
Software Requirements Specification

Small Business Management System



VARIEDADES

Instructions for Using This Template

This format is a template for software requirements documents.

It is based on and complies with the IEEE Std 830-1998 standard.

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.

The titles and subtitles of each section are defined as MS Word styles, so their numbering is automatically generated depending on whether the style is "Title1", "Title2", or "Title3".

The indentation of text within each section is automatically generated when pressing Enter at the end of a title line (using styles "Normal Indented 1", "Normal Indented 2", and "Normal Indented 3").

The document index is a table of contents that MS Word updates based on the document's titles.



Once the writing is finished, Word should be instructed to update the entire content to reflect the final version.

From the document template format © & Coloriuris <http://www.qualitatis.org>

Document Sheet

Date	Revision	Author	Verified by Quality Dept.
12/09/2024	15/092024	Duvan Eduardo Morales Gonzalez	

Document validated by both parties on:

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

Contenido

1 Introduction	4
1.1 Purpose	5
1.2 Scope	5
1.3 Involved Personnel	6
1.4 Definitions, Acronyms, and Abbreviations	6
1.5 Referencias	6
1.6 Summary	7
2 General Description	7
2.1 Product Perspective	7
2.2 Product Functionality	7
2.4 Constraints	8
Summary of System Development Limitations and Considerations	8
3 Specific Requirements	8
3.1 Common Interface Requirements	9
3.2 Specific Requirements	10
3.3 Non-Functional Requirements	11
5.3 Use Case Examples	12

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

<i>Term</i>	<i>Definition</i>
<i>Administrator</i>	<i>Primary user who manages business operations and system configuration</i>
<i>API</i>	<i>Set of protocols for software component interaction</i>
<i>Backend</i>	<i>Server-side application handling data processing and business logic</i>
<i>Class Diagram</i>	<i>Visual representation of system's classes, attributes, methods, and relationships</i>
<i>Client Management</i>	<i>Functionality for handling customer information and records</i>

Compatibility	<i>Ability to work correctly across different environments and devices</i>
CRUD Operations	<i>Create, Read, Update, Delete - basic data management functions</i>
CSV	<i>Simple file format storing data with comma-separated values</i>
Data Integrity	<i>Maintaining accuracy and consistency of data</i>
Data Validation	<i>Ensuring entered data meets specified requirements</i>
Encryption	<i>Process of encoding information to prevent unauthorized access</i>
Entity Relationship Diagram	<i>Chart showing database entity relationships</i>
FPDF	<i>PHP library for generating PDF files</i>
Functional Requirement (FR)	<i>Specification of system behaviors and functions</i>
GINP	<i>Comprehensive Small Business Management system name</i>
HTTPS	<i>Protocol for secure network communication</i>
IEEE Std 830-1998	<i>Standard for software requirements specifications</i>
Internationalization	<i>Designing software for adaptation to various languages/regions</i>
Inventory Management	<i>System for tracking stock levels, orders, and sales</i>
Invoice Generation	<i>Feature for creating detailed customer bills</i>
JSON	<i>Lightweight data-interchange format</i>
Logging	<i>Recording system events for auditing and debugging</i>
Maintainability	<i>Ease of modifying software to fix or improve it</i>

Mockup	<i>Visual prototype of user interface</i>
Non-Functional Requirement (NFR)	<i>Criteria for judging system operation quality</i>
Normalization	<i>Organizing database to reduce redundancy</i>
OWASP	<i>Open Web Application Security Project</i>
PDF	<i>Portable Document Format for platform-independent documents</i>
Performance	<i>Measurement of system response time</i>
PHP	<i>Server-side scripting language for web development</i>
Portability	<i>Ability to transfer software between environments</i>
RESTful API	<i>API following Representational State Transfer principles</i>
Responsive Design	<i>Web design adapting to different screen sizes</i>
Scalability	<i>System's ability to handle growing workloads</i>
Security	<i>Protection from unauthorized access and data corruption</i>
Supplier Management	<i>Functionality for managing vendor information</i>
UI (User Interface)	<i>Space where human-machine interactions occur</i>
Use Case	<i>Sequence of actions between user and system to achieve goal</i>
Use Case Diagram	<i>Visual representation of system functionality and actors</i>
UX (User Experience)	<i>Overall experience when using the system</i>
Validation	<i>Verifying that requirements are met</i>

Variedades	<i>Name of the bazaar using the management system</i>
Web Application	<i>Software accessed through web browser</i>

