Case16 Grandma’s Baked Goods

Grandma’s Baked Goods is a specialty gourmet baked goods company operating out of an industrial building in Richmond Hill and 3 other locations across the country. Goods are ordered over the Internet and by phone. They are shipped via couriers like Purolator, UPS, and FedEx.

The customers are normally specialty stores, specialty coffee shops, caterers, and some restaurants but could be anyone if the order exceeds $500.

When customers order they provide the usual customer data of name, address, phone number, credit card number, credit card type, expiry date of the credit card. The customer always uses the same credit card. The types of credit cards are MC (MasterCard), VS (VISA), AX (American Express).

All baked goods are shipped immediately (almost all orders are like this).

Grandma buys supplies for baking (called ingredients) from a lot of suppliers. They keep track of supplier information such as supplier name, address, phone, and if the supplier uses a salesperson, then the entity will also store that salesperson’s name to contact at the supplier. Grandma wants to track ingredients in their system in case something goes wrong. That means they need to keep track of the date they purchased supplies and when it ran out... All other stuff such as office supplies, hardware, cleaning supplies, baking ovens is not part of the system you are designing. It is handled by their Accounts Payable system, which you are not designing.

Grandma wants to be able to see the inventory of raw ingredients or finished baked goods in stock at any time. That means for ingredients a code, description, quantity in stock (in kilos i.e. 107.4 means 107.4 Kilos) and the cost of the ingredient by the kilo is kept. For finished baked goods they want how much is in stock (also in kilos), how much has been sold to date (in kilos). The finished goods have a cost and selling price (see below).

Each finished product is composed of ingredients. Each ingredient has a cost from the supplier. Those costs added together become the cost of the finished goods (done by a program).

*This delivery system may change due to competitive reasons and so ignore for now.*

*When a customer is billed, they also are charged for delivery based on the weight of the order. The charge now is $0.50 per kilo. This price is charged even if the shipment goes a long distance or short distance, or if the charge from the courier is more or less than the cost charged the customer.*

Please remember selling prices change so that a year from now we need to know what price was charged to the customer if they want another copy of their invoice.

A report of what ingredients go into the baked goods will look like the following:

PRODUCT INGREDIENT REPORT

Amount of ingredient by weight used to produce a quantity of 1 of a product.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PROD # | PROD  DESC | ING# | INGREDIENT  DESC | Weight to produce 1  1.000 = 1 kg | Current  Cost by weight |
| 1111 | Biscotti- almond | 100 | Flour-rye | 0.015 | 0.15 |
|  |  | 123 | Flour-fine sifted | 0.400 | 0.65 |
|  |  | 126 | Almond – chips | 0.010 | 0.05 |
|  |  | 000 | Water | 0.500 | 0.00 |
|  |  | 300 | Eggs | 0.030 | 0.22 |
| 1398 | Cake-double baked | 123 | Flour-fine sifted | 1.600 | 2.60 |
|  |  | 135 | Almonds-slivered | 0.050 | 1.00 |
|  |  | 300 | Eggs | 0.100 | 0.73 |
|  |  | 000 | Water | 2.000 | 0.00 |

INVOICE # 657892 INVOICE DATE: April 23, 2021



Grand Bend Bakery



123 Port Road

Grand Bend ON



L3G 5P7



|  |  |  |
| --- | --- | --- |
| Customer # 1234 | Salesperson # 15 | Order taken by # 22 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Prod# | Description | Quantity Shipped in Kilos | Sell Price  By Kilo | Total |
| 1111 | Biscotti- almond | 25.0 | 7.00 | 175.00 |
| 1117 | Biscotti- chocolate | 15.0 | 10.00 | 150.00 |

TOTAL SELLING 325.00

SHIPPING CHARGE 20.00 (for 40 Kilo)



TOTAL OWING 345.00



Extra Design Notes:

Grandmas outside salespeople earn a commission. These salespeople go out and convince customers to buy from Grandma. If a customer orders, then any sale from that customer earns a commission for the salesperson. Usual data needed (name, address, phone, SIN, gender, commission rate etc). This is the same for all employees except those that are not salespeople do not have data in the commission rate column. In the above invoice Employee #22 processed the order, but because sales employee #15 visited the store 2 months ago and convinced them to buy from Grandmas, they get the commission. Each salesperson gets a different commission rate.

Starting with invoice:

**1NF ASSIGN a PK**

**No repeating data**

UNF [INVID, INVDATE, CUSTID, CUSTNAME, CUSTADDRESS, CUSTPHONE, SALESPERSON, ORDER TAKEN BYID]

No repeating data

INVOICELINE [ PRODID, INVID, PRODDESC, QTY-SHIPPED, SELL PRICE] (This is now in 1NF)

Going to 2NF

NO PARTIAL DEPENDDENCY

INVOICES [INVID, INVIDATE, CUSTID, CUSTNAME, CUSTADDRESS, CUSTPHONE, SALESPERSONID, ORDER TAKEN BYID]

INVOICELINES [PRODID(fk), INVID(fk), PRODDESC, QTY-SHIPPED,]

PRODUCTS [PRODID, PRODDESC, SELL PRICE]]

3NF

Must be in 2nd

No TRANSITIVE DEPENDENCY

INVOICE [INVID, INVIDATE, CUSTID, ORDER TAKEN BYID]

CUSTOMERS [CUSTID, CUSTNAME, CUSTADDRESS, CUSTPHONE, SALESPERSONID]

EMPLOYEES [EID, EMPNAME ADDRESS, PHONE, SIN, GENDER, commission rate]

INVOICELINE [PRODID(fk), INVID(fk), ,QTY-SHIPPED]

PRODUCTS [PRODID, PRODDESC, SELL PRICE]