Project Functional Requirement Specification

Proyecto: POS REACT (Frontend)

Versión: 1.0

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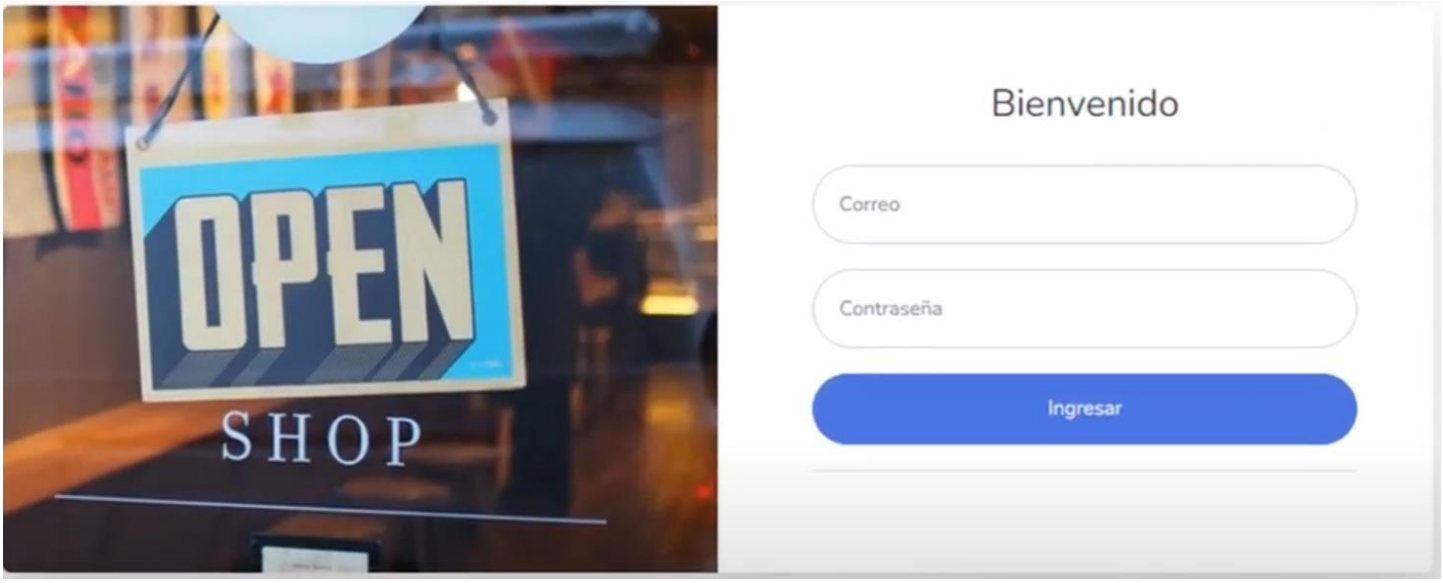
Fecha: 07-jul-2025



1. **Purpose of the Document**

This document is NOT a project plan; it is the functional specification that describes, with the highest level of detail, how the POS REACT sales system should behave. It serves as the single source of truth for stakeholders, development, and QA teams, and will be the basis for traceability for subsequent scenarios, test cases, RTM (Requirements Traceability Matrix), and test plan. The format and divisions remain aligned with the standard shown in the reference FRS (Functional Requirements Specification).

2. Project Overview

Aspect	Description
Domain	Point of Sale (POS) for retail businesses
Key Technologies	React 18 (SPA), ASP.NET Core 8 (REST API), SQL Server 2019
Target Users	Cashiers, inventory managers, administrators
Main Objectives	Facilitate real-time sales recording and tracking. Simplify user, product, and category management. Provide business analytics (dashboard and reports) for decision-making.
High-Level Constraints	Support for modern browsers (Chrome, Edge, Firefox, Safari latest version). Initial load time ≤ 3 seconds with a connection of ≥ 5 Mb/s.
Out of Scope for this Project	Password recovery, advanced accounting modules, hardware integration (barcode reader, printer) in this version.

