

Requirement Specification Document

WholeScaler B2B Wholesale Portal – Web Application

1. Functional Requirements (FRs)

These requirements specify the system's core actions and processes for the **WholeScaler** B2B Wholesale Portal, derived strictly from the project proposal and the visible functionalities in the UI/UX designs.

1.1 User Management & Authentication

ID	Requirement	Description
F1	Wholesaler Login/Logout	The system shall allow Wholesalers to securely log in and log out of the WMS Admin Panel using valid credentials.
F2	Retailer Login/Logout	The system shall allow Retailers to securely log in and log out of the Client Portal using valid credentials.
F3	Wholesaler Registration	The system shall allow new Wholesalers to create an account by providing Name, Email, Company Name, and Password, with an option to sign up via Google.
F4	Retailer Registration	The system shall provide a mechanism for Retailers to register for a new account, subject to approval and management by the Wholesaler.
F5	Profile Update	The system shall allow Wholesalers to update their profile information (Name, Email, Phone) via the Settings page.
F6	Retailer Account Viewing	The WMS Customers panel shall display active retailer profiles, including their contact details, total orders placed, and total amount spent.

1.2 Product & Inventory Management

ID	Requirement	Description
F7	Product Management (CRUD)	The WMS Products page shall provide full Create, Read, Update, and Delete (CRUD) functionality for managing product listings.
F8	Inventory Stock Updates	The system shall display and maintain real-time stock levels for all products, reflecting changes upon sales or manual updates.
F9	Low Stock Alerts	The WMS Dashboard shall display a dedicated panel to alert Wholesalers when a product's stock falls below a pre-configured threshold.
F10	Catalog Browsing & Search	The Retailer Client Portal shall allow searching and filtering of products within the Product Catalog.
F11	MOQ Display & Requirement	The Retailer Catalog shall display the Minimum Order Quantity (MOQ) for each product, and the system must enforce this quantity during order placement.

1.3 Bulk Order & Transaction Management

ID	Requirement	Description
F12	Bulk Order Placement	The Retailer Shopping Cart shall facilitate the selection of bulk product quantities .
F13	Order Processing & Status Update	The WMS Orders page shall allow Wholesalers to review orders and update their status (e.g., Pending, Processing, Shipped, Delivered) using categorized status tallies.
F14	Shipping/Tracking Entry	The WMS shall allow the Wholesaler to input shipping carrier details .

F15	Order Tracking	The Retailer Order History shall display the current status.
F16	Invoicing & PDF Generation	The system shall automatically generate PDF invoices for confirmed orders, which must be downloadable from both the WMS and the Retailer Portal.
F17	Payment & Invoice Status	The system shall track the status of all invoices, including Paid, Pending Payment, and Overdue statuses, on the WMS and Retailer Invoice pages.

1.4 Reporting & Analytics

ID	Requirement	Description
F18	Dashboard KPIs	The WMS Dashboard shall display essential Key Performance Indicators (KPIs) including Total Sales, New Orders, Total Customers, and Revenue .
F19	Sales & Stock Reports	The WMS Reports page shall generate visual reports (e.g., Monthly Sales Trends, Sales by Category) for analysis.
F20	Report Filtering	The WMS Reports page shall provide controls to select a Report Type and a specific Date Range before generating the report data.
F21	Report Export	The system shall allow for the Export of generated reports and order history data into a usable file format.

2. Non-Functional Requirements (NFRs)

These requirements specify the system's operational constraints and quality attributes, defining *how well* the system performs key functionalities.

2.1 Performance & Scalability

ID	Requirement	Description
NFR1	System Load Time	The primary data-heavy screens, including the Wholesaler Dashboard and the Retailer Product Catalog, shall load completely within 3 seconds .
NFR3	Data Scalability	The chosen database must efficiently handle data for up to 1,000 registered retailer accounts and maintain fast query speeds across one year of order history.
NFR4	API Response Time	Core APIs for transactions and real-time inventory checks shall execute and respond to the frontend within 1 second .

2.2 Security & Authentication

ID	Requirement	Description
NFR5	Authentication Protocol	User authentication across both portals must be securely managed using JWT-based authentication .
NFR6	Data Encryption	All data transmitted between the client and the server must be secured using industry-standard HTTPS .
NFR7	Role-Based Access Control (RBAC)	The system must strictly enforce the roles to ensure that Retailers are blocked from accessing any Wholesaler-specific API endpoints.

