

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.
-------------	----------------	--

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.

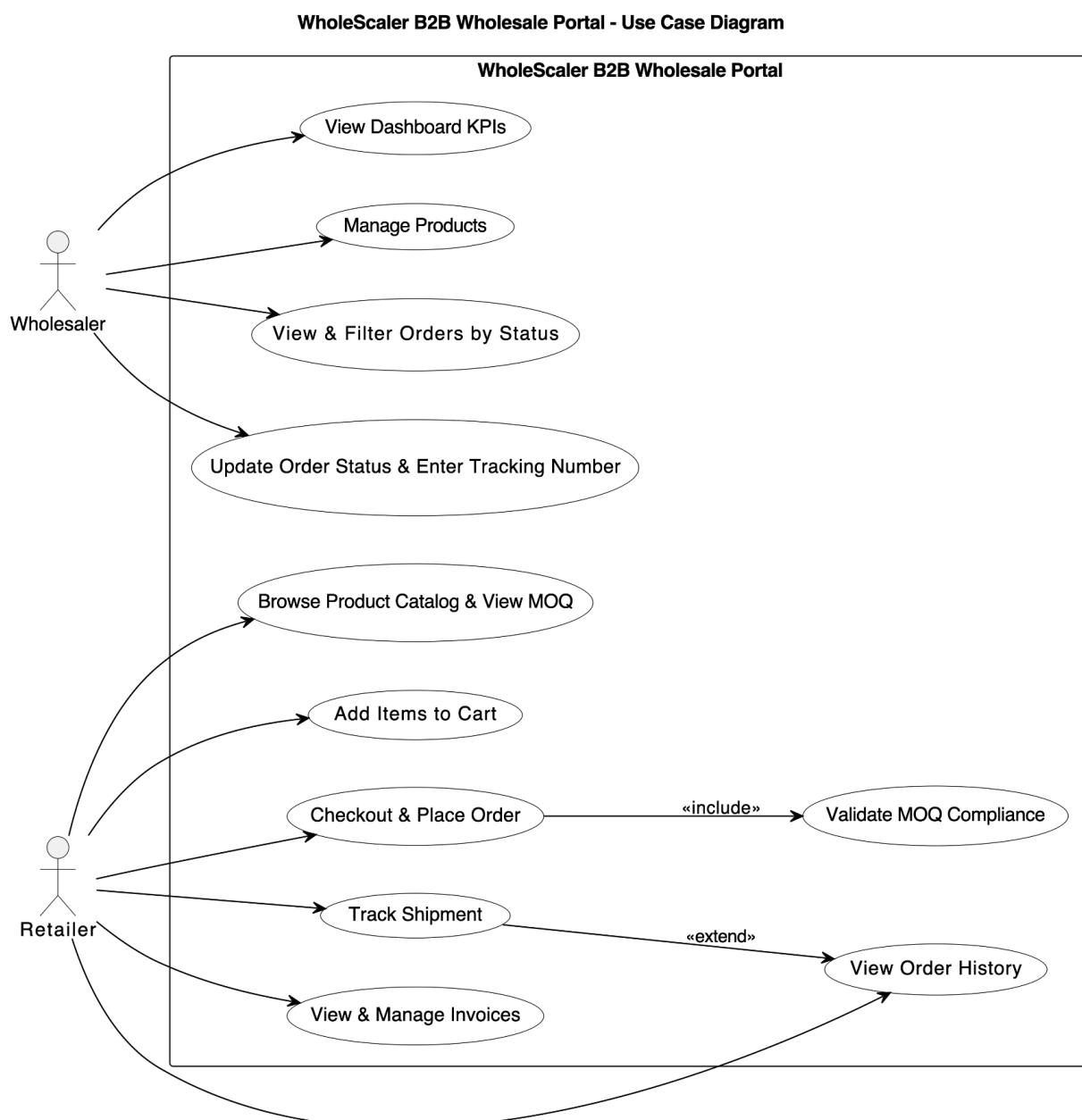
US-R-3: Invoice and Payment Management (F17)

- **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

The registration page features a header with the WMS logo and system name. A large central card titled "Create Account" prompts users to sign up for their wholesaler account. It includes a "Sign up with Google" button and fields for First Name (John), Last Name (Doe), Email (john@company.com), Company Name (Your Company Ltd.), and Password. A "Create Account" button is at the bottom, and a link to "Sign in" is at the very bottom.

The login page features a header with the WMS logo and system name. A large central card titled "Welcome Back" prompts users to sign in to their account. It includes a "Continue with Google" button and a dropdown menu for "Login As" (Select your role). Fields for Email (admin@wms.com) and Password (*****) are provided. A "Sign In" button is at the bottom, and a link to "Sign up" is at the very bottom.

