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## **Especificación de requisitos de software**

**Proyecto: Sistema de Gestión para Negocios Pequeños**

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***Logo***

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*Sections that are not applicable to the described system may be justifiably marked as Not Applicable (NA).*

*Notes:*

*Text in blue is for guidance and should be removed and replaced with the actual content described in each section.*

*Text enclosed in brackets such as "" allows direct insertion of text with the appropriate color and style for the section by clicking on them with the mouse pointer.*

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## Document Sheet

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**Document validated by both parties on:**

For the client	For the supplying company
Signed: Mr./Ms.	Signed: Mr./Ms.

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# 1 Introduction

*The purpose of this document is to provide a detailed specification for the development of "Comprehensive Small Business Management" (GINP), a cloud-based online system designed for small businesses. The system centralizes key business operations such as inventory management, invoicing, cash handling, customer and supplier control, and report generation.*

## 1.1 Purpose

- *This document defines the functional and technical specifications required to develop "Comprehensive Small Business Management" (GINP), an online platform that centralizes business operations for small enterprises. With a focus on accessibility, security, and scalability, the system will allow users to manage their business from anywhere with an internet connection.*
- *The system is designed to address common issues faced by small businesses, such as lack of centralization, errors in manual calculations, and the inability to access information remotely. GINP will be a powerful and user-friendly tool that provides operational efficiency and greater control over business activities.*

## 1.2 Scope

*The GINP system is a cloud-based tool that enables small business owners to manage their operations from any internet-connected device. This system is designed to address the following common problems:*

- **Lack of centralization:** *Many small businesses use disparate tools (spreadsheets, physical documents) to manage their operations, leading to inefficiencies and errors.*  
**Manual management:** *Manual processes are prone to human error, especially in billing and inventory calculations.*  
**Access limitations:** *Traditional systems that operate only locally and do not allow remote access.*

## 1.3 Involved Personnel

### 1.3.1 Business Owner (End User):

- 1.3.1.1 Will be the sole operator of the system.
- 1.3.1.2 Responsible for entering information and using the system functionalities.
- 1.3.1.3 Will validate that the system meets their needs during testing.
- 1.3.1.4 Will provide feedback during user testing.

### 1.3.2 Development Team:

- 1.3.2.1 Will design, implement, and test the system.
- 1.3.2.2 Will provide technical support and post-implementation maintenance.

### 1.3.3 Stakeholders:

- 1.3.3.1 Development Team
- 1.3.3.2 Bazar Owner: Will validate that the system brings value to the business.

## 1.4 Definitions, Acronyms, and Abbreviations

Definition of all terms, abbreviations, and acronyms necessary for the proper interpretation of this document. References to one or more appendices or other documents may be included here.

## 1.5 Referencias

Referencia	Título	Ruta	Fecha	Autor
IEEE	IEEE STANDARD 830	<a href="https://ieee.org/">https://ieee.org/</a>		IEEE
GINP	Comprehensive Small Business Management			Development
RF	Functional Requirement			
RNF	Non-Functional Requirement			
OWASP	Open Web Application Security Project	<a href="https://owasp.org/">https://owasp.org/</a>		OWASP
UI	User Interface			

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API	Application Programming Interface			OWASP
Mockup	Visual Prototype of a User Interface			
Encryption	Data encoding for protection			

## 1.6 Summary

- *This is an initial analysis, and the list of Functional Requirements (FR) and Non-Functional Requirements (NFR) may be expanded as the project progresses. It is important to conduct a more detailed analysis with users and stakeholders to identify all necessary requirements.*