1.5 Referencias

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

2.2.1 For the "Variedades" Bazaar Administrator

As an administrator, the system provides a comprehensive set of tools to efficiently manage the daily operations of the "Variedades" bazaar. The administrator can:

- Register, update, and remove supplier information, including contact and banking details.
- Manage client records, search for clients by tax identification number, and update client information as needed.
- Generate, customize, and download PDF documents such as invoices or reports, including the ability to add images, company logos, and detailed product information.
- Organize, search, and filter suppliers for easier access and management.
- Receive clear notifications regarding the success or failure of administrative actions.
- Configure and manage user accounts and permissions to ensure secure access to different system areas.
- Monitor system activity and access logs for auditing purposes.
- Customize the system interface, including switching between light and dark modes for better usability.

These functionalities are designed to streamline administrative tasks, improve accuracy, and ensure secure handling of supplier, client, and document data.

2.3 For the End User

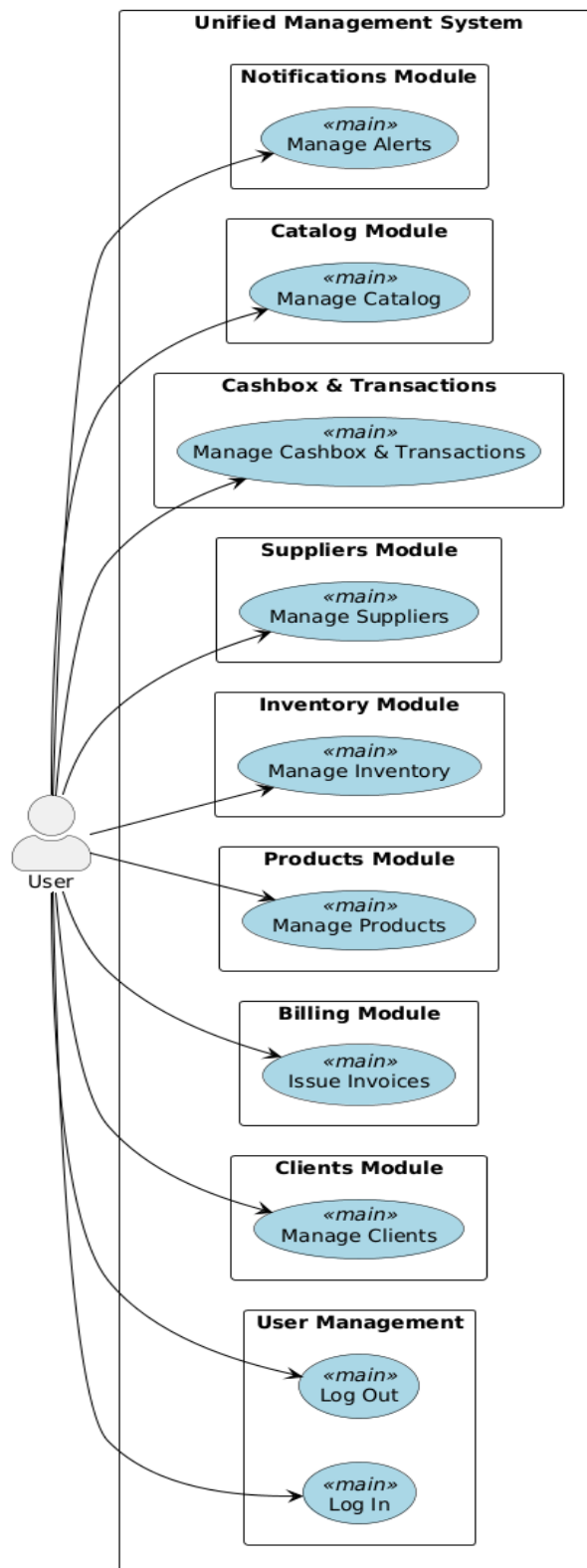
2.3.1 As a user (customer or staff member), the system offers:

- The ability to view and update personal account information.
- Easy access to view available suppliers and products.
- Secure submission of purchase requests or inquiries to the administrator.
- Receipt of electronic invoices or confirmations in PDF format.

