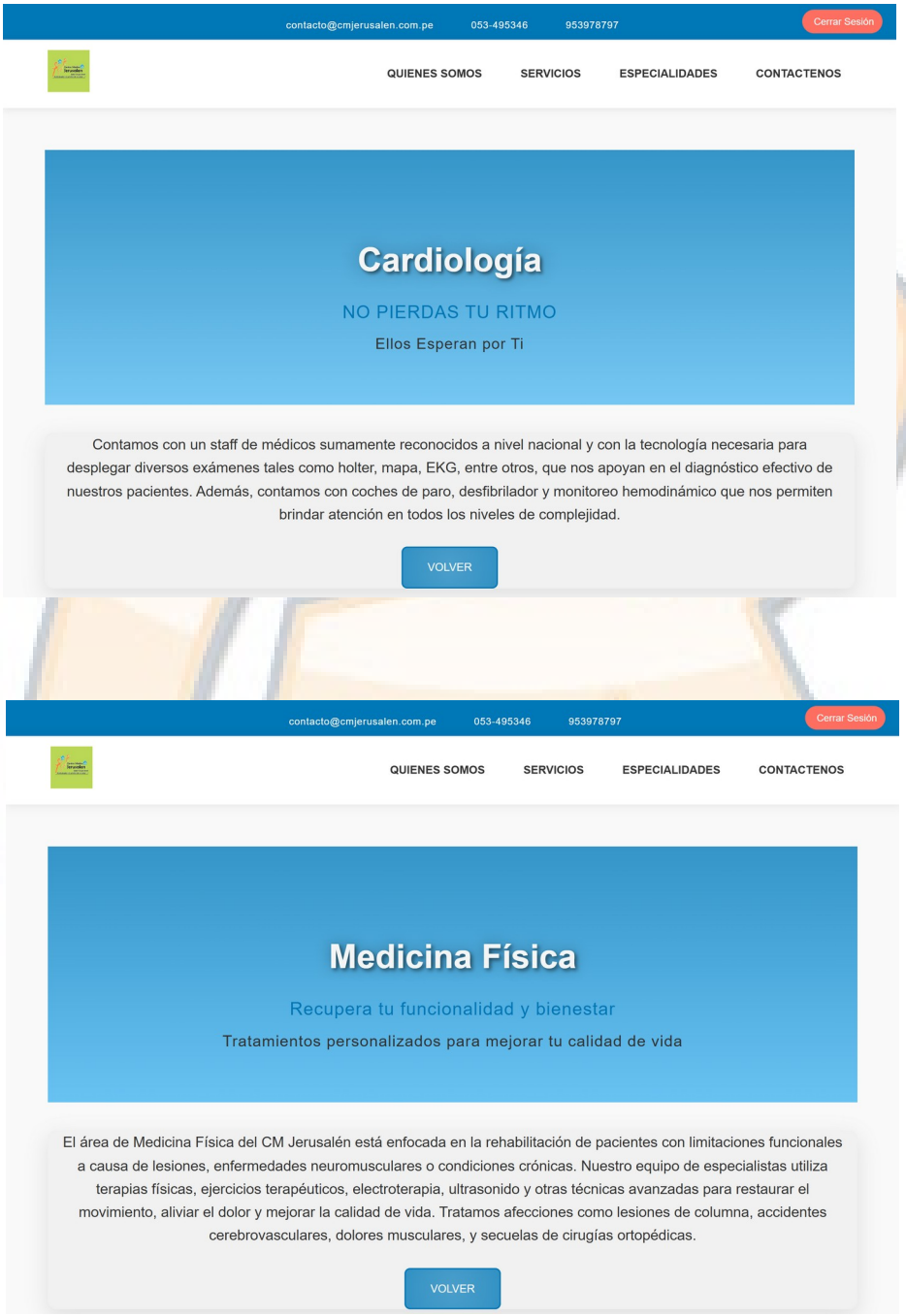
First, in the patient management section, there will be a user-friendly interface displaying information about the clinic, such as its mission and vision. Additionally, it will feature different sections at the bottom to inform the patient about the medical specialties available to them.