NFR8	Input Security	The system must implement robust server-side input validation on all forms to mitigate common web security threats.
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2.3 Reliability & Maintainability

ID	Requirement	Description
NFR9	Availability/Uptime	The entire WholeScaler platform must maintain a minimum system uptime of 99.5% .
NFR10	Data Integrity	Database operations for critical functions must guarantee high data integrity and consistency.
NFR11	Maintainability	The codebase must be modular and documented to allow a new developer to understand the core architecture and development patterns within two weeks.
NFR12	Deployment Adherence	The system must be capable of seamless deployment onto the specified cloud platforms: Frontend on Vercel and Backend on Render .

3. Detailed User Stories

This section defines system requirements from the user's perspective, providing specific context for development and testing.

3.1 Detailed User Stories

3.1.1 Wholesaler (WMS) User Stories

US-W-1: Dashboard Performance Assessment (F18)

- **User Story:** As a Wholesaler, I want the dashboard to display KPIs for Total Sales, New Orders, Total Customers, and Revenue so I can assess business health.
- **Acceptance Criteria:**
 - All KPI cards load simultaneously on the dashboard.
 - Month-over-month comparison metrics match the UI design.
 - KPI values reflect real-time backend data.

US-W-2: Efficient Product Management (F7)

- **User Story:** As a Wholesaler, I want to manage products on a dedicated page using a card-based view with clear Edit and Delete controls so I can quickly perform inventory maintenance and update product details.
- **Acceptance Criteria:**
 - Clicking 'Edit' opens a pre-filled form allowing changes to price, stock, and description.
 - Changes saved in the form are reflected in the Retailer Catalog instantly.

US-W-3: Priority Order Processing (F13)

- **User Story:** As a Wholesaler, I want to see a tally of orders categorized by their status (Pending, Processing, Shipped, Delivered) on the Orders page so I can easily prioritize which orders need immediate action.
- **Acceptance Criteria:**
 - Clicking a status tally (e.g., 'Pending Orders') filters the main order list to show only orders currently awaiting review.

US-W-4: Shipment Tracking Activation (F14, F15)

- **User Story:** As a Wholesaler, I want to input a Tracking Number when updating an order status to 'Shipped' so the retailer can independently track their package's movement.
- **Acceptance Criteria:**
 - The system saves the tracking number upon status update.
 - The tracking number successfully displays on the retailer's Order History page when the status is 'Shipped' or 'In Transit'.

3.1.2 Retailer (Client Portal) User Stories

US-R-1: MOQ Compliance (F11)

- **User Story:** As a Retailer, I want to see the Minimum Order Quantity (MOQ) clearly displayed and enforced during checkout so I know the required bulk purchase threshold before attempting to check out.
- **Acceptance Criteria:**
 - The MOQ is clearly visible on product cards in the catalog.
 - The system prevents the 'Place Order' action if the quantity selected in the shopping cart for any item is less than its stated MOQ.

US-R-2: Financial Confirmation (F12)

- **User Story:** As a Retailer, I want the Shopping Cart to display itemized costs, and the final total so I can confirm the precise financial commitment before placing the order.
- **Acceptance Criteria:**
 - The final 'Total' accurately calculates all item costs .
 - The 'Place Order' button is disabled until a final quantity confirmation is received.