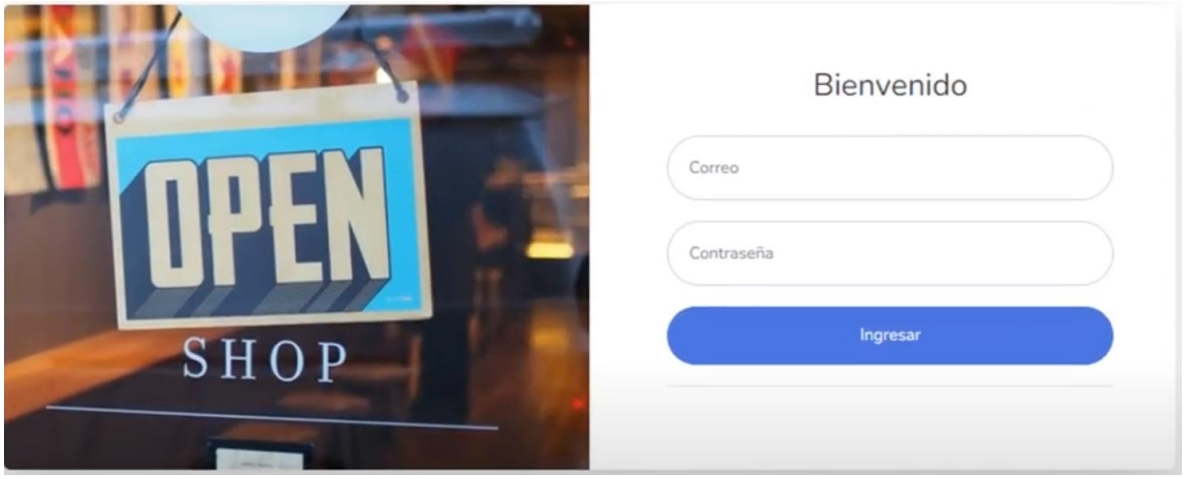
3. Requirements

3.1 Minimum Technical Requirements

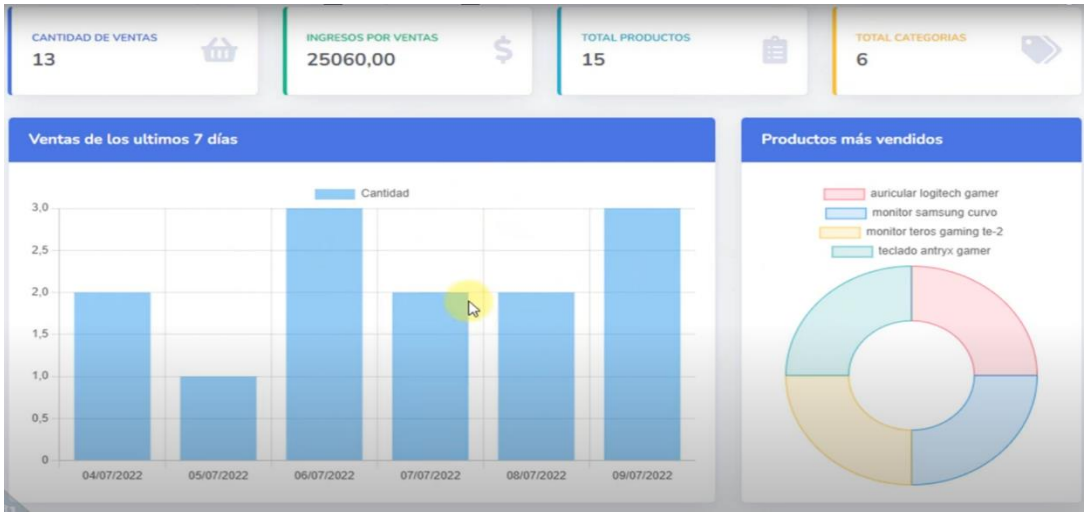
- Backend Server: Windows Server 2019 or Linux with .NET 8 Runtime installed.
- Database Server: SQL Server 2019, mixed mode, UTF-8 compatibility.
- Node/React Build: Node.js 16.20 LTS, npm 8+.
- Infrastructure: HTTPS mandatory (TLS 1.2+), CPU 4 vCores, 8 GB RAM, SSD.
- Browser Compatibility: Latest two stable versions of Chrome, Edge, Firefox, and Safari.

