



Name: Virak Rith

Student ID: P20230033

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.

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

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.

```
$π_{customerName}; (σ;count(;productCode;) > 15 (;OrderDetails ;⋈; Orders;)) $
```

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

```
$ π_{productName}; (σ;orderDate; LIKE '2004-02' (;OrderDetails ;⋈; Products;)) $
```

17. Show monthly income, purchase expense, and profit in a specific 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.

```
$π_{month, income, purchaseExpense, profit}; (σ;orderDate; LIKE '2004-MM' (;Orders ;⋈; Payments; ⋈; OrderDetails;)) $
```

18. The same as number 14, but we want months as columns and incomes, purchase_expense, and profit as rows.

```
$π_{month, income, purchaseExpense, profit} 🤖;σ;orderDate ;LIKE '2004-MM' (;Orders ';⋈; Payments ;⋈; OrderDetails;)) $
```

Link to GitHub Account : [Click Here](#) ❤️

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