## 2 General Description

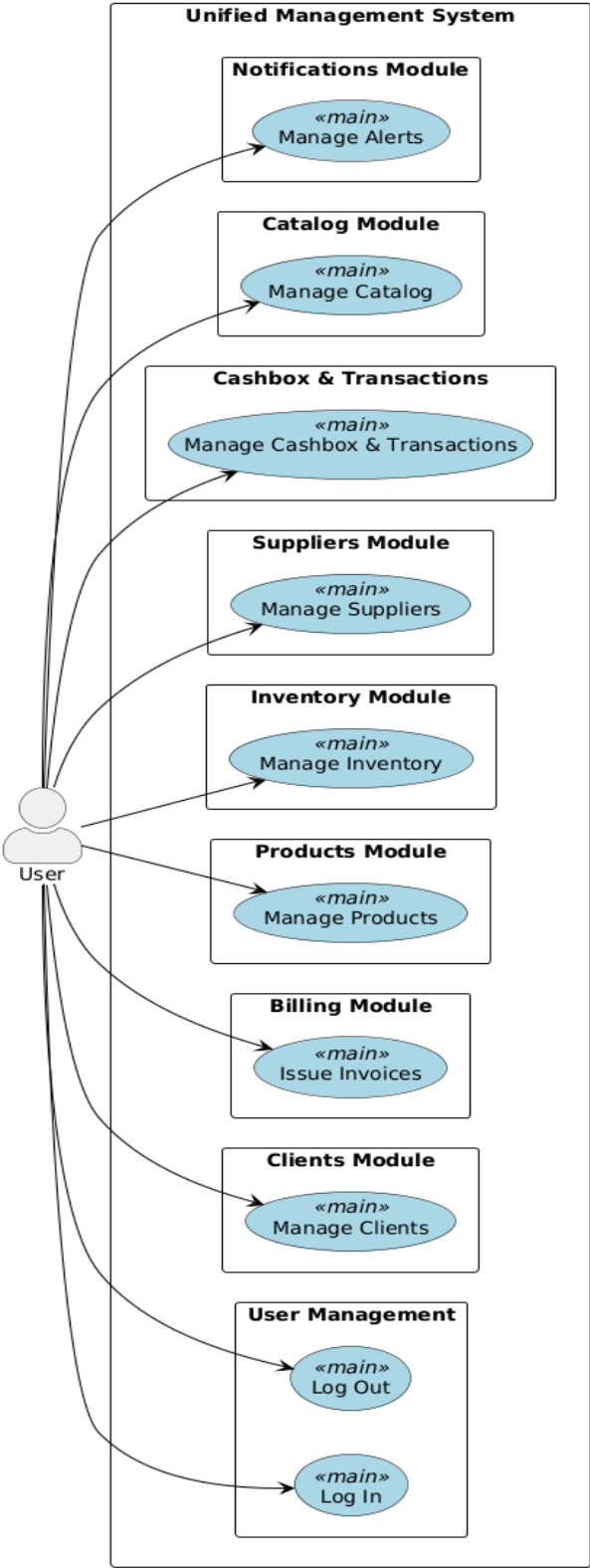
### 2.1 Product Perspective

*The proposed system will be a web application that allows users (students, teachers, and administrative staff) to request, manage, and return loans of technological equipment in a simple and efficient way. System administrators will be able to control the equipment inventory, approve requests, and generate detailed reports.*

