

Dated: 30-04-2026

**Registration No: 03-3-1-028-2023**

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Problem 1) incorporate business intelligence in your PVFC order processing system by adding a recommendation system.

### Recommendation System

A recommendation system for an order processing system analyzes historical order data, user behavior, and item characteristics to predict and suggest products that a customer is likely to purchase next.

These systems improve customer experience

Increase Average Order Value (AOV) by identifying purchasing patterns and offering personalized recommendations.

### Recommendation Techniques

#### Collaborative Filtering (CF):

Recommends items based on similar user behavior. If user A and B have similar order histories, the system suggests items purchased by B to user A.

#### Content-Based Filtering:

Suggests items similar to those a user has already purchased or viewed, based on item attributes (e.g., category, brand, or price).

#### Hybrid Systems:

Combines collaborative and content-based filtering to overcome limitations like the "cold start" problem (new users/items with no history).

#### Association Rule Mining

Identifies items frequently bought together, ideal for "frequently bought together" bundles or upselling complementary items.

Assumption: Sufficient numbers of orders are present in database.

## Functionalities to be added

Display recommendation messages during Product Selection and Order Placement

"Customers who bought this also bought..."

Reordering suggestions for customers

For employees/managers of PVFC forecasting demand for secondary items when a primary item's sales increase. (Inventory Management)