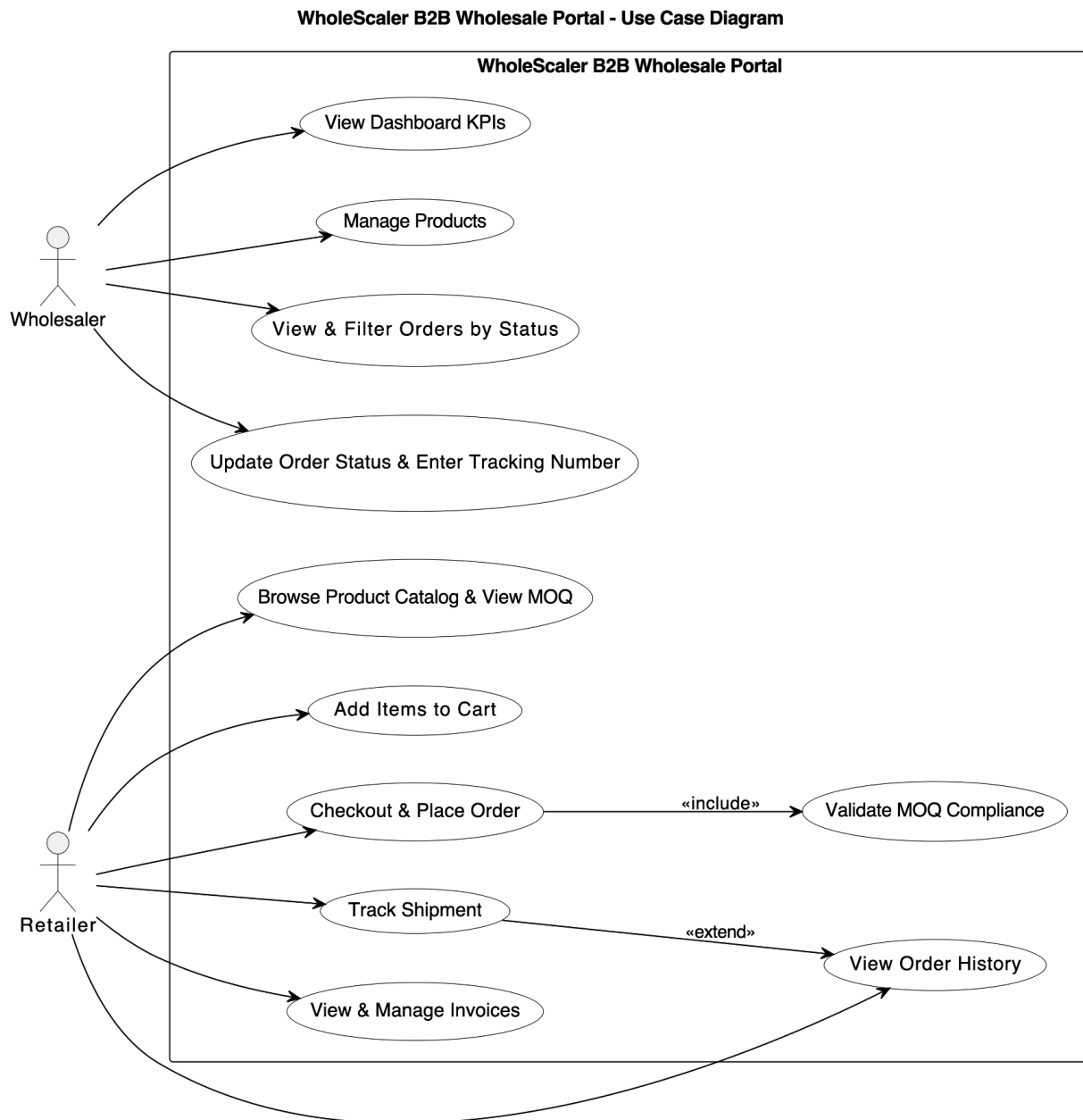
US-R-3: Invoice and Payment Management (F17)

- **User Story:** As a Retailer, I want the Invoices page to display the status (Paid, Pending, Overdue) and the Total Outstanding amount so I can quickly identify and manage outstanding payments.

- **Acceptance Criteria:**

- The page accurately calculates and displays the 'Total Outstanding' amount.
- Invoices marked as 'Overdue' are clearly flagged with a visual warning.

3.2 Use Case Diagram



4. Interface Requirements

These requirements specify the necessary APIs, communication protocols, and visual consistency standards for the **WholeScaler** platform.

4.1 Application Interfaces (APIs)

4.1.1 Authentication API. The backend must expose a secure RESTful API to handle user authentication, supporting **JWT token generation** for both Wholesaler and Retailer roles.

4.1.2 Product & Inventory API. A dedicated API must be available for all product-related **CRUD operations**. This API is responsible for managing stock levels and setting the correct **Minimum Order Quantity (MOQ)**.

4.1.3 Order Processing API. This API must manage the entire order lifecycle. It must accept bulk order submissions and provide endpoints for the Wholesaler to update order status .

4.1.4 Reporting & Data API. An API must be designed to process requests for aggregated sales, stock, and customer data, filtered by Report Type and Date Range.

4.1.5 Invoice & Payment API. A specific interface is required to manage the automated generation of **PDF invoices**, track their payment status, and calculate the Retailer's Total Outstanding balance.

4.2 User Interface (UI) Requirements

4.2.1 Role Separation & Access. The Frontend must visually and functionally separate the complex **WMS Admin Panel** from the streamlined **Retailer Client Portal**.

4.2.2 Visual Consistency. The developed UI components must strictly adhere to the provided mockups, including the exact layout, typography, and color schemes for critical status indicators.

4.2.3 Critical Information Display. The Retailer Catalog component must prominently display the **Minimum Order Quantity (MOQ)** for each product card.