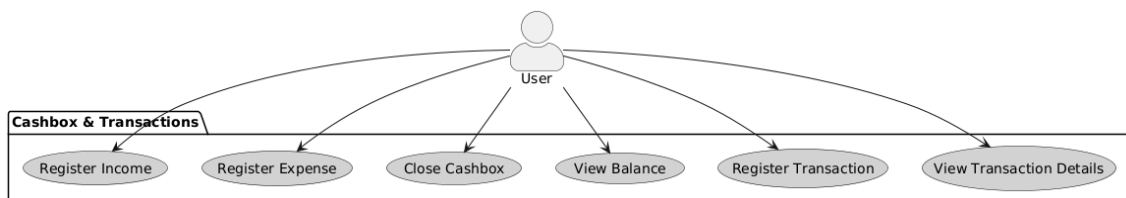
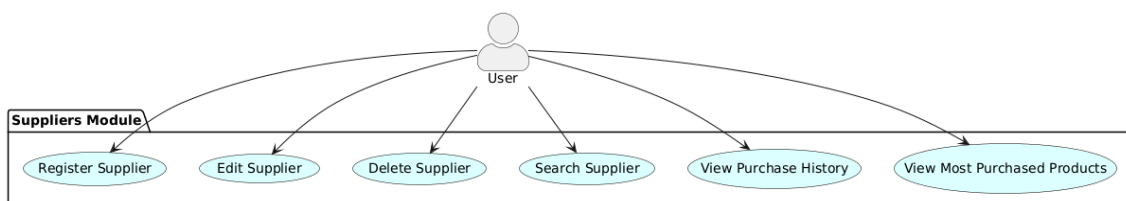
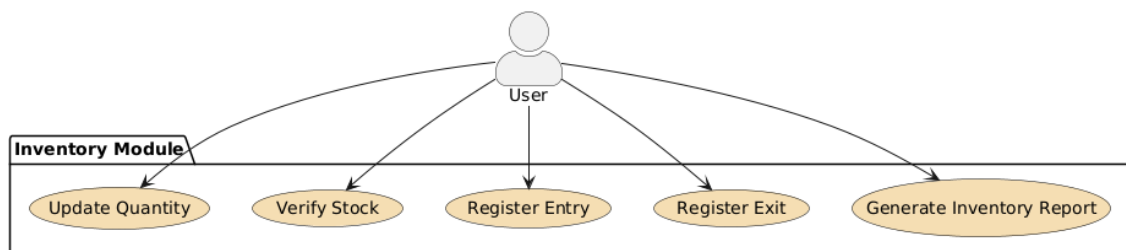
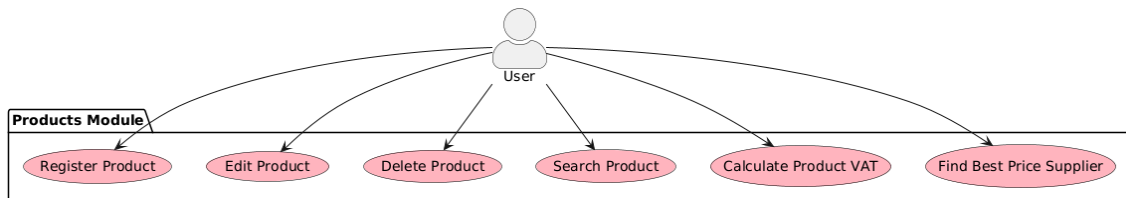
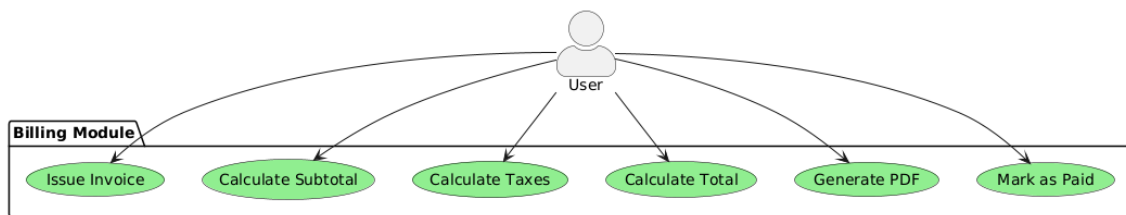
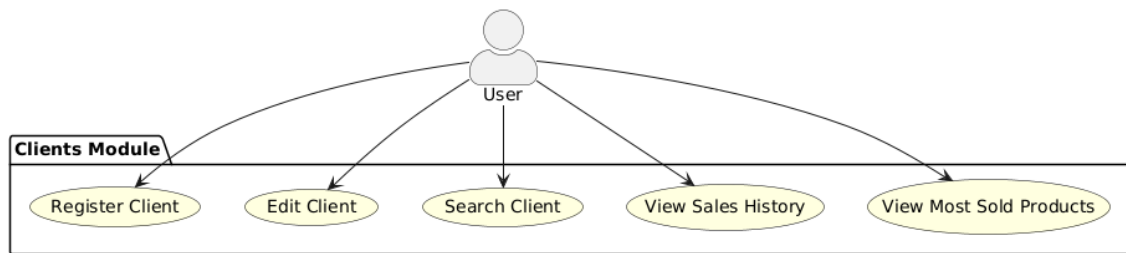
## 2.2 Product Functionality

