

Exercises

1. Nike Shoe Supplier Database:

CUSTOMERS (cust_no, cust_name, street, town, post_code, cr_limit, curr_bal)
 PRODUCTS (prod_cod, description, prod_group, list_price, qty_on_hand, remake_level, remake_qty)
 ORDERS (order_no, order_date, cust_no)
 ORDER_DETAILS (order_no, prod_cod, order_qty, order_price)

Some attributes, such as cust_name, are self-explanatory; however, others need some definition:

cr_limit: The maximum that a customer is allowed to owe

curr_bal: The amount currently owed by the customer

list_price: The advertised price for a single unit of a particular product

remake_level: The level to which the quantity on hand is compared; if qty_on_hand falls below this level, then the Nike shoe supplier company will usually make another batch (to the manufacturer) to avoid stockout.

remake_qty: The quantity usually made in any new batch.

order_price: The unit price charged on this order for this product

order_date: The date on which the order was taken.

CUSTOMERS

Cust_no	Cust_name	Street	Town	Post_code	Cr_limit	Curr_bal
1066	Bundy Shoe	Kings St	Bundoora	3083	500	450
13144	Target	High St	Clayton	3800	3000	1000
1776	Harry Store	Elphin Rd	Hawthorn	3122	500	500
2001	Kmart	Burke Rd	Kew	3101	500	0
2002	Qshoe	Glen Rd	Kew	3101	1000	300

PRODUCTS

Prod_cod	Description	Prod_group	List_price	Qty_on_hand	Remake_level	Remake_qty
MO9	Male Runner	Male Shoes	150	6	3	5
LO9	Lady Runner	Female Shoes	250	1	1	3
ST1	Girls Runner	Female Shoes	300	10	5	15
LT1	Tennis Shoe	General	450	1	2	2
LT9	Tennis Shoe	General	100	20	15	20
GN9	Beach Sandal	General	10	100	150	200
ST1	Slipper	General	50	50	35	20
GA2	Soccer Shoe	Male Shoes	500	10	15	40

ORDERS

Order_no	Order_date	Cust_no
0001	01/07/93	13144
0002	02/07/93	13144
0003	02/07/93	1066

ORDER DETAILS

Order_no	Prod_cod	Order_qty	Order_price
0001	ST1	10	45
0001	GA2	2	480
0002	ST1	5	45
0003	GN9	10	10

- a. Show the result of this the following relational algebra query

$$\Pi_{\text{prod_cod,description,list_price,order_date}} \sigma_{\text{cr_limit-curr_bal} \geq 500} (\text{CUSTOMERS} * \text{PRODUCTS} * \text{ORDERS} * \text{ORDER_DETAILS})$$

- b. Find out the optimal algebra expression for (a)

Write SQL statement

- c. corresponding to the above the algebra query (a)
 - d. list the details of customers who do not have any orders.
 - e. display the details of customer who has the maximum available credit (available credit is the cr_limit minus the curr_bal).
 - f. list of order no. and the total value of that order. The list contains only those orders worth more than \$1000
 - g. list details of customer and the total order value between 01/01/1993 đến 4/12/1993 in descending order of total value
 - h. list the details of product and the total value of product sold by day
2. The Victorian Basketball Conference is an amateur basketball association. Each city in the state has one team that represents it. Teams are identified by their id and name. Each team has a maximum of twelve players and a minimum of nine players. Players are identified by a unique player id, and their name, address and contact phone number needs to be recorded. Each team also has up to two coaches (offensive and defensive). Coaches also have unique ids, and their name, address, and contact phone number are required. Each team plays two games (home and visitor) against each of the other teams during the season. Information needs to be kept regarding the venue of the game and the final score.
- As a special treat at the end of the season the association holds a break-up party for the players. At the break-up party treats are given out to all the players' children who are under The association therefore requires each child's name and date of birth. Draw ER schema.
- Note: A city will only be in this database if it has a team*
- Coach and player may not yet be assigned to a team (a player could be in the draft for instance)*