4.3 External Interfaces

4.3.1 Database Connection. The Backend service must establish a persistent, secure connection to the selected database (**MongoDB**) for all data retrieval and transactional integrity.

4.3.2 Email Service. Integration with a third-party email service is required to send automated transactional emails for events such as registration approval, order confirmation, status updates, and low stock warnings.

5. Wireframes or UI/UX Mockups


Registration and Login Page



WMS
Wholesaler Management System

Create Account

Sign up for your wholesaler account

 Sign up with Google

Or continue with

First Name

John

Last Name

Doe

Email

john@company.com


Company Name

Your Company Ltd.

Password

Create Account


Already have an account? [Sign in](#)



WMS
Wholesaler Management System

Welcome Back

Sign in to your account

 Continue with Google

Or continue with

Login As

Select your role

Email


admin@wms.com

Password

Sign In

Don't have an account? [Sign up](#)

Orders Page

 **WMS**

Wholesaler Management

Main Navigation

Dashboard

Products

Orders

Customers

Invoices

Reports

Settings


Logout

Admin User

admin@wms.com


Orders

Manage and track all orders




1

Pending Orders




1

Processing



1

Shipped



1

Delivered

Search orders by ID or customer...

Filter

All Orders

Order ID	Customer	Date	Items	Total	Priority	Status	Actions
ORD-001	Retail Plus Store	2024-01-15	5 items	₹25,400	High	Pending	<div><div></div><div></div></div>
ORD-002	Metro Supermarket	2024-01-14	12 items	₹18,900	Medium	Processing	<div><div></div><div></div></div>
ORD-003	Quick Mart	2024-01-14	8 items	₹32,100	Low	Shipped	<div><div></div><div></div></div>
ORD-004	City Grocers	2024-01-13	15 items	₹45,600	Medium	Delivered	<div><div></div><div></div></div>
ORD-005	Corner Store	2024-01-12	6 items	₹12,300	High	Packed	<div><div></div><div></div></div>
ORD-006	Fresh Mart	2024-01-11	20 items	₹67,800	Low	Cancelled	<div><div></div><div></div></div>

Invoices Page

WMS

Wholesaler Management

Main Navigation

Dashboard

Products

Orders

Customers

Invoices

Reports

Settings

Invoices

Track payments and generate invoices

+ Create Invoice

1

Paid Invoices

1

Pending Payment

1

Overdue

Recent Invoices

Invoice ID	Customer	Date	Due Date	Amount	Status	Actions
INV-001	Retail Plus Store	2024-01-15	2024-02-14	₹25,400	Paid	<div><div></div><div></div></div>
INV-002	Metro Supermarket	2024-01-14	2024-02-13	₹18,900	Pending	<div><div></div><div></div></div>
INV-003	Quick Mart	2024-01-12	2024-01-27	₹32,100	Overdue	<div><div></div><div></div></div>

Reports & Analytics Page

WMS

Wholesaler Management

Main Navigation

Dashboard

Products

Orders

Customers

Invoices

Reports

Settings

Logout

Admin User

admin@wms.com

Reports & Analytics

Generate insights and download reports

Generate Report

Report Type

Select report type

Date Range

Select date range

Generate Report

Monthly Sales Trend

120000

90000

60000

30000

0

Jan

Feb

Mar

Apr

May

Jun

Sales by Category

₹5.2M

Total Revenue

1,247

Total Orders

89%

Order Fulfillment


4.2

Avg. Rating

Settings Page


[illegible]


Product Catalog


**Retailer Portal**
Wholesale Shopping


Navigation

- Dashboard
- Product Catalog
- Shopping Cart
- Order History
- Invoices


 Cart


 Logout


 **Retailer User**
retailer@company.com


 View Cart

Product Catalog


 All









Premium Coffee Beans
High-quality arabica coffee beans
In Stock Min: 10 kg
₹24.99/kg [View Details](#)



Organic Tea Leaves
Premium organic tea leaves
In Stock Min: 5 kg
₹18.5/kg [View Details](#)




Artisan Chocolate
Handcrafted premium chocolate
Out of Stock Min: 2 kg
₹32.75/kg [View Details](#)




Organic Honey
Pure organic wildflower honey
In Stock Min: 3 kg
₹45/kg [View Details](#)