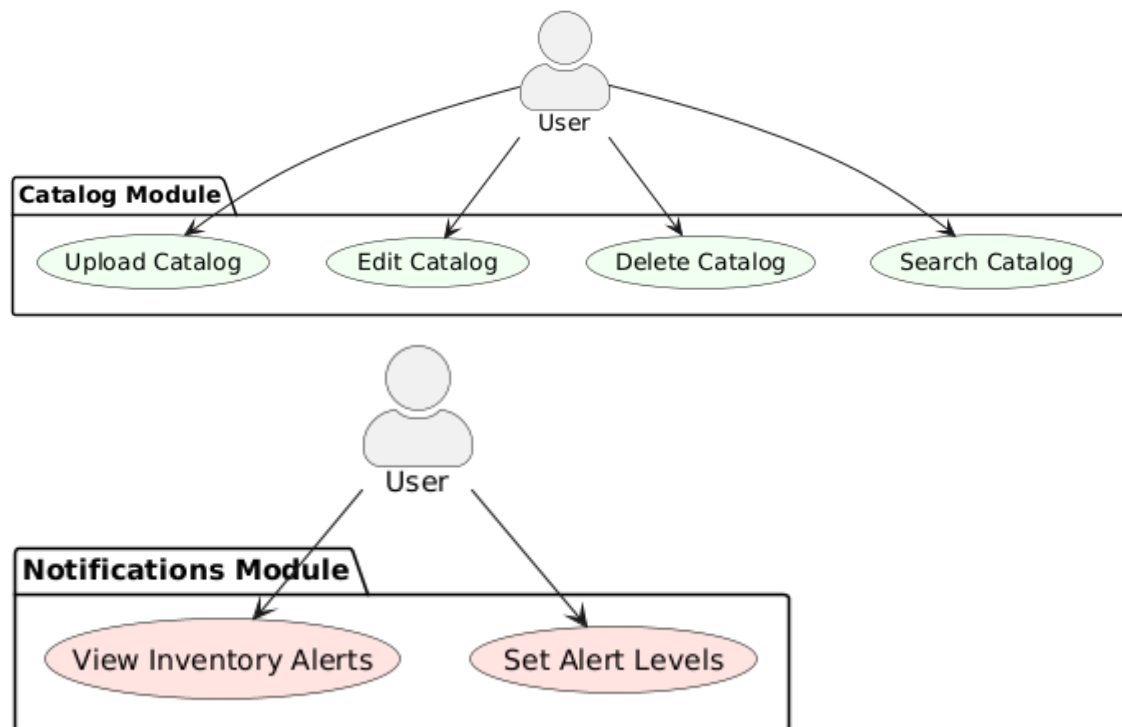
### 2.3 USER CASE DIAGRAM

