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Course: RELATIONAL ALGEBRA

Instructor: NOP Phearum

Assignment: TP01

Due Date: May 13, 2025 (12:00 AM)

TP01-RELATIONAL ALGEBRA

Consider the database classicmodel in file classicmodelschema.pdf. Write relational algebra query for the following questions.

1. show first name and last name of customer from french

$\pi_{customerFirstName, customerLastName} (\sigma_{country ='France'} (Customers))$

2. show first name and last name of employee who is sale manager

$\pi_{customerFirstName, customerLastName} (\sigma_{jobTitle ='sale manager'} (Employees))$

3. Pair the name and number of employees along with the name of his/her advisor.

$\pi_{customerFirstName, customerLastName} (\sigma_{jobTitle ='sale manager'} (Employees))$

4. Pair the name and number of customers along with the name of sale representative that work with them. If the sale representative is null, replace it with N/A.

$\pi_{customerName, customerNumber, COALESCE}😭(salesRepName, 'N/A'); (Customers \bowtie Employees.employeeNumber = Customers.salesRepEmployeeNumber)$

5. Show information of customer, if the creditlimited is greater than 80 000, then the customer is vip. If not he is normal.

$\pi_{customerName, creditLimit,} IF(creditLimit > 80000, 'VIP', 'Normal'); (Customers)$

6. Show all product which is in "classic car" product line.

$π_{productName} 😭 ;σ;productLine = 'Classic Cars' (Products);)$

7. Show all products containing "Toyota" in its name.

$π_{productName} (;σ;productName;LIKE 'Toyota' (Products);)$

8. Show all products with the scale smaller than 1:24.

$π_{productName}; (;σ;productScale ;<; 1:24 ;;(Products) 😉 $

9. Show all products from the vendor "Autoart Studio Design".

$π_{productName} 😭 ;σ;vendorName ;= 'Autoart Studio Design' (Products) 😉 $

10. Show all products with MSRP (the manufacturer's suggested retail price) higher than twice the cost of buyPrice.

$π_{productName} 😭 ;σ;MSRP > 2 * buyPrice ;(Products) 😉 $

11. Show information of sale representative of the customer "Land of toys Inc."

$π_{salesRepEmployeeNumber}; (;σ;customerName = 'Land of Toys Inc.' (Customers) 😉 $

12. Show information about order that is shipped later than the required date.

$σ_{shippedDate} ;> ;requiredDate ;(Orders)$

13. Show all orders made by "La Rochelle Gifts".

$π_{orderNumber}; (;σ;customerName = 'La Rochelle Gifts' ;(Orders);)$

14. Show all products ordered by "La Rochelle Gifts".

$π_{productName} 😭 ;σ;customerName = 'La Rochelle Gifts' (OrderDetails; ⋈; Products) 😉 $

15. Show customer's name who has ordered more than 15 products in once.

$\pi_{customerName}; (;\sigma;count(;productCode;) > 15 (;OrderDetails ;\bowtie; Orders;)) $

16. Show the best-selling product in "2004-02".

$ \pi_{productName}; (;\sigma;orderDate; LIKE '2004-02' (;OrderDetails ;\bowtie; Products;)) $

17. Show monthly income, purchase expense, and pro t in a speci c year. An order that is placed in which month would be considered as part of income of that month; the state of shipment and payment are taken into account.

$\pi_{month, income, purchaseExpense, profit}; (;\sigma;orderDate; LIKE '2004-MM' (;Orders ;\bowtie ;Payments; \bowtie; OrderDetails)) $

18. The same as number 14, but we want months as columns and incomes, purcase_expense, and pro t as rows.

$\pi_{month, income, purchaseExpense, profit}😭;\sigma;orderDate ;LIKE '2004-MM' (;Orders ';\bowtie; Payments ;\bowtie ;OrderDetails;)) $

Link to GitHub Account : Click Here ❤️

Note: Viewing in VsCode IDE for better formatting!!!