

Project Functional Requirement Specification

Proyecto: POS REACT (Frontend)

Versión: 1.0

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A login form titled 'Bienvenido' (Welcome). It features two input fields: 'Correo' (Email) and 'Contraseña' (Password). Below these fields is a blue button labeled 'Ingresar' (Login). The form is set against a light gray background.

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. |

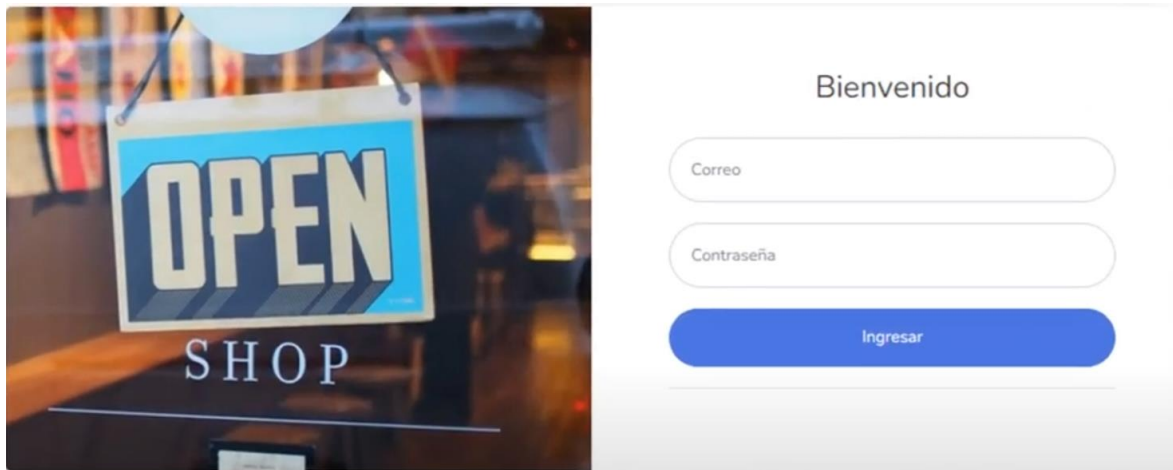
3. Requirements

3.1 Minimum Technical Requirements

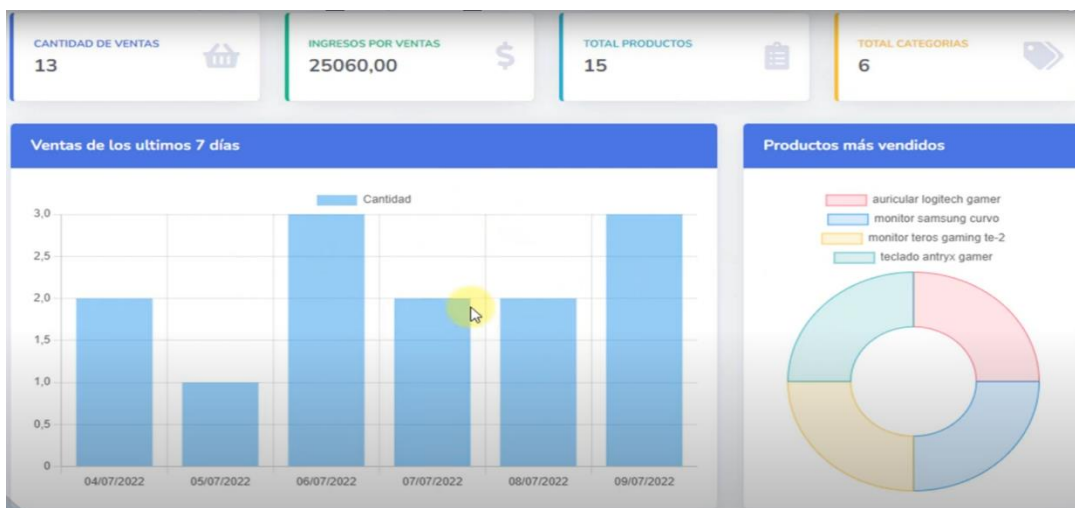
- Backend Server: Windows Server 2019 or Linux with .NET 8 Runtime installed.
- Database Server: SQL Server 2019, mixed mode, UTF-8 compatibility.
- Node/React Build: Node.js 16.20 LTS, npm 8+.
- Infrastructure: HTTPS mandatory (TLS 1.2+), CPU 4 vCores, 8 GB RAM, SSD.
- Browser Compatibility: Latest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

| Lista de Usuarios | | | | | |
|---------------------------------------|-----------------|----------|---------------|--------|---|
| Nuevo Usuario | | | | | |
| Nombre | Correo | Telefono | Rol | Estado | |
| user | user@gmail.com | 555666 | Empleado | Activo | Editar Eliminar |
| admin | admin@gmail.com | 444333 | Administrador | Activo | Editar Eliminar |
| Filas por página 10 1-2 de 2 < < > > | | | | | |