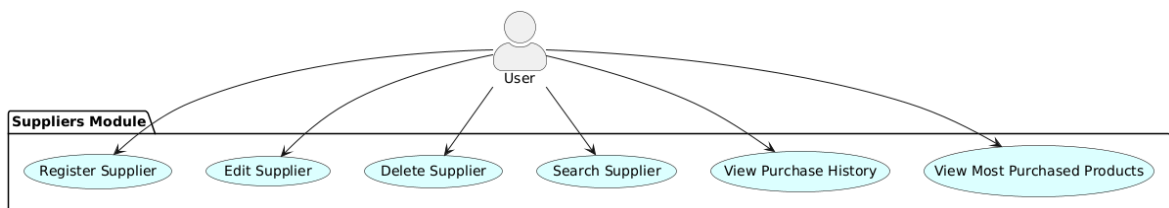
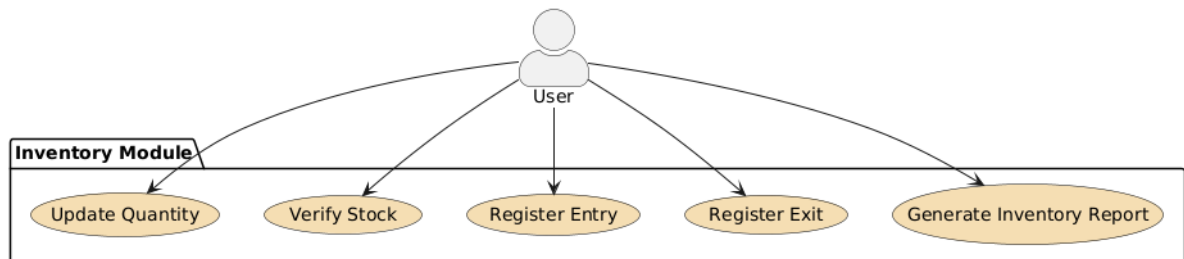
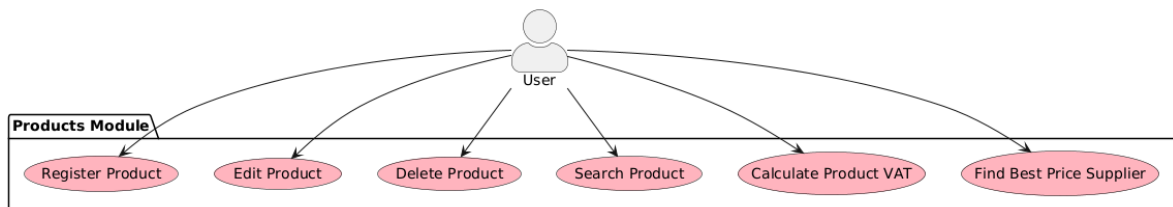
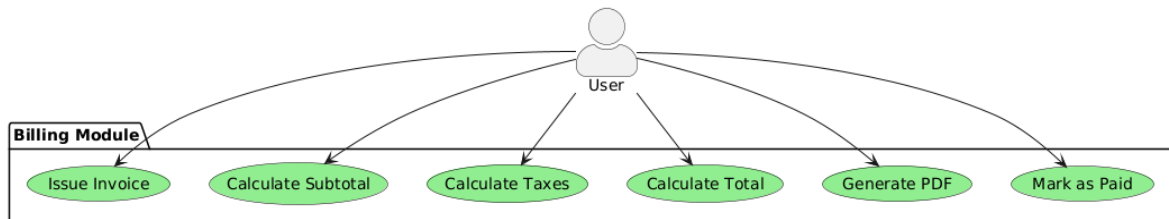
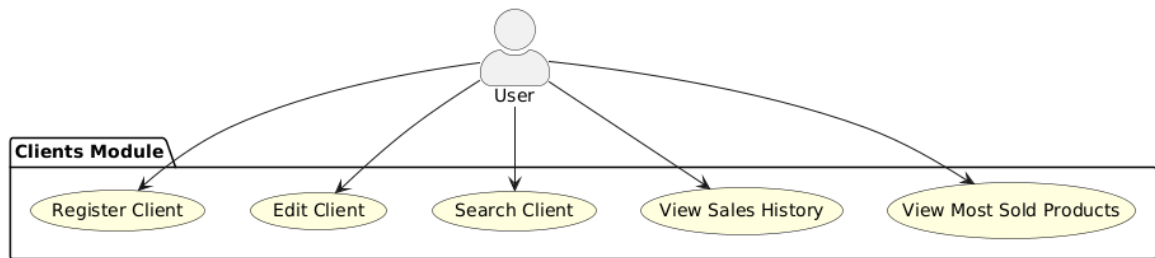
-
- An intuitive and accessible interface that supports both desktop and mobile devices.
 - The option to switch between light and dark modes for personal comfort.

