

ASSIGNMENT

COURSE: DATABASE SYSTEM

DURATION: 3 weeks from the date of the announcement

SUBMISSION:

- Word file: store the entire report content in the order of the questions below.
- File .sql: store the content related to the sql statements
- File source code: store the content of Part 2.

PART 1: (6 POINTS)

Given the following specification:

A supermarket needs to build an item management system. The supermarket currently has the following activities:

Supermarket imports products from suppliers. The suppliers offer a variety of products in varying quantities. Each product needs to be stored with product code, product name, unit, quantity, and price. Each product is made by only one manufacturer. The information of manufacturer is: manufacturer code, manufacturer name, nationality. When the products are imported, it is necessary to save the receipt, including information such as: receipt code, imported products, supplier, quantity, price, import date. The information about the supplier is the supplier code, full name, address.

Supermarkets have many sales counters, but each product is only sold at only one counter. Information of counter includes counter number, counter name, location.

Customers will go to the supermarket to buy products. When a customer makes a purchase, the system will print out a invoice that includes information about the invoice code, customer, products, quantity, and price. Customer information includes customer code, customer name, address.

1. Draw ERD model (1 point)
2. Convert the ERD model to a relational model (1 point)
3. Use SQL language to fulfill the following requirements for the above relational model: (1)
 - a. Create Database
 - b. Create table
 - c. Add at least 10 datarow to each table.
4. Create a procedure for one of the following requirements: (1 point)
 - a. Create a new receipt
 - b. Add data to the invoice
 - c. Add data to the product
5. Create a function for one of the following requirements: (1 point)
 - a. Indicate the total amount for a certain receipt.
 - b. Indicate the total amount for a certain invoice
6. Create a trigger for one of the following requirements: (1 point)

- a. Update the quantity and price for the product when it is imported. For example, in the receipt “PN01”, enter the PEPSI product with the quantity of 10 and the price of 10,000, then increase the quantity of PEPSI by 10 in the Product table and update the new price to 10,000.
- b. Update the quantity for the product when a sale is made. For example, in a invoice “PB01” that sells a PEPSI product in quantity of 10, subtract this quantity of PEPSI from the Product table.

PART 2: (4 POINTS)

Students use Java or Python to implement the following requirements:

1. Input: The Input1.txt file contains the entities and relationships between the entities of the ERD model. Output: The Output1.txt file contains the data tables and the relationships between the tables. The format of the Input1.txt file is set by the students themselves. (2 points)
2. Input: The Input2.txt file contains the database schema including tables, attributes and functional dependencies. Output: The Output2.txt file contains the closure of the X attribute set (the X attribute set is entered by the user); the keys of the schema. (2 points)