4. Gestión de inventario:

4.1 Productos – CRUD, búsqueda por código/marca, stock, precio.

4.2 Categorías – CRUD, filtros por estado.

| Lista de Productos | | | | | |
|--------------------------------|---------------|--------------------------|-------------|--------|---|
| Nuevo Producto | | | | | |
| Codigo | Marca | Descripcion | Categoria | Estado | |
| 101024 | lenovo | mini ventilador lenono | Accesorios | Activo | Editar Eliminar |
| 101023 | cooler master | ventilador cooler mas... | Accesorios | Activo | Editar Eliminar |
| 101022 | kingston | memoria kingston rgb | Memorias | Activo | Editar Eliminar |
| 101021 | redragon | auricular redragon rgb | Auriculares | Activo | Editar Eliminar |
| 101020 | hyperx | auricular hyperx gamer | Auriculares | Activo | Editar Eliminar |
| 101019 | logitech | auricular logitech ga... | Auriculares | Activo | Editar Eliminar |
| 101018 | logitech | teclado logitech | Teclados | Activo | Editar Eliminar |
| 101017 | antrix | teclado antrix gamer | Teclados | Activo | Editar Eliminar |
| 101016 | seisen | teclado seisen gamer | Teclados | Activo | Editar Eliminar |
| 101015 | huawei | monitor huawei gamer | Monitores | Activo | Editar Eliminar |

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.}

The screenshot displays a web application for sales management. It is divided into three main sections: 'Cliente' (Customer), 'Productos' (Products), and 'Detalle' (Details).

- Cliente Section:** Contains input fields for 'Nro Documento' (80808) and 'Nombre' (jhon smith).
- Productos Section:** Features a search bar labeled 'Buscar producto' with a yellow highlight and a cursor. Below it is a table with one item: 'laptop lenovo idea pad' with a quantity of 1, price of 2200, and total of 2200.
- Detalle Section:** Shows a dropdown for 'Tipo' set to 'Boleta'. Below are calculated values: 'Sub Total: 1864.41', 'IGV (18%): 335.59', and 'Total: 2200.00'. A green button labeled 'Terminar Venta' is at the bottom.

6. Sales History

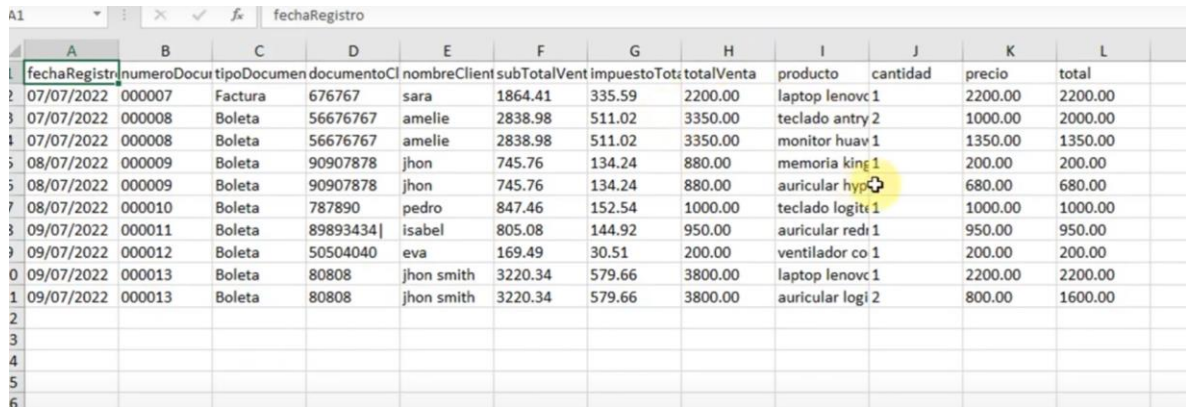
Search by date range or sales number. List view and full detail view (header + lines).

The screenshot shows the 'Historial de ventas' (Sales History) section. It includes search filters and a table of sales records.

- Search Filters:** 'Buscar por:' is highlighted with a yellow circle and a mouse cursor. Below it is a dropdown menu set to 'Fechas'. To the right are 'Fecha Inicio' (09/07/2022) and 'Fecha Fin' (09/07/2022) fields, followed by a green 'Buscar' button.
- Sales Table:** The table has columns: 'Fecha Registro', 'Numero Venta', 'Tipo Documento', 'Documento Cliente', 'Nombre Cliente', and 'Total'. The current state shows 'Sin resultados' (No results).

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 | impuestoTot | 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 redi | 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 |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |

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 ($\geq 1366 \times 768$). 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none"> • Table: Description, Status, Actions. • Complete CRUD with duplicate validation. | Admin |
| 4.1.6 | Sales → New Sale | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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).