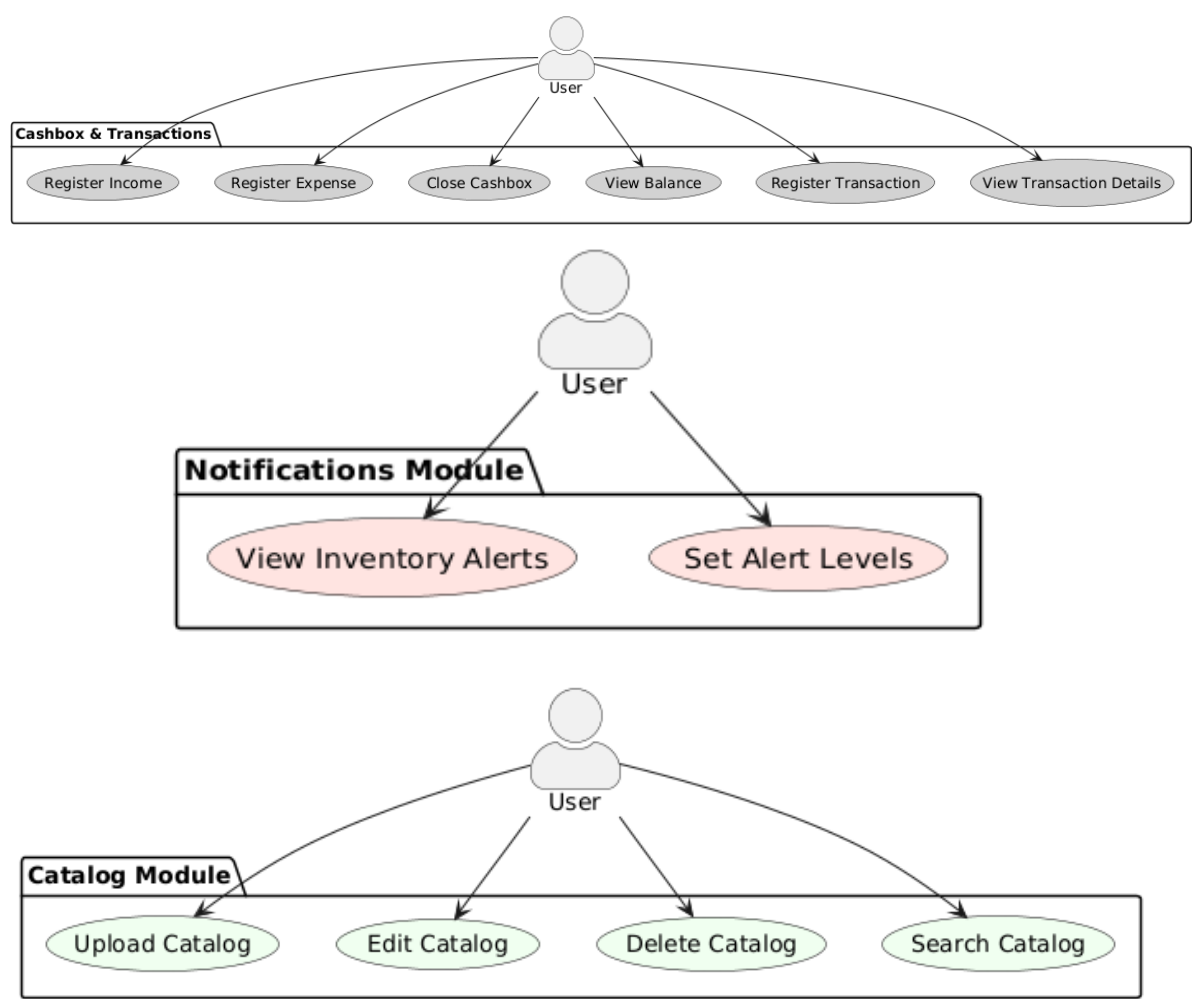
2.4 USER CASE DIAGRAM

2.4.1 Level 0:

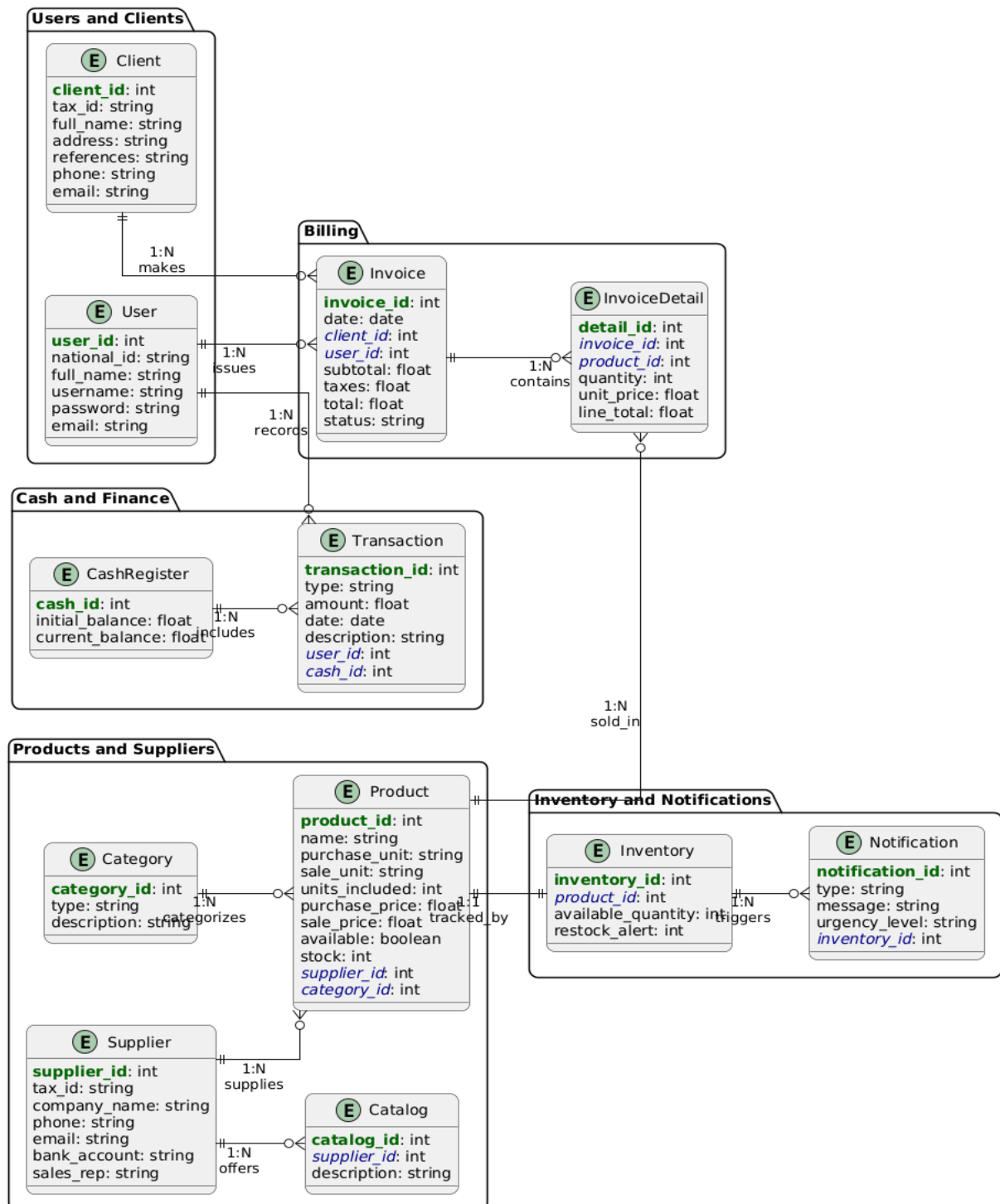


2.4.2 Level 1:

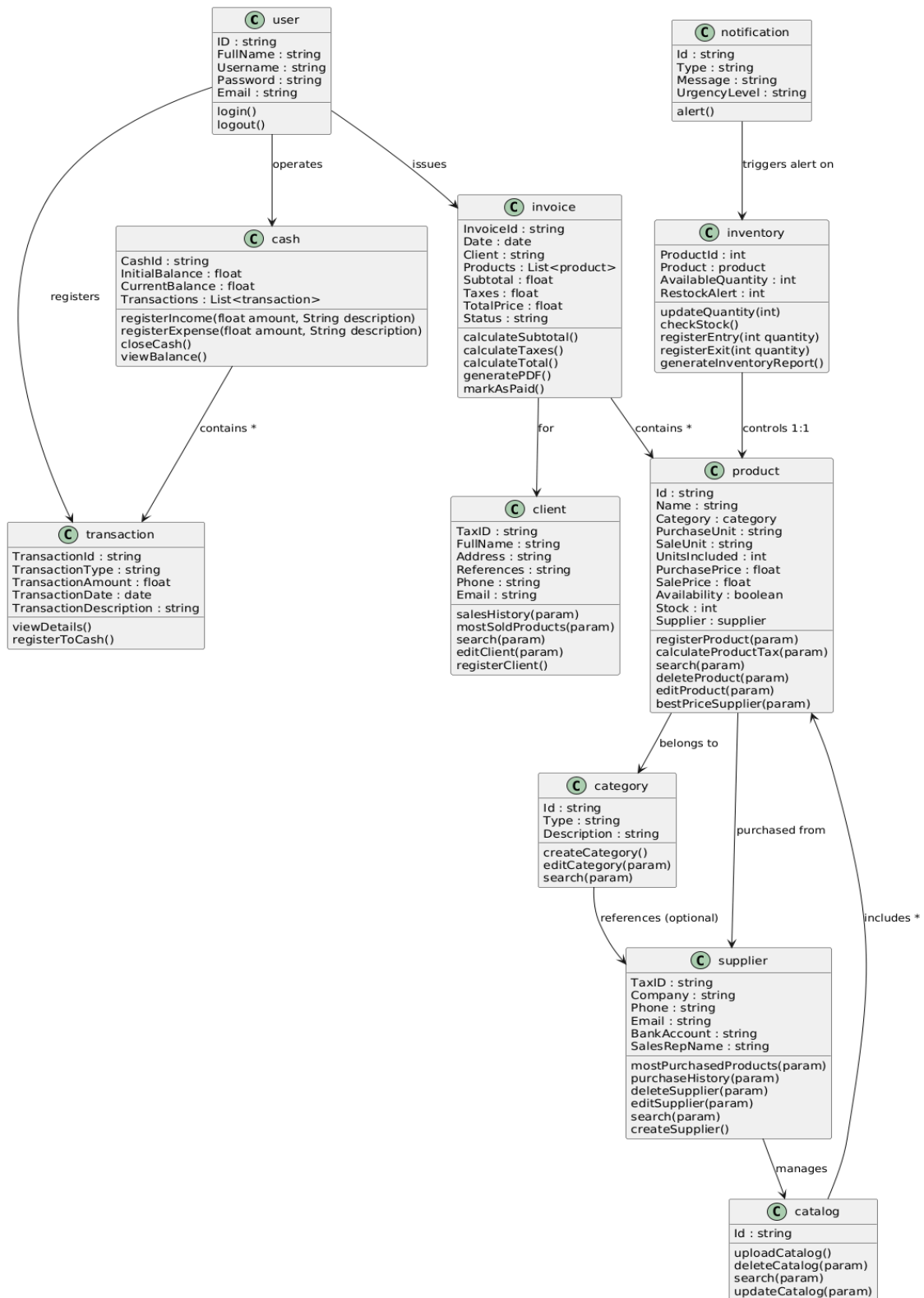




2.4.3 Entity relationship diagram



2.4.4 Class diagram



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

2.5 User Characteristics

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

2.6 Constraints

- The system requires an active internet connection to operate; offline functionality is not supported.
- Integration with external payment systems (e.g., PayPal, Stripe) is not included in this initial release.
- The platform is designed to support only one business per account; multi-business management is not available.
- The backend must be deployed on servers that support PHP 5.1.0 or higher and standard relational databases (e.g., MySQL, PostgreSQL).
- The system is optimized for use on modern web browsers (Chrome, Firefox, Edge, Safari); older browser versions may not be fully supported.
- User authentication and authorization are based on standard username and password; advanced SSO or OAuth is not implemented.
- Data import/export features are limited to CSV and PDF formats; other formats (e.g., Excel, XML) are not supported in this version.