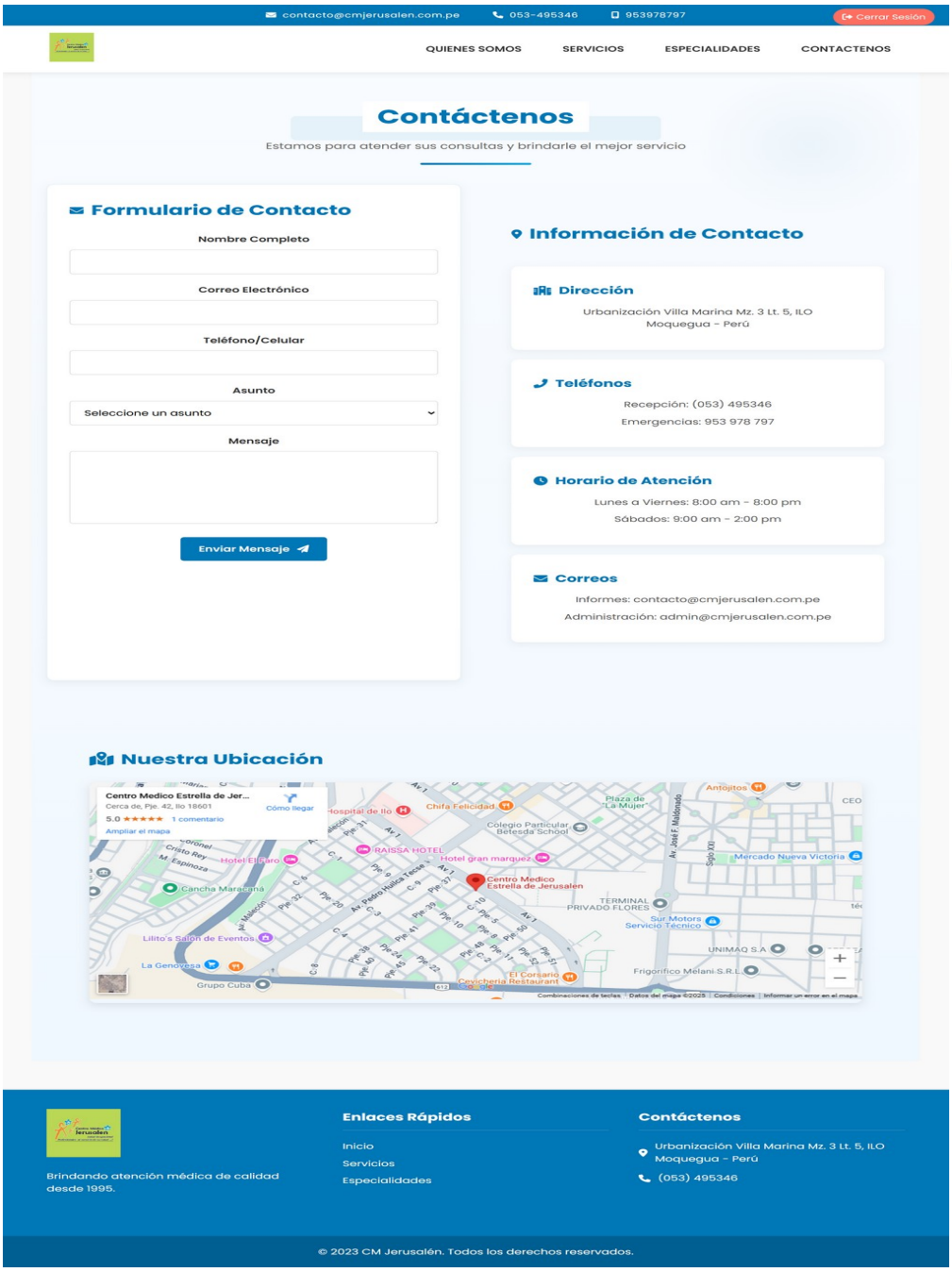
Next, there will be a functional module where the patient can choose the desired service through a search bar, allowing them to type and also view in a table the different services offered by the medical center. At the bottom, the patient can request the selected service by choosing a preferred appointment time, entering their phone number, and clicking the "Request Service" button.



The system will also include a specialties section, where the user will find essential information about the clinic. It will feature a total of 7 sections, each providing different information about the services offered. These sections will include: Cardiology, Traumatology, Psychology, Pediatrics, Nutrition, Internal Medicine, General Medicine, and Physical Medicine.

