

# CPSC 203 – Assignment 2

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## *Group 2: Backend for Store / Inventory / Receipt Management*

### **Introduction**

In this assignment, we speculated as to what a small chain store might need as a database to help manage their inventory, suppliers, and receipts. Here, we created a database design that accounts for the possibility of new stores (without inventory), suppliers temporarily without inventory, and the sale of discontinued products (that are still in our inventory).

We feel that most of the database design is self-explanatory, and we will only discuss them in detail in the following sections.

### **Summary of Tables**

The database contains seven tables, four of which are explicitly for data, and three are many-to-many links. A description of each table follows:

#### **tblProducts**

This table lists all types of products that are available to be sold by our store. Note that this does not necessarily imply that the products are currently in stock!

- pID – primary key
- name – product name
- desc – product description (e.g., dairy, snacks, whatever)
- weight – product weight, can be useful for self-checkouts.

#### **tblLocations**

This table lists our store's locations, as well as administrative information.

- xID – primary key
- name – location name
- manager – location manager
- phone – phone number

#### **tblReceipts**

This table stores receipt information; in particular the date/time of a receipt.

Submission of an introduction file such as this one is not necessary.

- rID – primary key
- xID – location ID where receipt occurred
- date – date/time of purchase

#### **tblSuppliers**

This table lists our suppliers and their contact information.

- sID – primary key
- name – name of supplier
- contact – contact person
- phone – phone number
- email – email address

#### **relProductsLocations**

This is a many-to-many link between products and locations, it includes pricing and stock information.

- pID – composite key, from products
- xID – composite key, from location
- stock – amount in stock
- price – sell price

#### **relProductsSuppliers**

This is a many-to-many link between products and suppliers.

- pID – composite key, from products
- sID – composite key, from suppliers
- price – supplier sell price
- quantity – quantity the product is sold in

#### **relReceiptsProducts**

This is a many-to-many link between receipts and products; this allows us to see what was purchased on what receipt.

- rID – composite key, from receipts
- pID – composite key, from products

Submission of an introduction file such as this one is not necessary.

- quantity – amount purchased

Submission of an introduction file such as this one is not necessary.

## Summary of Queries

A total of 10 queries was produced, in particular:

### 1. Afternoon Purchases

- a. This query shows all receipts made in the afternoon (between 12 and 6), as well as the total (incl. tax) and the profit made on each receipt.
- b. This (or a variant thereof) could be useful for finding receipts during certain times of day, or discovering what hours are more profitable, etc...

### 2. Cheapest Products

- a. This query shows the ideal cost for all products, by only showing the cheapest price for products that can be supplied.
- b. This would be useful to ensure the maximum profit margin on goods sold.

### 3. Products and Profits

- a. This query shows all products in stock, as well as their location and the price we aim to sell the product at.
- b. This provides a good, quick, view to the products being sold, their stock status, and so on.

### 4. Products and Suppliers Details

- a. This query shows a detailed view of all products sold by all suppliers, essentially a catalog. It also shows the individual per unit price of the product.
- b. This can be useful as a quick reference for ordering new products, as it has all suppliers and all their products – along with prices and quantity.

### 5. Products with Alternative Suppliers

- a. This query shows all products that have multiple suppliers. It also calculates the individual cost for each product, based on the sell price and the quantity included.
- b. This is good for helping decide where to buy a product from: not all suppliers have the best deal on all products, and sometimes a high upfront cost may lead to a better profit margin down the road.

### 6. Purchase Summaries

Submission of an introduction file such as this one is not necessary.

- a. This query shows summaries of all purchases –the location, the total receipt costs as well as its subtotal, and the profit margin for each one.
- b. This is useful as a general (but somewhat-detailed) overview of all transactions

#### 7. Purchase Summaries by Location

- a. This query provides a summary of all purchases and transactions (and profits) made at all locations.
- b. This can be a good high-level view of how well (and how busy) different stores are doing.

#### 8. Purchase Summaries by Location in the Afternoon

- a. Similar to afternoon purchases, this is just the final total per-location for goods sold in the afternoon.
- b. This (or a variant thereof) can be a quick way to gage how well a location performs during certain hours of the day. It could easily be adjusted for day of the week as well, allowing the chain to decide whether to stay open on certain days (e.g., Sunday) if it is unprofitable.

#### 9. Receipt Details

- a. This is an in-depth view on products sold and on which receipts they are sold on. It shows the price, profit, quantity sold, and totals thereof.
- b. This is useful for looking up receipts, for example – for returns or book-keeping.

#### 10. Unsold Products

- a. This query shows all products that have NOT been sold, and the locations where they have been unsuccessful
- b. This query is useful because it allows the store manager to discontinue (or reduce future purchases) of poorly selling products

## References

None