- *The application does not include mobile apps; it is intended for use via web browser on desktop or mobile devices.*
- *Real-time synchronization between multiple administrators is not guaranteed; concurrent changes may require manual refresh.*
- *The system does not provide automated data backup or restore processes; these must be managed externally.*
- *Customization of visual themes is limited to built-in light and dark modes; advanced UI customization is not available in this release.*

3 Specific Requirements

Requirement No.	RF1
Requirement Name	Supplier Management
features	<i>The system shall allow creation, modification, retrieval, and deletion of suppliers.</i>
Requirement Description	<i>Enable users to perform CRUD operations on supplier records, including identification, contact, and banking details.</i>
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.	RF2
Requirement Name	Client Management
Features:	<i>The system shall allow querying and updating client records by tax identification number</i>
Requirement Description:	<i>Allow users to retrieve and update client data, with validation and special handling for 'final consumer' invoices</i>
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	PDF Document Generation
Features:	Create and customize PDF documents, including text, images, links, and styles
Requirement Description	The system shall generate PDF files with multiple features: pages, images, text formatting, properties, and downloads
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	User Interface and Experience
Features:	Search/filter suppliers, responsive forms, theme toggle, clear success/error messages.
Requirement Description	The web interface must support modern usability features for comfortable, accessible, and efficient operation.
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	Data Integrity and Validation
Features:	Input fields validation, normalization, restriction of invalid characters, clear error feedback.
Requirement Description:	The system must ensure data entered is valid, normalized, and errors are clearly communicated to the user
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.	FR-06
Requirement Name	Security
features	<i>Prevent actions without required data, code injection prevention, backend error logging</i>
Requirement Description	<i>The system must enforce data validation, avoid injection vulnerabilities, and log backend errors for review.</i>
Type	<input type="checkbox"/> Requirement <input type="checkbox"/> Constraint
Source	Store Owner
Priority	<input checked="" type="checkbox"/> High / Essential <input type="checkbox"/> Medium/Desired <input type="checkbox"/> Low/ Optional

Requirement No.	FR-07
Requirement Name	API and Backend
Features:	<i>Secure endpoints, JSON responses with success/failure and descriptive messages.</i>
Requirement Description:	<i>The backend must expose secure, well-structured endpoints for supplier management and other operations</i>
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.	FR-08
Requirement Name	Compatibility and Internationalization
Features:	<i>Support for various encodings, fonts, and PDF readers.</i>
Requirement Description:	<i>The system and generated PDFs must support multiple languages and work on all major PDF viewers</i>
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

3.1 Non-Functional Requirements

Requirement No.	NFR-01		
Requirement Name	Performance		
Features:	<i>Fast PDF generation, quick CRUD responses.</i>		
Requirement Description:	<i>PDFs (up to 10 pages, no large images) should generate in under 3 seconds; CRUD operations in under 1 second. d is valid, normalized, and errors are clearly communicated to the user</i>		
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.	NFR-02		
Requirement Name	Usability		
Features:	<i>Intuitive, accessible interface and forms.</i>		
Requirement Description:	<i>The interface must be easy to use for non-technical users and accessible per web standards</i>		
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.	NFR-03		
Requirement Name	Compatibility		
Features:	<i>Works on modern browsers, secure PHP versions.</i>		
Requirement Description:	<i>The system must operate on Chrome, Firefox, Edge, Safari, and use secure PHP versions in backend.</i>		
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.	NFR-04		
Requirement Name	Maintainability		
Features:	<i>Modular, documented code; updatable dependencies.</i>		
Requirement Description:	<i>Code must be modular and documented, with dependencies (like FPDF) easily updatable.</i>		
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.	NFR-05		
Requirement Name	Security		
Features:	<i>Data sent over HTTPS, no sensitive info in errors.</i>		
Requirement Description:	<i>All sensitive data must use HTTPS in production; errors should not reveal internal info to users.</i>		
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.	NFR-06		
Requirement Name	Portability		
Features:	<i>Deployable on any PHP-compatible server with standard databases.</i>		
Requirement Description:	<i>The system must be installable on any environment supporting PHP and relational DBs.</i>		
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.	NFR-07		
Requirement Name	Licensing		
Features:	<i>Free use, distribution, and modification as per included license.</i>		
Requirement Description:	<i>The system must retain and respect the free license terms in the license file.</i>		
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.	NFR-08
Requirement Name	Scalability
Features:	<i>Handles increased volume of suppliers, clients, documents without redesign.</i>
Requirement Description:	<i>The system must scale to larger datasets/users without requiring architectural changes</i>
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.	NFR-09
Requirement Name	Logging and Auditing
Features:	<i>Backend logs critical actions and errors for auditing.</i>
Requirement Description:	<i>All key operations and errors must be logged in the backend for future review and auditing.</i>
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