Admin:

Home/Dashboard Page

 **WMS**
Wholesaler Management

Main Navigation

-  [Dashboard](#)
-  [Products](#)
-  [Orders](#)
-  [Customers](#)
-  [Invoices](#)
-  [Reports](#)
-  [Settings](#)

Logout  Admin User
admin@wms.com

Dashboard

Welcome back! Here's what's happening with your business.

Total Sales ₹ 5,28,000 +12.5% from last month

New Orders 128 +8.2% from last month

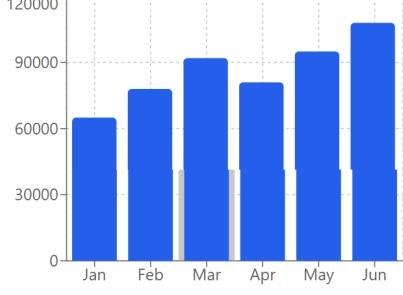
Total Customers 1,245 +5.1% from last month

Revenue ₹ 12,45,600 +15.3% from last month

[View Reports](#)

Sales Overview

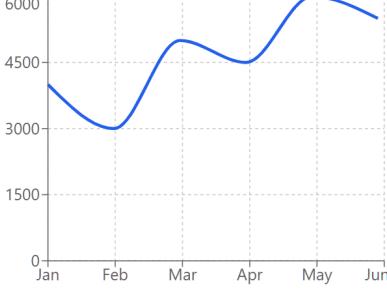
Monthly sales performance



Month	Sales (₹)
Jan	60,000
Feb	72,000
Mar	90,000
Apr	85,000
May	92,000
Jun	115,000

Website Visitors

Monthly visitor trends



Month	Visitors
Jan	4,000
Feb	3,000
Mar	5,000
Apr	4,500
May	6,000
Jun	5,500

Low Stock Alerts

Products running low on inventory

- Premium Rice 25kg Threshold: 20 units 5 left
- Wheat Flour 10kg Threshold: 25 units 8 left
- Sugar 50kg Threshold: 15 units 3 left

Recent Orders

Latest order activity

ORD-001 Retail Plus	₹25,400 <small>Pending</small>
ORD-002 Metro Stores	₹18,900 <small>Processing</small>
ORD-003 Quick Mart	₹32,100 <small>Shipped</small>

Products Page

 WMS
Wholesaler Management

Main Navigation

-  Dashboard
-  Products
-  Orders
-  Customers
-  Invoices
-  Reports
-  Settings

[Logout](#)  Admin User
admin@wms.com

Products

Manage your product inventory

[+ Add Product](#)



Product Name	Category	Price	Stock Level	Status
Premium Basmati Rice 25kg	Grains	₹2,450	150 units	In Stock
Wheat Flour 10kg	Flour	₹420	8 units	Low Stock
Refined Sugar 50kg	Sugar	₹2,100	3 units	Critical
Cooking Oil 15L	Oil	₹1,850	45 units	In Stock
Red Lentils 25kg	Pulses	₹1,650	32 units	In Stock
Black Pepper 1kg	Spices	₹650	0 units	Out of Stock
6	Total Products			
2	Low Stock Items			
1	Out of Stock			

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

[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	 
ORD-002	Metro Supermarket	2024-01-14	12 items	₹18,900	Medium	Processing	 
ORD-003	Quick Mart	2024-01-14	8 items	₹32,100	Low	Shipped	 
ORD-004	City Grocers	2024-01-13	15 items	₹45,600	Medium	Delivered	 
ORD-005	Corner Store	2024-01-12	6 items	₹12,300	High	Packed	 
ORD-006	Fresh Mart	2024-01-11	20 items	₹67,800	Low	Cancelled	 

Customers Page

 **WMS**
Wholesaler Management

Main Navigation

-  [Dashboard](#)
-  [Products](#)
-  [Orders](#)
-  [Customers](#)
-  [Invoices](#)
-  [Reports](#)
-  [Settings](#)

[Logout](#)  Admin User
admin@wms.com

Customers

Manage your retailer relationships

+ Add Customer

 **3**
Total Customers

 **2**
Active Customers

 **1**
Premium Customers

Retail Plus Store Active

 contact@retailplus.com
 +91 98765 43210
 Mumbai, Maharashtra

Total Orders **24** Total Spent **₹4,58,900**

[View Details](#)