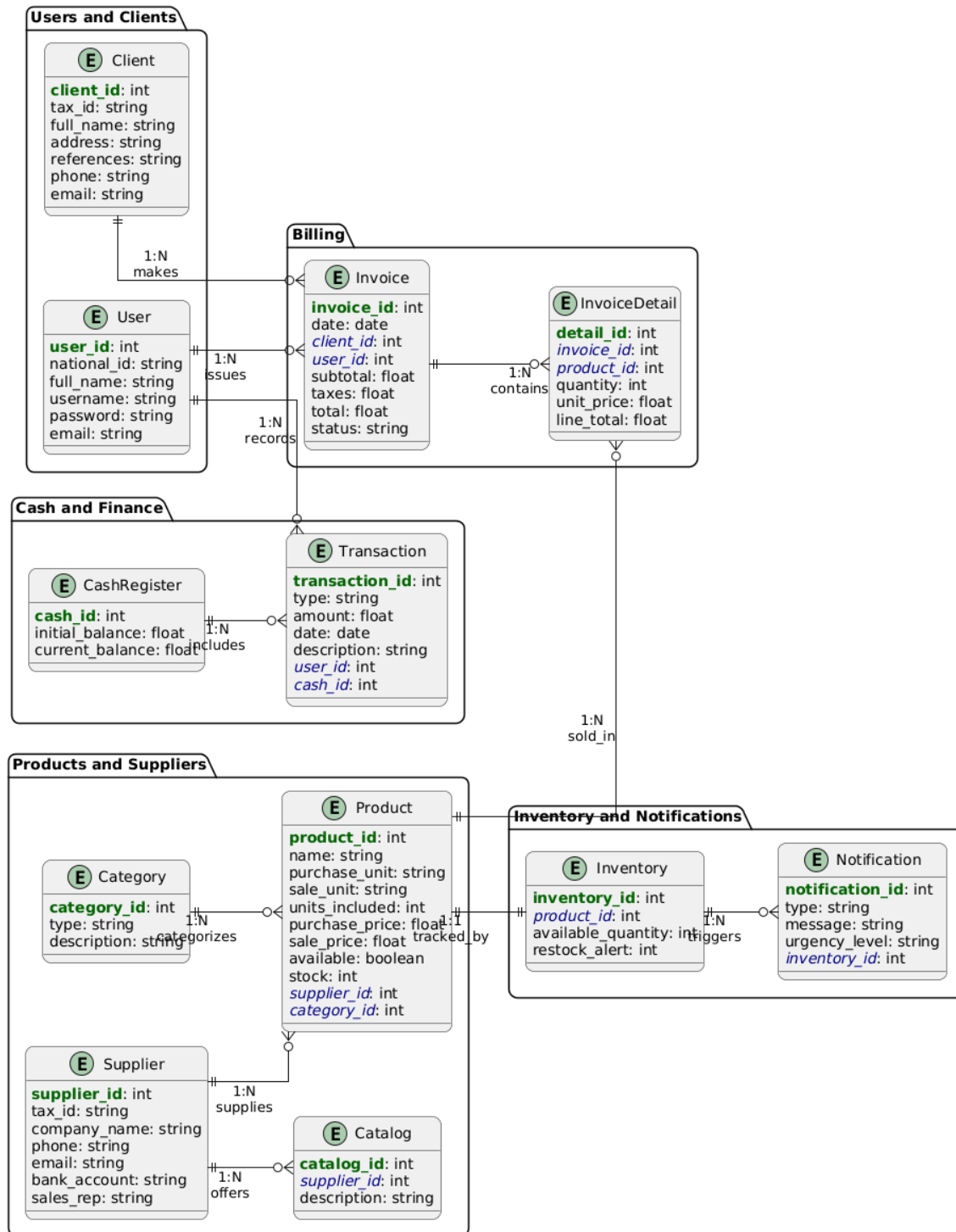
#### 2.3.1 Level 0:

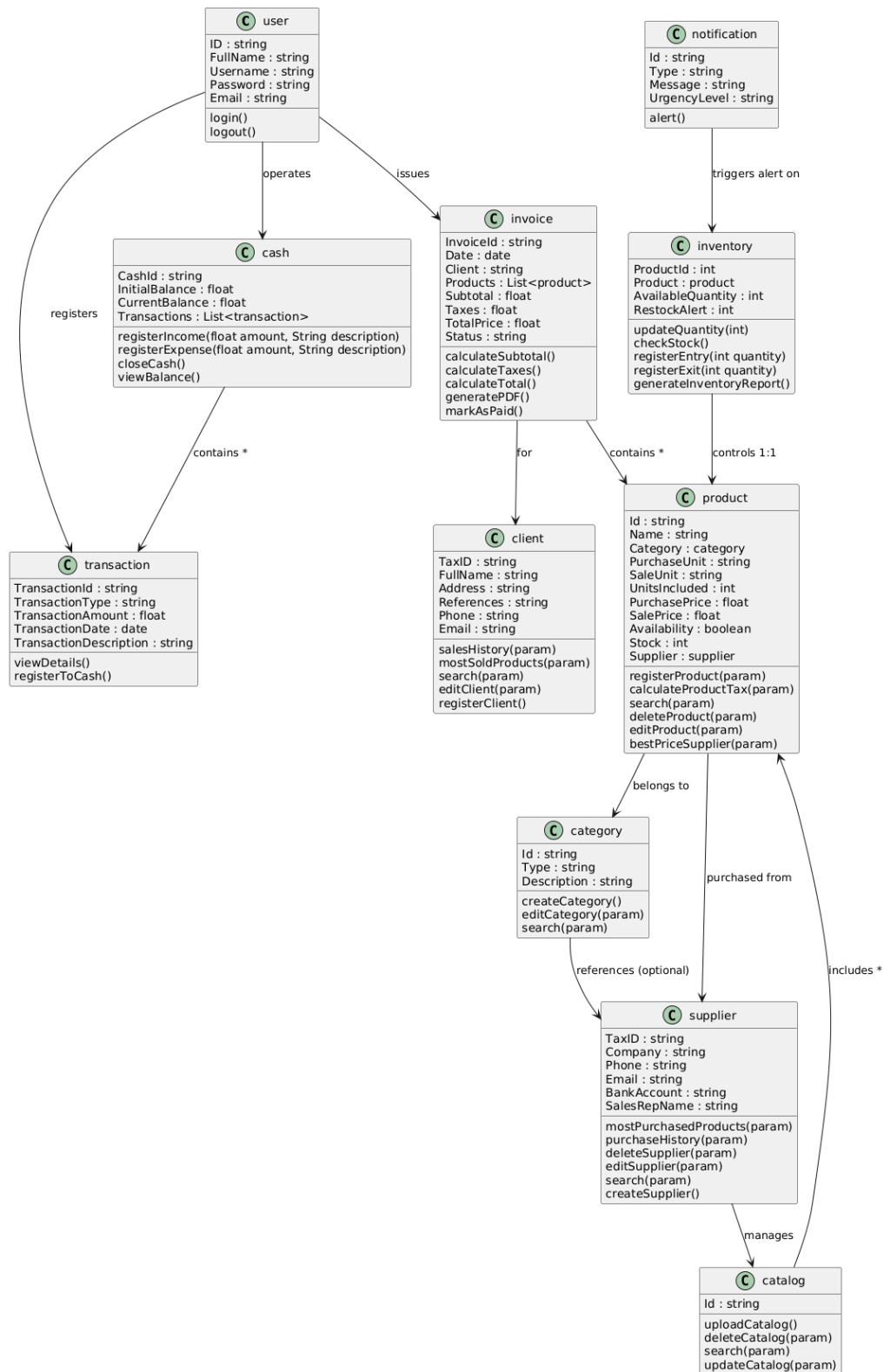




**2.3.2 Level 1:**



**2.3.3 Entity relationship diagram**

**2.3.4 Class diagram**

- 2.3.5 Inventory Management:** Registration, editing, and control of products, with automatic low-stock notifications.
- 2.3.6 Invoice Generation:** Automated calculations and creation of digital documents.
- 2.3.7 Cash Control:** Recording of income and expenses, with automatic balance updates.
- 2.3.8 Clients and Suppliers:** Storage and consultation of key information, including transaction history.
- 2.3.9 Data Analysis:** Generation of visual reports for the analysis of sales, cash flow, and inventories.
- 2.3.10 Real-Time Notifications:** Alerts for critical events, such as product expirations.

## 2.4 User Characteristics

User Type	Administrator
Training	Higher Education
Skills	Basic computer knowledge
Activities	Seller in a retail store

## 2.5 Constraints

### ***Summary of System Development Limitations and Considerations***

- *The system requires an active internet connection to operate.*
- *It does not include integration with external payment systems in this initial version.*
- *Designed for a single business per account.*

## 3 Specific Requirements

Requirement No.	RF1
Requirement Name	<b>Product Management:</b>
Type	<input checked="" type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	RF2
Requirement Name	<b>Invoicing:</b>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	RF3
Requirement Name	<b>Inventory Management:</b>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	RF4
Requirement Name	<b>Cash Flow Management:</b>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	RF5
Requirement Name	<b>Customer and Supplier Management:</b>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	RF6
Requirement Name	<b>Reporting and Analysis:</b>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input type="checkbox"/> High / <input checked="" type="checkbox"/> Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

## 3.1 Common Interface Requirements

*Detailed description of all system software inputs and outputs.*

### 3.1.1 User Interfaces

*The user interface will be designed following user-centered design principles, ensuring ease of use and accessibility.*

### 3.1.2 Hardware interface

- Compatible with standard devices, such as printers for generating physical invoices and barcode scanners for inventory processes.
- Supports mobile devices running Android 8+ and iOS 13+.