Shopping Cart


**Retailer Portal**
Wholesale Shopping


Navigation

- Dashboard
- Product Catalog
- Shopping Cart
- Order History
- Invoices


 Cart

 Logout

 **Retailer User**
retailer@company.com

 Continue Shopping

Shopping Cart




Premium Coffee Beans
₹24.99 per kg
₹1249.50


−

50

+

kg






Organic Tea Leaves
₹18.5 per kg
₹462.50

−

25

+

kg



Order Summary

Subtotal

₹1712.00

Tax (8%)


₹136.96

Total


₹1848.96


[Proceed to Checkout](#)


Order History


 **Retailer Portal**
Wholesale Shopping


Navigation


 Dashboard


 Product Catalog


 Shopping Cart

 Order History

 Invoices

 Cart

 Logout

 **Retailer User**
retailer@company.com

Order History

Export Orders

Search by order ID or tracking number...

All Status

ORD-001

Delivered

Order Date: 1/15/2024
Items: 3
Tracking: TRK123456789

View Details

Invoice

₹1687.50

ORD-002

In Transit

Order Date: 1/20/2024
Items: 2
Tracking: TRK987654321

View Details

Invoice

₹892.25

ORD-003

Processing

Order Date: 1/22/2024
Items: 5

View Details

Invoice

₹2340.75

ORD-004

Pending

Order Date: 1/25/2024
Items: 1


View Details

Invoice

₹445.00

Your order is on the way! Track your package: TRK987654321

Invoices Page

Retailer Portal

Wholesale Shopping

Navigation


Dashboard


Product Catalog

Shopping Cart

Order History

Invoices

Cart

Logout

R

Retailer User

retailer@company.com

Invoices

Export All

Total Outstanding

₹3491.64

This Month

₹5794.74

Total Invoices

4

Search by invoice ID or order ID...

All Status

INV-2024-001

Paid

Invoice Date: 1/16/2024

Due Date: 2/15/2024

Order: ORD-001

Amount: ₹1687.50

Tax: ₹135.00

Total: ₹1822.50

View

Download PDF

INV-2024-002

Pending

Invoice Date: 1/21/2024

Due Date: 2/20/2024

Order: ORD-002

Amount: ₹892.25

Tax: ₹71.38

Total: ₹963.63

View

Download PDF

INV-2024-003

Overdue

Invoice Date: 1/23/2024

Due Date: 2/22/2024

Order: ORD-003

Amount: ₹2340.75

Tax: ₹187.26

Total: ₹2528.01

View

Download PDF

This invoice is overdue. Please make payment to avoid any service interruptions.

INV-2024-004

Draft

Invoice Date: 1/26/2024

Due Date: 2/25/2024

Order: ORD-004

Amount: ₹445.00

Tax: ₹35.60

Total: ₹480.60

View

Download PDF

6. Acceptance Criteria

These criteria define the pass/fail conditions for the Non-Functional and Interface Requirements, ensuring the quality and operational attributes of the system are met.

6.1 Performance & Scalability Criteria

6.1.1 System Load Time. Automated testing must confirm the WMS Dashboard and Retailer Catalog load fully in **under 3 seconds** during a standard peak hour simulation.

6.1.2 Concurrent Load. Stress testing must demonstrate the system's ability to handle **100 concurrent active users** (mixed roles) while maintaining API response times under 1.5 seconds.

6.1.3 Data Scalability. Database queries for core functionalities must remain fast and efficient (under 2 seconds) with a simulated data set representing **1,000 registered accounts**.

6.2 Security & Authentication Criteria

6.2.1 RBAC Enforcement. Any attempt by a Retailer to access a Wholesaler-exclusive API endpoint must be met with a **403 Forbidden** HTTP error code from the server.

6.2.2 Encryption. The entire application must be served exclusively over **HTTPS**, with no mixed content warnings, verified by browser security checks.

6.2.3 Input Validation. Penetration testing must confirm that common web attack vectors (like XSS or SQL injection) fail to compromise data or execute code within all user input fields.

6.3 Interface & Deployment Criteria

6.3.1 Visual Match. The final developed Frontend components must pass visual inspection against the provided UI/UX mockups with **zero major discrepancies**.

6.3.2 API Integration. All five core APIs (4.1.1 – 4.1.5) must be fully documented and successfully integrated, verified by the Frontend's ability to perform all CRUD and transactional operations without error.

6.3.3 Availability. System monitoring must report a stable availability rate of **99.5%** over a continuous seven-day test period.

6.3.4 Cloud Deployment. The Frontend must be successfully deployed and accessible via **Vercel**, and the Backend must be successfully deployed and operational on **Render**.