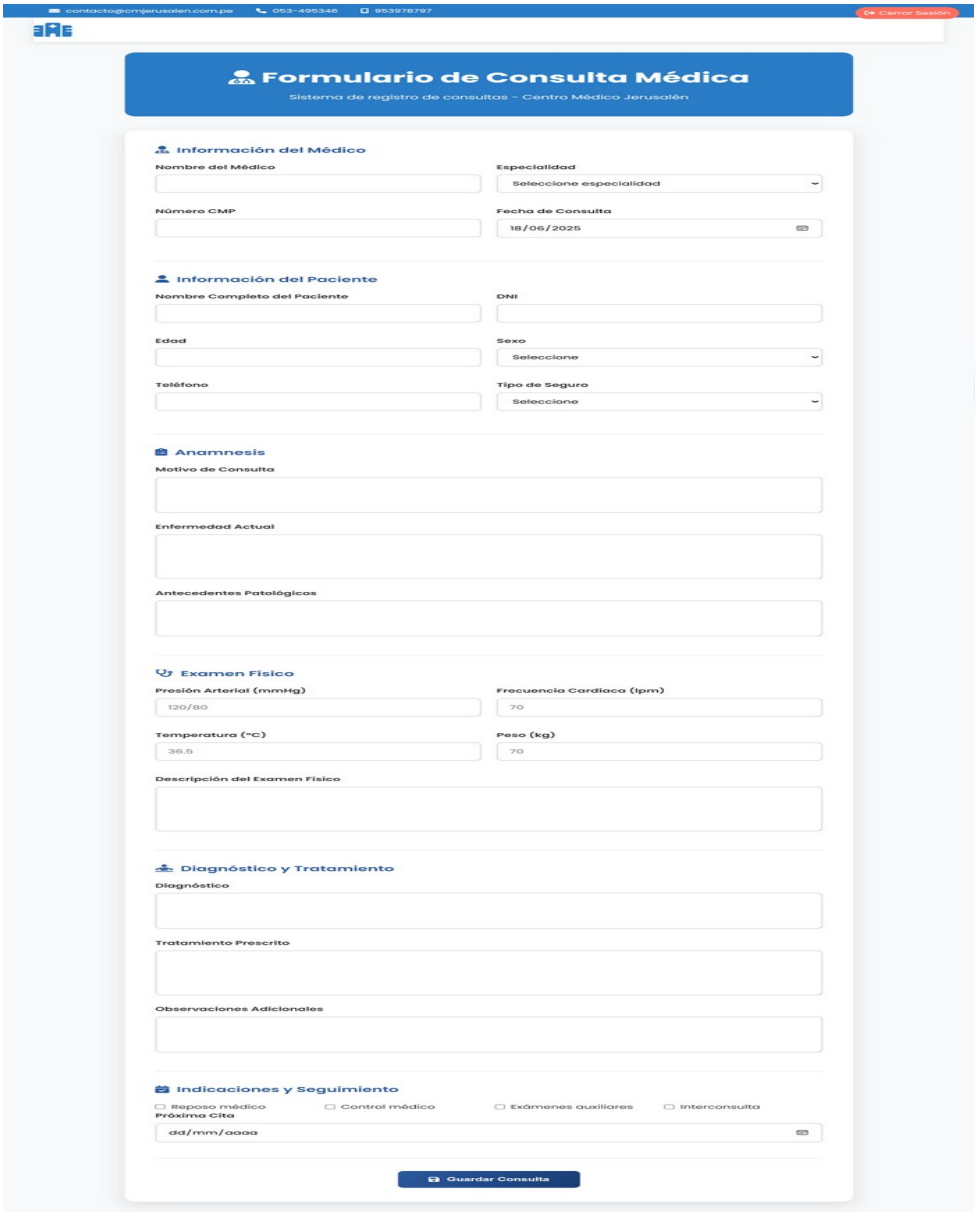


Next, we move on to the **Contact Us** module, which includes a form for entering the necessary information to send a message. The user can also select the subject of the inquiry. Finally, the form includes a field for the message to be sent. Additionally, the section provides essential contact information for the clinic. To conclude, the user will have access to a Google Maps map to help them locate the clinic.



