

Supermarket system

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Introduction

This supermarket management system is designed to simulate the operation of a supermarket including goods management and the interaction with customers. It has two main parts: **Product Management** and **Customer Management**, each with specific features.

The **Product Management** section helps to handle products in the warehouse and on the shelves. It includes adding new products to the warehouse, removing items when they are sold, and displaying the current stock. It also lets store workers move products from the warehouse to the shelves, adjust shelf quantities, and change product prices.

The **Customer Management** section focuses on customer activities. Customers can browse products on shelves, add or remove items from their shopping list, and checkout. The system keeps track of their purchase history and provides information about their total spending and shopping habits. It also helps the store analyze sales data, such as the total sales, profit, and the most popular products.

Packages and functions

Subpackage 1: Product Management

This module focuses on managing products in the warehouse and on shelves, consisting of two submodules.

Module 1: Warehouse Management

- Product Entry: Add new products to the warehouse. Requires input for product code, name, category, purchase price, entry date, and quantity.
- Product Exit: Check if a product exists in the warehouse and if the quantity is sufficient. If the product is available and the stock meets the requested quantity, perform the exit operation. Requires product code and quantity for exit.
- Inventory Display: Show details of products stored in the warehouse, including product code, name, category, purchase price, entry date, and current stock quantity.

Module 2: Sales Management

- New Product Shelving: Add products from the warehouse to the shelves. If a

product is not yet on the shelf, provide the product code, shelving quantity, and sale price.

- Increase Shelf Quantity: Increase the quantity of a product on the shelf and reduce the corresponding warehouse stock. Requires product code and quantity to be added.
- Decrease Shelf Quantity: Reduce the quantity of a product on the shelf and return the reduced amount to the warehouse. Requires product code and quantity to be removed.
- Modify Sale Price: Update the sale price of products already on the shelf. Requires product code and the new price.

Subpackage 2: Customer Management

This module focuses on customer interactions, including purchasing and tracking purchase records. It has two submodules.

Module 1: Customer Purchase Behavior

- Product Browsing: Customers can view products on shelves that have a stock greater than 0. Displays product code, name, sale price, and shelf stock.
- Product Selection: Customers can add or remove items to/from their shopping cart. They must provide their membership code. The system displays the selected products, including product code, name, sale price, quantity, total price, and a unique cart code.
- Checkout: If customers have an unpaid bill, the system displays the latest bill for checkout. Upon payment, the bill is marked as paid, and the corresponding shelf stock is reduced. The bill includes product code, name, sale price, quantity, and both pre-tax and post-tax totals.

Module 2: Purchase Record Inquiry

- Purchase History: Customers can view their historical purchase records by providing their membership code. If no records exist, they are notified that no purchases have been made.
- Customer Spending Insights: Provides statistics on total purchase frequency, cumulative spending, and total quantities of each product purchased. Requires a membership code.
- Store Profit Analysis: Provides data on total visits, total sales, profit, and the most frequently purchased products.