### 3.1.3 Software Interfaces

- A RESTful API will facilitate communication between the client and the server.
- Compatible with relational databases (PostgreSQL) and cloud storage systems (AWS S3 for files, logs, and backups).
- Future versions will allow integration with external tools, such as online payment systems.

### 3.1.4 Web Interface

- The web application will have a responsive design, optimized for mobile and desktop devices.
- It will include dropdown menus, intuitive forms, and clearly defined action buttons.
- Main sections will include:
  1. Dashboard: Visual summary of business operations.
  2. Inventory: Comprehensive product list and management tools.
  3. Sales: Invoice generation and transaction logging.
  4. Cash Flow: Income and expense tracking and analysis.
  5. Customers and Suppliers: Contact and transaction management.

### 3.1.5 Mobile Interface

- The mobile application will provide the same functionalities as the web version, adapted for smaller screens.

- It will include push notifications for critical alerts, such as low stock or product expirations.

## 3.2 Specific Requirements

### 3.2.1 Product Management:

- The system will allow users to register products with the following fields:
  - Product name, description, category, unit price, and stock quantity.
- Users will be able to edit and delete product records.
- The system will generate automatic alerts when the stock of a product falls below a user-defined threshold.
- Users can upload product images to facilitate identification.

### 3.2.2 Invoicing:

- The system will automate the calculation of subtotals, taxes, and totals.
- It will allow users to generate invoices in PDF format or send them via email directly from the platform.
- It will include an invoice history for viewing past transactions.
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- It will allow users to generate invoices in PDF format or send them via email directly from the platform.
- It will include an invoice history for viewing past transactions.

### 3.2.3 Inventory Management:

- The inventory will be automatically updated after each sale or manual adjustment.
- It will provide a detailed inventory report, including in-stock, out-of-stock, and low-stock products.
- Users can import/export inventory data in CSV format.

### 3.2.4 Cash Flow Management:

- Users can register categorized income and expenses (sales, purchases, operating costs, etc.).
- The system will generate daily, weekly, and monthly cash flow reports.
- It will include a visual summary of income vs. expenses.

### 3.2.5 Customer and Supplier Management:

- Users will be able to store basic customer and supplier data:
  - Name, address, phone number, email, and notes.
- The system will maintain a transaction history associated with each customer and supplier.
- A search function will allow users to quickly locate customers or suppliers.

### 3.2.6 Reporting and Analysis:

- The system will generate visual reports with graphs and tables, including:
  - Sales by product, category, or customer.
  - Sales trend analysis.
  - Cash flow summary.
- Reports will be exportable in PDF or Excel formats.



## 3.3 Non-Functional Requirements

### 3.4 **Performance:**

- The system must respond in less than 2 seconds for 95% of common operations.
- It will support up to 5,000 concurrent users without performance degradation.
- It will handle databases with up to 100,000 product records

### 3.5 **Security:**

- Secure authentication will be implemented with support for two-factor authentication (2FA).
- SSL/TLS encryption will protect data in transit.
- Sensitive data, such as passwords, will be stored using secure hashing algorithms (e.g., bcrypt).
- The system will include a role-based access control system to restrict access to certain functionalities.

### 3.6 **Portability:**

- The system will be compatible with modern web browsers (Google Chrome, Mozilla Firefox, Safari, Microsoft Edge).
- It will have a native mobile application for Android and iOS.
- A responsive design will adapt to different screen sizes.

### 3.7 **Scalability:**

- The system will be designed for scalability, allowing the integration of new functionalities in the future.
- Capacity for users and data can be increased by expanding cloud infrastructure.

### 3.8 **Usability:**

- The interface will be intuitive, with organized and accessible menus.
- Interactive tutorials and online documentation will facilitate learning.
- Certain aspects of the interface, such as colors and logos, will be customizable.

## 5.3 Use Case Examples

*Pueden contener todo tipo de información relevante para la SRS pero que, propiamente, no forme parte de la SRS.*