Authentication and Authorization

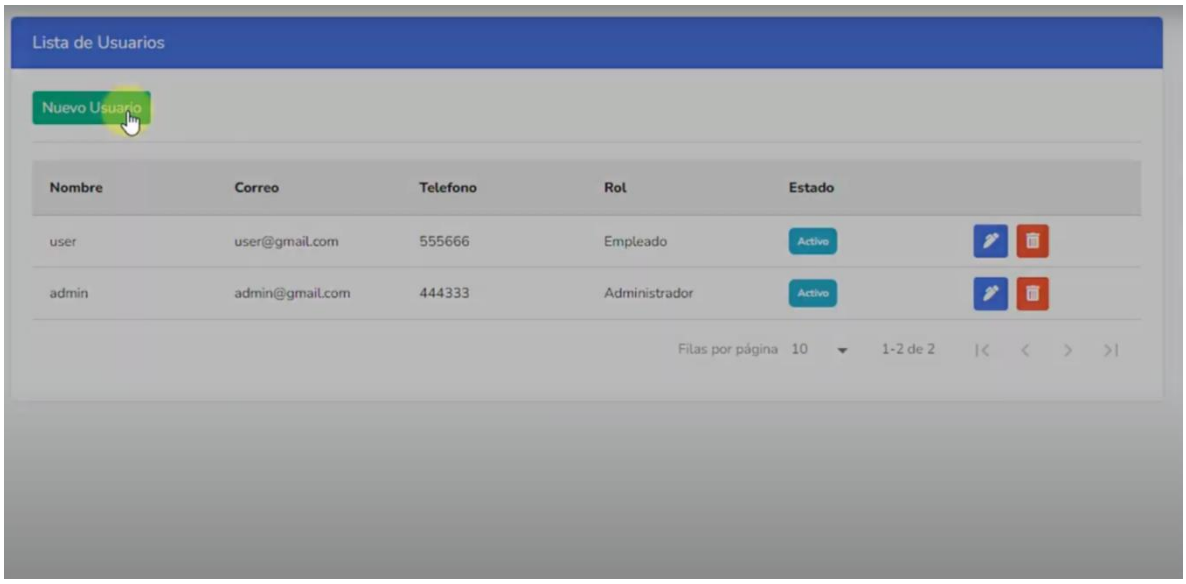
1. Login via email and password. Role-based access control (Admin / Seller).