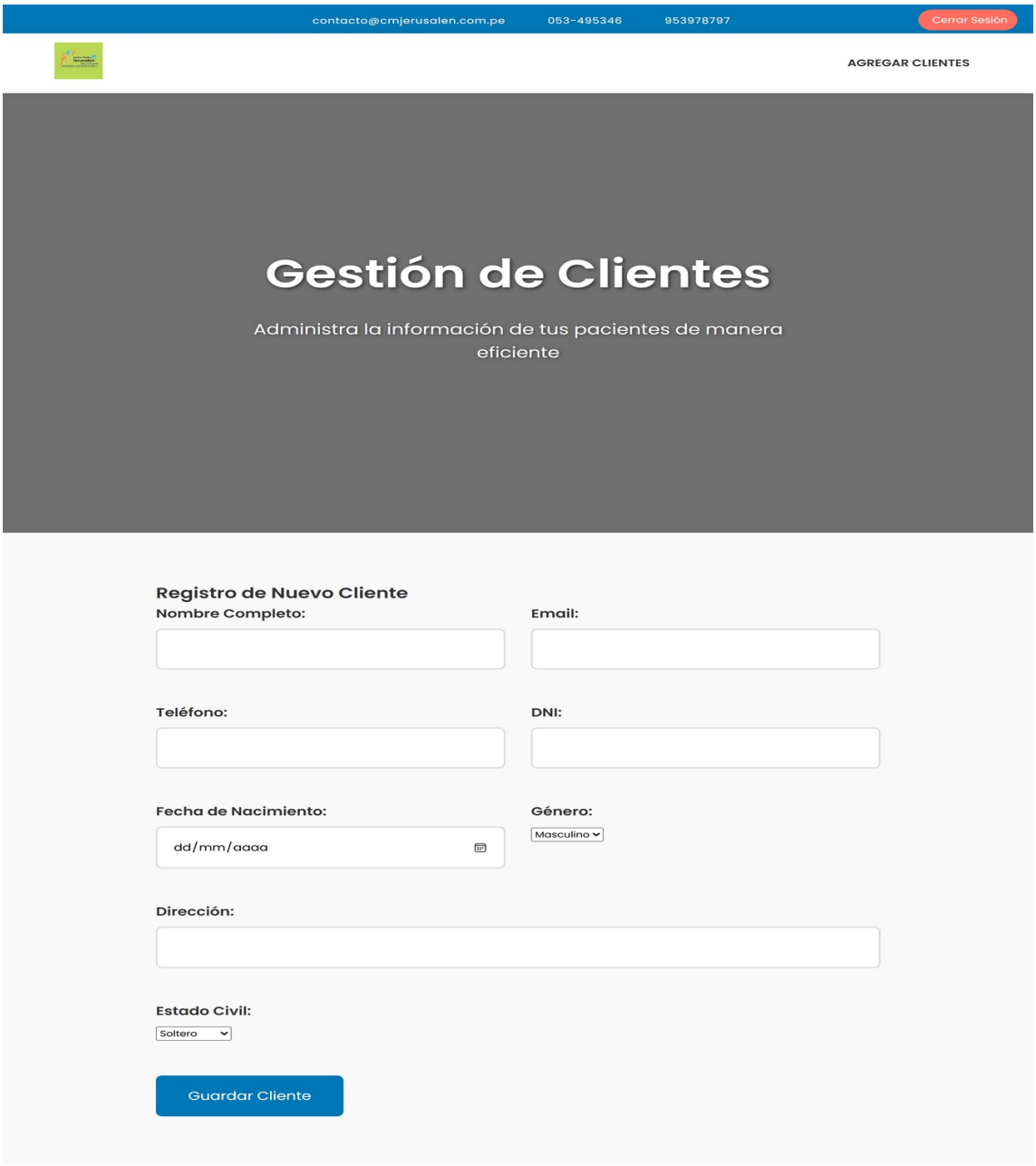
2) Doctor Management:

The doctor will have their own management interface, where a form will be used to record both the patient's and the doctor's information. This form will include details such as health problems, medical exams, diagnoses, medical instructions, follow-up, and more.



3) Administration Management:

The administrator will have an interface to register new clients by entering their information, such as name, email, phone number, national ID (DNI), address, gender, among others, and finally a button to add the client.



CONCLUSIONS

The implementation of this comprehensive web system represents a significant step forward in modernizing the processes of the Estrella de Jerusalén Medical Center, demonstrating that the strategic integration of web technologies such as HTML, CSS, JavaScript, PHP, and MySQL can effectively transform both medical and administrative management. The platform not only meets the objectives of optimizing operational efficiency and improving the user experience for patients, doctors, and administrative staff, but also establishes a solid, scalable, and secure foundation for the institution’s future growth, ensuring the confidential and organized handling of health information.

REFERENCES

1. Mozilla Developer Network. (2023). *HTML: Lenguaje de etiquetas de hipertexto*. MDN Web Docs.
https://developer.mozilla.org/es/docs/Web/HTML

2. Mozilla Developer Network. (2023). *CSS: Hojas de estilo en cascada*. MDN Web Docs. https://developer.mozilla.org/es/docs/Web/CSS

3. The PHP Group. (2023). *PHP Manual*. PHP.net.

https://www.php.net/manual/es/

4. Oracle Corporation. (2023). *MySQL 8.0 Reference Manual*. MySQL Documentation. https://dev.mysql.com/doc/refman/8.0/en/

5. Apache Friends. (2023). *XAMPP Apache Distribution*.
https://www.apachefriends.org/es/index.html