3.1 Requirements

3.1.1 Specific Requirements

FR-01 Supplier Management

FR-01.1 *The system shall allow creation, modification, retrieval, and deletion of suppliers.*

FR-01.2 *It shall store for each supplier: identification number, company, contact name, phone, bank account, bank name, and catalog.*

FR-01.3 *The system shall validate that numeric fields only accept numbers.*

FR-02 Client Management

FR-02.1 *The system shall allow querying client data by tax identification number.*

FR-02.2 *It shall allow updating and clearing data based on invoice type (final consumer or registered client).*

FR-02.3 *Forms shall validate input data (e.g., taxid accepts only numbers).*

FR-03 PDF Document Generation

FR-03.1 *The system shall allow creating PDF documents including text, images (JPEG, PNG, GIF), links, and shapes.*

FR-03.2 *It shall allow adding, rotating, and removing pages in the document.*

FR-03.3 *The system shall allow setting document properties: author, title, keywords, creator, and subject.*

FR-03.4 *It shall support custom fonts and font subsetting to reduce file size.*

FR-03.5 *The system shall allow defining colors and styles (fill, border, underline).*

FR-03.6 *It shall allow inserting images with defined resolution and size.*

FR-03.7 *The PDF shall be downloadable through the browser.*

FR-04 User Interface and Experience

FR-04.1 *The interface shall allow searching and filtering suppliers.*

FR-04.2 *Forms shall be responsive and adapt to modern devices.*

FR-04.3 *The system shall allow toggling between light and dark themes, saving user preference.*

FR-04.4 *Success and error messages shall be clearly displayed for all operations.*

FR-05 Data Integrity and Validation

FR-05.1 *The system shall validate and normalize spaces and characters in input fields.*

FR-05.2 *It shall restrict pasting and input of invalid characters in forms.*

FR-05.3 *The system shall display clear error messages for invalid entries.*

FR-06 Security

FR-06.1 *The system shall prevent actions without required data.*

FR-06.2 *It shall prevent code injection in backend user inputs.*

FR-06.3 *The system shall log critical backend errors for auditing.*

FR-07 API and Backend

FR-07.1 *The backend shall provide secure endpoints for supplier operations.*

FR-07.2 *API responses shall be in JSON format and include success/failure information and descriptive messages.*

FR-08 Compatibility and Internationalization

FR-08.1 *The system shall support different encodings and fonts for PDF internationalization.*

FR-08.2 *Generated PDFs shall be viewable in major PDF readers.*

3.1.2 Non-Functional Requirements

NFR-01 Performance

NFR-01.1 *The system shall generate PDF documents in less than 3 seconds for up to 10 pages without large images.*

NFR-01.2 *CRUD operations for suppliers/clients shall respond in less than 1 second under normal conditions.*

NFR-02 Usability

NFR-02.1 *The interface shall be intuitive and easy to use without technical training.*

NFR-02.2 *Forms shall be accessible and comply with web accessibility standards.*

NFR-03 Compatibility

NFR-03.1 *The system shall work on major modern browsers (Chrome, Firefox, Edge, Safari).*

NFR-03.2 *The backend shall be compatible with recent and secure PHP versions.*

NFR-04 Maintainability

NFR-04.1 *The code shall be modular and documented for easy maintenance and extension.*

NFR-04.2 *Dependencies (such as FPDF) shall be updatable without difficulty.*

NFR-05 Security

NFR-05.1 *All sensitive data shall be transmitted via HTTPS in production.*

NFR-05.2 *Errors shall be handled without exposing internal details to end users.*

NFR-06 Portability

NFR-06.1 *The system shall deploy on any server compatible with PHP and standard relational databases.*

NFR-06.2 *The system shall use a MySQL database for all persistent data storage.*

NFR-07 Licensing

NFR-07.1 *The system shall maintain and respect the free use, distribution, and modification license stated in the license file.*

NFR-08 Scalability

NFR-08.1 *The system shall scale to handle increased numbers of suppliers, clients, and documents without architectural redesign.*

NFR-09 Logging and Auditing

NFR-09.1 *The backend shall log critical actions and errors for auditing.*

3.2 Common Interface Requirements

Detailed description of all system software inputs and outputs.

3.2.1 User Interfaces

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

3.2.2 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+.*

3.2.3 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.*

3.2.4 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.*

3.2.5 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.

4.1 annexes

Mockup of the main page for the website of the system