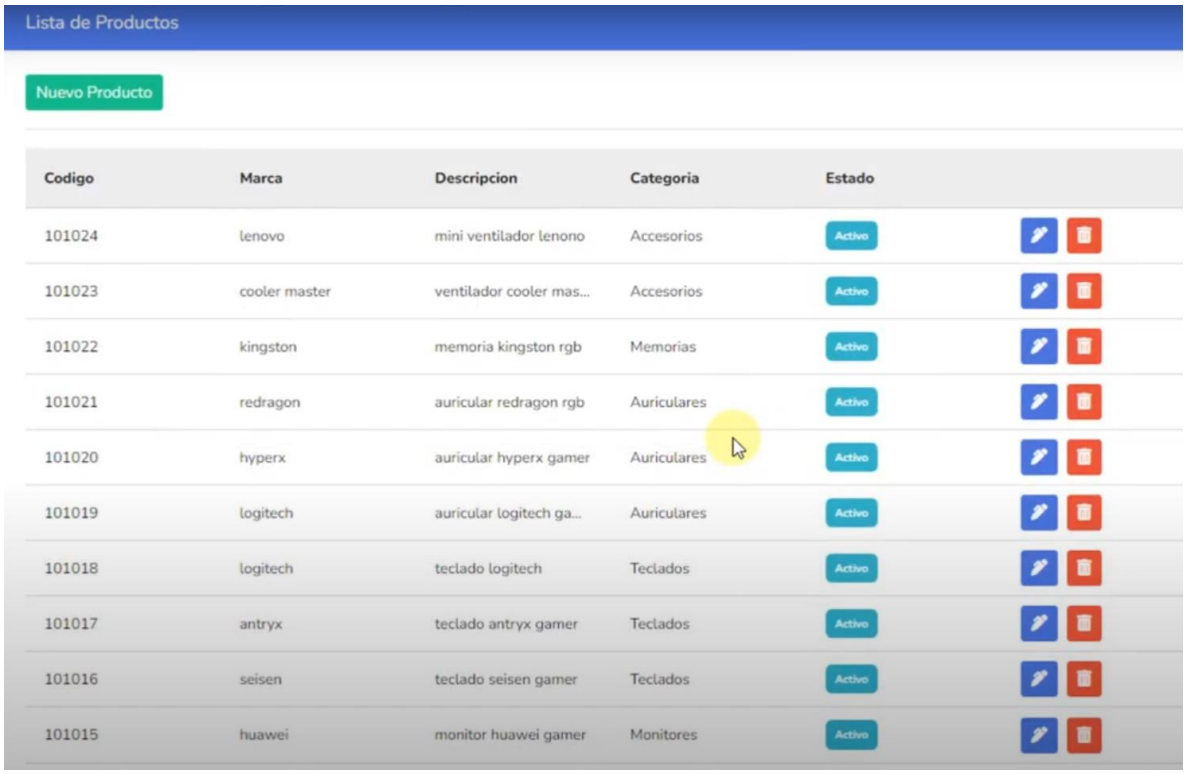
2. Analytical dashboard: Visualize key metrics (sales, revenue, total stock, categories) and bar charts (last 7 days) and pie chart (top products).



3. User management: Complete CRUD with filters, sorting, and pagination.



4. Gestión de inventario:
   4.1 Productos – CRUD, búsqueda por código/marca, stock, precio.
   4.2 Categorías – CRUD, filtros por estado.

