

PROJECT UNIQUENESS ANALYSIS

FASHION INVENTORY SYSTEM

A Deep Dive into Enterprise-Grade Features, Modern Architecture, and Sophisticated Retail Logic.

DUAL INVENTORY ARCHITECTURE



Hybrid Model

Supports both legacy simple inventory management and advanced fashion retail products with complex variants in a single, cohesive system.



Seamless Coexistence

Ensures that two different product models operate side-by-side without conflict, maintaining backward compatibility while scaling features.



Enterprise Ready

Designed to handle diverse inventory needs from small standard items to high-complexity fashion apparel.

ADVANCED **VARIANT** MANAGEMENT



Multi-Dimensional Precision

Each product is managed through complex Size × Color matrices, allowing for granular stock tracking.

- ✂ **40+ Size Options:** XXS-XXXL, Footwear, and Kids.
- 🎨 **30+ Color Profiles:** Basic to Metallic and Patterns.
- 🏷 **Dynamic Pricing:** Base price + variant-specific adjustments.

RETAIL TAXONOMY

Management Layer	Categories & Filters	Targeting
13 Categories	Clothing, Footwear, Accessories, Jewelry, Sunglasses, etc.	Specific Stock Tracking
Seasonal Logic	Spring, Summer, Autumn, Winter, All-Season	Current Season Detection
Gender targeting	Male, Female, Unisex, Kids	Optimized Discovery
Brand Management	Centralized Brand-based organization	Portfolio View

INTELLIGENT STOCK ALERTS

RT

REAL-TIME MONITORING

Smart Status Detection

Advanced logic detects inventory health at the most granular levels.

Variant-Level Alerts

Alerts trigger when specific size-color combinations fall below the minimum threshold.

Out-of-Stock Logic

"Out of Stock" status only applies when 100% of variants for a product hit zero quantity.

ENTERPRISE SECURITY

Sophisticated Auth & Control

- 🔑 **JWT Security:** Stateless session management with Spring Security.
- 👥 **3-Tier Access:** Admin, Manager, and Pending User roles.
- ✅ **Approval Workflow:** Admins must approve new manager registrations.
- 🛡️ **Recovery System:** OTP-based secure password recovery mechanism.



AUDIT TRAIL & TRANSACTIONS



Stock Movements

Complete IN/OUT tracking for both legacy products and fashion variants with variant-specific precision.



User Attribution

Every single inventory transaction is linked to the authenticated user who performed the action.



Audit Fields

Automatic timestamp tracking (Created_at / Updated_at) for all entities via Hibernate annotations.

THE MODERN ENGINE



Backend

Spring Boot 3.2.1 + Java 17. High performance, RESTful API design with 30+ endpoints for fashion logic.



Frontend

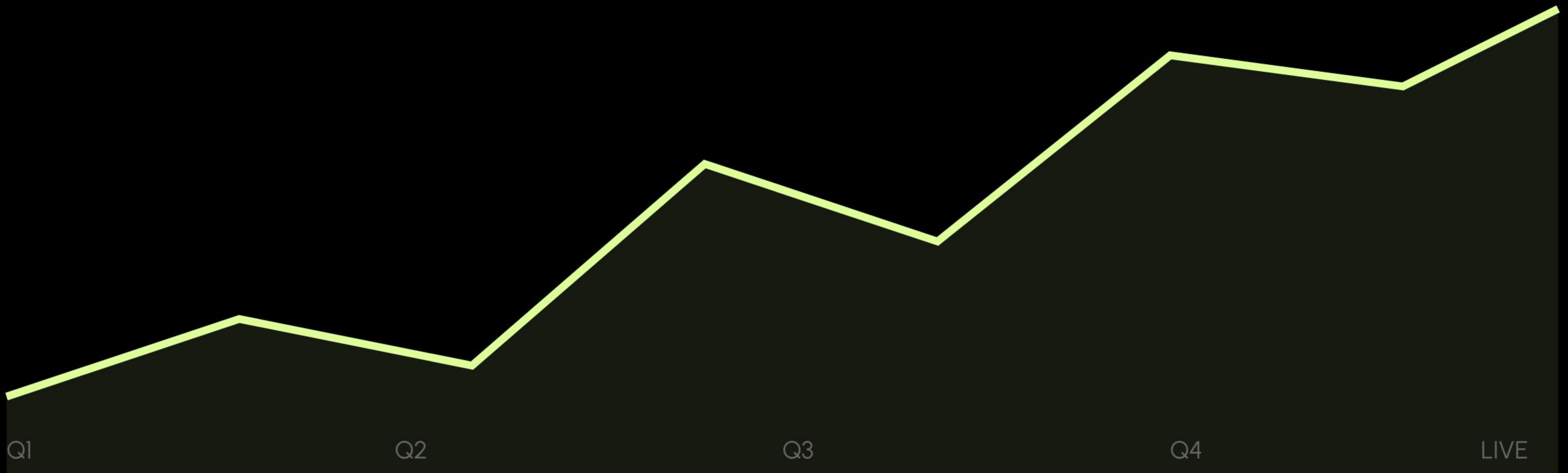
React 19 + Vite. Modern UI built with TailwindCSS 4 and Lucide React icons for a professional look.



Data & Ops

MySQL persistence with automated PowerShell scripts for data initialization and health checks.

REAL-TIME ANALYTICS



Admin Dashboard provides user statistics, product counts, and transaction summaries. Stock monitoring handles unread alert management and trending product identification in real-time.

SYSTEM AUTOMATION

Automated SKU Generation

Product-level SKUs are auto-generated based on Category-Name-Timestamp.

Variant-level SKUs use Product-Size-Color mapping for unique identification.

PowerShell Scripting

Automated data population and database health checks for testing and production readiness.



FASHION-SPECIFIC LOGIC

This project stands out by combining traditional inventory management with sophisticated retail requirements: **Material Tracking**, **Care Instructions**, and **Seasonal Collections**.

Comprehensive validation ensures data integrity across SKUs, prices, and stock quantities, resulting in a production-ready, enterprise-grade application.

QUESTIONS?

Modern Architecture | Enterprise Features | Clean Logic

Spring Boot 3.2.1 · React 19 · TailwindCSS 4

IMAGE SOURCES



[spherewms.com](https://www.spherewms.com)



[pngtree.com](https://www.pngtree.com)



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