Metro Supermarket Active

 orders@metrosuper.com
 +91 87654 32109
 Delhi, NCR

Total Orders **18** Total Spent **₹3,21,450**

[View Details](#)

Quick Mart Premium

 info@quickmart.in
 +91 76543 21098
 Bangalore, Karnataka

Total Orders **31** Total Spent **₹6,75,200**

[View Details](#)

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		
INV-002	Metro Supermarket	2024-01-14	2024-02-13	₹18,900	Pending		
INV-003	Quick Mart	2024-01-12	2024-01-27	₹32,100	Overdue		

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 Date Range

Monthly Sales Trend

Month	Sales
Jan	62,000
Feb	75,000
Mar	90,000
Apr	85,000
May	92,000
Jun	115,000

Sales by Category

Key Metrics

Total Revenue	₹5.2M
Total Orders	1,247
Order Fulfillment	89%
Avg. Rating	4.2

Settings Page

 WMS
Wholesaler Management

Main Navigation

-  Dashboard
-  Products
-  Orders
-  Customers
-  Invoices
-  Reports
-  Settings

[Logout](#)  Admin User
admin@wms.com

Settings

Manage your account and system preferences

Profile Settings

First Name: Admin | Last Name: User

Email: admin@wms.com

Phone: +91 98765 43210

[Update Profile](#)

Quick Actions

 Change Password

 Company Settings

 Theme Settings

Notification Preferences

Order Notifications
Get notified when new orders are placed

Low Stock Alerts
Receive alerts when inventory is running low

Payment Reminders
Send reminders for overdue payments

Email Reports
Receive weekly business reports via email

System Configuration

Default Currency: INR (₹) | Timezone: Asia/Kolkata

Language: English

Retailer Portal

Home/Dashboard Page

 **Retailer Portal**
Wholesale Shopping

[Cart](#) [Logout](#)  Retailer User
retailer@company.com

Dashboard

Welcome back! Here's what's happening with your orders.

Total Orders 

247
+12% from last month

Total Spent 

₹2,43,567
+8% from last month

Pending Orders 

8
2 processing, 6 in transit

Available Products 

156
Across all categories

Recent Orders

ORD-001 1/15/2024	Delivered	₹1687.50	
ORD-002 1/20/2024	In Transit	₹892.25	
ORD-003 1/22/2024	Processing	₹2340.75	

Featured Products

Premium Coffee Beans ₹24.99 per unit	 In Stock	 View
Organic Tea Leaves ₹18.5 per unit	 Low Stock	 View
Artisan Chocolate ₹32.75 per unit	 In Stock	 View

Product Catalog

The Product Catalog page displays four product cards:

- 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

The Shopping Cart page shows the following items:

- Premium Coffee Beans**: ₹24.99 per kg. Quantity: 50. Total: ₹1249.50. Remove.
- Organic Tea Leaves**: ₹18.5 per kg. Quantity: 25. Total: ₹462.50. Remove.

Order Summary

Subtotal	₹1712.00
Tax (8%)	₹136.96
Total	₹1848.96

[Proceed to Checkout](#)

Order History

 **Retailer Portal**
Wholesale Shopping

[Cart](#) [Logout](#)  **Retailer User**
retailer@company.com

Navigation

-  [Dashboard](#)
-  [Product Catalog](#)
-  [Shopping Cart](#)
-  [Order History](#)
-  [Invoices](#)

Order History

Search by order ID or tracking number... All Status

Order ID	Status	Total Amount
ORD-001	Delivered	₹1687.50
ORD-002	In Transit	₹892.25
ORD-003	Processing	₹2340.75
ORD-004	Pending	₹445.00

ORD-001 Delivered ₹1687.50
Order Date: 1/15/2024
Items: 3
Tracking: TRK123456789
[View Details](#) [Invoice](#)

ORD-002 In Transit ₹892.25
Order Date: 1/20/2024
Items: 2
Tracking: TRK987654321
Your order is on the way! Track your package: TRK987654321
[View Details](#) [Invoice](#)

ORD-003 Processing ₹2340.75
Order Date: 1/22/2024
Items: 5
[View Details](#) [Invoice](#)

ORD-004 Pending ₹445.00
Order Date: 1/25/2024
Items: 1
[View Details](#) [Invoice](#)

Invoices Page

 **Retailer Portal**
Wholesale Shopping

[Cart](#) [Logout](#)  **Retailer User**
retailer@company.com

Navigation

-  [Dashboard](#)
-  [Product Catalog](#)
-  [Shopping Cart](#)
-  [Order History](#)
-  [Invoices](#)

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

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

[View](#) [Download PDF](#)

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**.