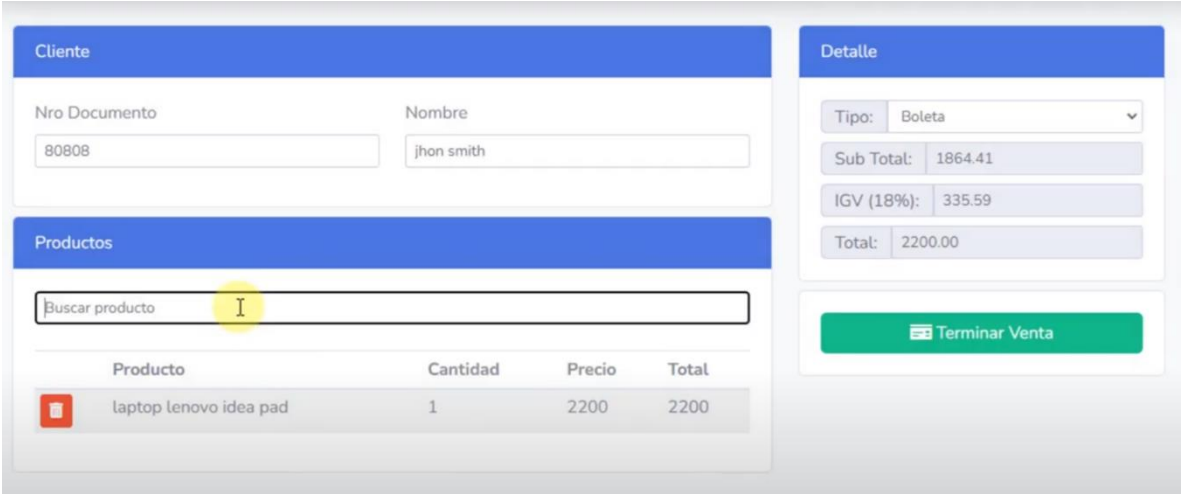


5. Sales Process

   5.1 New Sale – customer selection (document/name), voucher type selection (receipt/invoice), automatic calculation of subtotal, 18% IGV (General Sales Tax), and total.

   5.2 Product Search and Selection, quantity adjustment, individual item removal before confirmation.

   5.3 Transactional Persistence with unique sales number generation.}

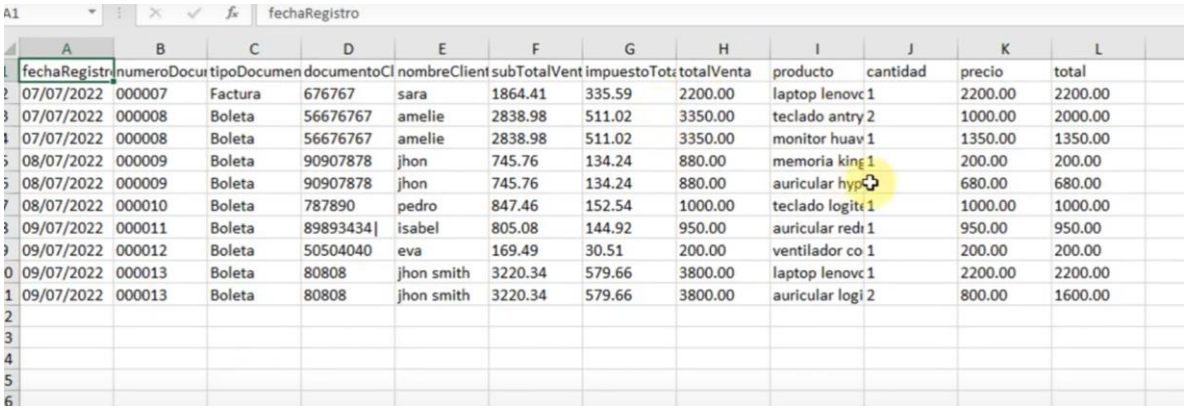


6. Sales History

Search by date range or sales number. List view and full detail view (header + lines).

7. Sales Report

Filter by dates and export to Excel with all detailed columns



	A	B	C	D	E	F	G	H	I	J	K	L
1	fechaRegistro	numeroDocu	tipoDocumen	documentoCl	nombreClient	subTotalVent	impuestoTota	totalVenta	producto	cantidad	precio	total
2	07/07/2022	000007	Factura	676767	sara	1864.41	335.59	2200.00	laptop lenovc	1	2200.00	2200.00
3	07/07/2022	000008	Boleta	56676767	amelie	2838.98	511.02	3350.00	teclado antry	2	1000.00	2000.00
4	07/07/2022	000008	Boleta	56676767	amelie	2838.98	511.02	3350.00	monitor huav	1	1350.00	1350.00
5	08/07/2022	000009	Boleta	90907878	jhon	745.76	134.24	880.00	memoria king	1	200.00	200.00
6	08/07/2022	000009	Boleta	90907878	jhon	745.76	134.24	880.00	auricular hyp	1	680.00	680.00
7	08/07/2022	000010	Boleta	787890	pedro	847.46	152.54	1000.00	teclado logite	1	1000.00	1000.00
8	09/07/2022	000011	Boleta	89893434	isabel	805.08	144.92	950.00	auricular redr	1	950.00	950.00
9	09/07/2022	000012	Boleta	50504040	eva	169.49	30.51	200.00	ventilador co	1	200.00	200.00
10	09/07/2022	000013	Boleta	80808	jhon smith	3220.34	579.66	3800.00	laptop lenovc	1	2200.00	2200.00
11	09/07/2022	000013	Boleta	80808	jhon smith	3220.34	579.66	3800.00	auricular logi	2	800.00	1600.00
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3.3 Key Non-Functional Requirements

Security: Passwords encrypted with bcrypt (minimum 10 salt rounds). CSRF and CORS protection.

