

German International University in Berlin

Media Engineering and Technology

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Milestone 1 Project Description

“Supermarket Management System”

1. Project Overview

This project aims to design and implement a database to manage the operations of a supermarket including customer, employee, product, sales, and inventory data management. The data management system handles mainly customer information, payment details, employees, products, suppliers, sales transactions, and inventory information.

The database will store critical information such as customer and employee profiles, customer accounts, sales transactions, product and supplier information, product promotions and inventory information. This system will support efficient data retrieval for customer service, payment and sales history, consumer products, and inventory.

The customer will automatically create an account upon purchasing a shopping card of the supermarket. This seamless process ensures immediate access to account features and services.

2. System Requirement

This section describes the different requirements that the system has to include.

2.1 Customer Profile

Detailed records of customer profile, including personal information such as name (first name and last name), phone, email, address, date of birth, and customer shopping card number.

2.2 Customer Account

Each account is uniquely tied to a customer’s shopping card number, allowing for tailored management of services and preferences associated with each customer.

Each account has account type, account start date, account status, and total points earned which represents points earned through various transactions, which can later be exchanged for multiple vouchers on future purchases.

2.2.1 Customer Card Points

Customer card points are earned through various payment transactions; each group of points is assigned based on a specific percentage calculated from a total transaction amount. Points record has ID and amount.

2.3 Employee Profile

It should include at least the following fields employee ID, name, position, hire date, and salary.

2.4 Product Information

Product ID, name, category (dairy, bakery, produce, etc.), brand, product's stock quantity, supply price and sale price.

2.5 Supplier Information

The supplier ID, name, contact, address, as well as product ID, supply price, and lead time information can be recorded. A product may have multiple suppliers.

2.6 Payment Information

Payment refers to the record of all previous transactions made by the customer account. Each payment transaction is uniquely identified by a payment ID. It also includes transaction amount, date of payment, payment method and payment status. This information enables tracking the payment history, ensuring transparency, and facilitating better financial management of the services.

2.6 Sales Transactions

Each sales transaction has an ID, date, total amount, employee ID, and customer account number, as well as other transaction details such as ID of the product sold, quantity sold, and its selling price. There can also be cash sales without customer details.

2.7 Promotions

The promotions represent various advantages or features offered to the customer's account. This includes points group, cashback, and exclusive offers.

A customer's account may be entitled to multiple promotions on the same time, while each promotion instance may be associated with one specific account.

The promotion ID serves as a unique identifier for each promotion. A promotion can also have a description, validity date (start and end date), and status (active or expired).