

# Hackathon Documentation

Problem Statement ID	HACXPB001
Title	Personalized Product Recommendations for Enhanced Retailer Experience
Company	Qwipo (B2B Retail Marketplace)
Industry	B2B Retail

## 1. Problem Statement

Retailers on Qwipo's B2B platform struggle with repetitive buying patterns, lack of exposure to relevant products, and difficulty in optimizing purchasing decisions. This results in missed opportunities, reduced sales, and lower satisfaction for both retailers and distributors.

## 2. Objective

To design a personalized recommendation system within Qwipo's platform that suggests relevant products, improves product discovery, and boosts sales and overall retailer experience.

## 3. Sub-Problems (Minimum 10)

1. Retailer Behavior Analysis – Build analytics to understand retailer profiles.
2. Cold Start Problem – Use category-based and trending product recommendations.
3. Repetitive Buying Patterns – Introduce upselling/cross-selling suggestions.
4. Category Discovery – Smart recommendations for unexplored categories.
5. Regional Demand Understanding – Geo-based product recommendations.
6. Price Sensitivity – Personalized price-range recommendations.
7. Inventory Optimization – AI-powered inventory recommendation engine.
8. Real-time Recommendations – Use WebSockets/real-time APIs for instant updates.
9. Distributor Visibility – Personalized distributor-to-retailer product mapping.
10. User Experience Challenge – Simple UI with top 5–10 relevant products.
11. Integration with Existing System – Smooth integration with logistics & financing.

## 4. Proposed Solution

- AI/ML Recommendation Engine: Collaborative Filtering, Content-Based Filtering, Hybrid models.
- Personalization Features: Region-based, category-based, and price-based recommendations, seasonal and trending products, real-time suggestions.
- Tech Stack:
  - Backend: Node.js (Express/Fastify) or Python (FastAPI/Flask)
  - Database: PostgreSQL or MongoDB
  - AI/ML: Scikit-learn, TensorFlow, or PyTorch
  - APIs: REST/GraphQL, WebSocket
  - Frontend: React/Angular for UI

## 5. Impact

- Helps retailers discover more relevant products.
- Boosts distributor sales & visibility.

- Enhances retailer satisfaction.
- Optimizes supply chain with better forecasting.
- Creates competitive advantage for Qwipo.

## **6. Future Scope**

- Integration with financing recommendations.
- Predictive analytics for demand forecasting.
- Voice-assisted product discovery for retailers.
- Gamified product suggestions (to improve adoption).