Performance: 95% of API requests must respond within ≤ 200 ms under 100 concurrent users.

Scalability: Frontend/backend separation, foundation for containerized deployments (Docker).

Usability: Responsive interface (≥ 1366×768). Intuitive user flows; clear error messages.

Maintainability: React code with strict TypeScript, feature-slice pattern, unit tests with minimum 70% coverage.

4. Information Architecture

4.1 Frontend and Module Structure

ID	Module / Sub-module	Detailed Description	Access Roles
4.1.1	Login	• Public Initial Screen • Fields: Email (RFC 5322 validation) and Password (min. 8 characters, 1 number, 1 uppercase). • "Log In" button that sends POST /api/auth/login. • Localized error messages (incorrect credentials, inactive user). • "Remember me" option (JWT token in localStorage).	All
4.1.2	Dashboard	• KPI Cards: Total Sales, Revenue, Products, and Categories. • Bar chart showing sales from the last 7 days (endpoint: /api/dashboard/dailySales). • Pie chart displaying top-selling products (endpoint: /api/dashboard/topProducts). • Automatic refresh every 15 minutes or upon module change.	Admin, Seller
4.1.3	Administration → Users	• Table Columns: Name, Email, Phone, Role, Status, Actions. • Sorting: Ascending/descending order on headers; Pagination: 10/15/20/30/All. • "Add User" button (modal) with unique email validation. • Row Actions: Edit and Delete (with confirmation).	Admin
4.1.4	Inventory → Products	• Identical structure to Users. • Fields: Code, Brand, Description, Category (dropdown), Stock, Price, Status. • Search by code or brand.	Admin (CRUD), Seller

4.1.5	Inventory → Categories	• Table: Description, Status, Actions. • Complete CRUD with duplicate validation.	Admin
4.1.6	Sales → New Sale	• Customer: Document and Name (autocomplete). • Details: Voucher Type (Receipt/Invoice), Subtotal, 18% IGV (General Sales Tax), Total. • Product search (code or name). • Quantity selection and dynamic list with remove option. • "Process Sale" button that sends POST /api/sales.	Admin, Seller
4.1.7	Sales → History	• Search by Date Range or Sales Number. • Results with columns: Date, Sale No., Doc. Type, Customer Doc., Name, Total, and a "View Details" button. • Details modal with header and product lines.	Admin, Seller
4.1.8	Reports → Sales	• Filtros de Fecha inicio / fin. • Botón “Buscar” para mostrar resultados. • Botón “Exportar” (endpoint • /api/reports/sales?format=xlsx).	Admin

4.2 Navigation and Main Flows

Home ➜ Login ➜ Dashboard (role-based redirect)

If the user is a Seller, access to Administration and Categories is omitted.

Dashboard ➜ Chosen Module (sidebar) ➜ CRUD Action ➜ Confirmation

All forms are validated client-side (Yup schema) and server-side.

New Sale ➜ Product Selection ➜ Confirm ➜ History View (auto-scroll to newly created sale)

Report ➜ Search ➜ Export ➜ Download (sales_report_YYYYMMDD.xlsx)

Final Note

This FRS (Functional Requirements Specification) replaces implicit assumptions: if a functionality is not listed here, it is considered out of scope for Version 1. Starting from this document, Test Scenarios (Phase 3) will be generated, referenced with the tag FRS, ensuring complete traceability with subsequent Test Cases, Test Executions, and RTM (Requirements Traceability Matrix).