DSLS 2023 MINI PROJECT DATA ENGINERING

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29/01/2023

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DSLS 2023

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(2A) INTERMEDIATE QUERIES

In this assignment (2A) about Intermediate Queries has 9 point. To review your basic query skills, you are asked to work on this problem first:

1. Write a query to get the number of customers per month who placed orders in 1997.

```
SELECT MONTH(OrderDate) AS month,
COUNT(CustomerID) AS count_customer

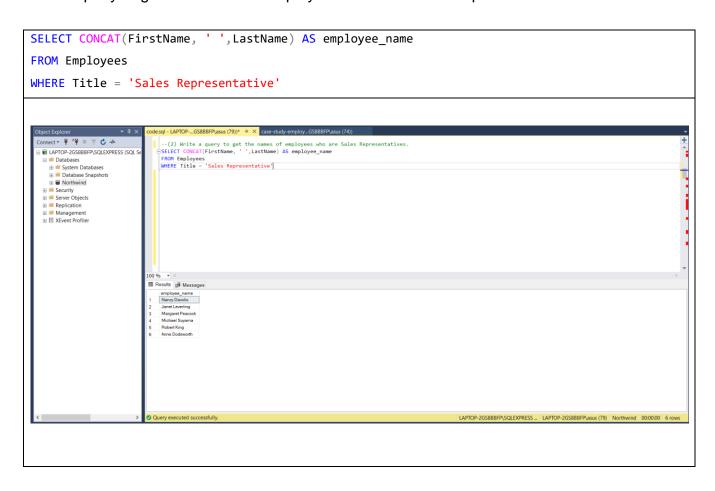
FROM Orders

WHERE YEAR(OrderDate) = 1997

GROUP BY MONTH(OrderDate)

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```

2. Write a query to get the names of employees who are Sales Representatives.



3. Write a query to get the top 5 product names whose quantity was ordered the most in January 1997.

```
SELECT TOP 5 p.ProductName,
                                                                           SUM(od.Quantity) AS product_count
 FROM Products AS p
 JOIN [Order Details] AS od
             ON p.ProductID = od.ProductID
 JOIN Orders AS o
              ON od.OrderID = o.OrderID
 WHERE OrderDate BETWEEN '1997-01-01' AND '1997-01-31'
 GROUP BY p.ProductName
 ORDER BY SUM(od.Quantity) DESC
                                                                                                                           SELECT TOP .Sosorrasa (6/) ** \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) \( \) 
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                                                                                                                  ⊞ Results ⊠ Messages
```

4. Write a query to get the name of the company that placed an order for Chai in June 1997.

```
SELECT c.CompanyName AS Company_Name
FROM Customers AS c
JOIN Orders AS o
    ON c.CustomerID = o.CustomerID
JOIN [Order Details] AS od
    ON o.OrderID = od.OrderID
JOIN Products AS p
    ON od.ProductID = p.ProductID
WHERE p.ProductName = 'Chai' AND
             OrderDate BETWEEN '1997-06-01' AND '1997-06-30'
ORDER BY c.CompanyName
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                                          --(4) Write a query to get the name of the company that placed an order for Chai in June 1997

ESELECT c.CompanyName AS Company_Mame
FROM Customers AS c
JOHN Orders AS o
ON c.CustomerID = o.CustomerID
JOHN [Order Details] AS od
ON o.OrderID = od.OrderID
JOHN ProductS AS p
ON od.ProductID = p.ProductID
WHERE p.ProductID = p.ProductI AND
OrderDate BETNEEN '1997-06-01' AND '1997-06-30'
ORDER BY c.CompanyName

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```

5. Write a query to get the number of OrderIDs that have made purchases (unit_price times quantity) <=100, 100<x<=250, 250<x<=500, and >500.

```
WITH order_sales(OrderID, Sales) AS (
           SELECT OrderID,
                       SUM(UnitPrice* Quantity)
           FROM [Order Details]
           GROUP BY OrderID)
SELECT CASE WHEN Sales <= 100 THEN 'Sales <= 100'
                    WHEN Sales BETWEEN 100 AND 250 THEN '100 < Sales <= 250'
                    WHEN Sales BETWEEN 250 AND 500 THEN '250 < Sales <= 500'
                    WHEN Sales >500 THEN 'Sales > 500'
           END AS Category,
                         COUNT(OrderID) AS Count_Order
FROM order sales
GROUP BY CASE WHEN Sales <= 100 THEN 'Sales <= 100'
                       WHEN Sales BETWEEN 100 AND 250 THEN '100 < Sales <= 250'
                       WHEN Sales BETWEEN 250 AND 500 THEN '250 < Sales <= 500'
                       WHEN Sales >500 THEN 'Sales > 500'
                 END
ORDER BY COUNT(OrderID) DESC
                               de.sql - LAPTOP-...GS8BBFP\asus (67))* 4 × case-study-employe...ql - not connected
                                --(5) Write a query to get the number of OrderIDs that have made purchases (unit_price times quantity) <=100, 100<x<=250, 250<x<=500, and >500.

WITH order_sales(OrderID, Sales) AS (
SELECT OrderID,
SUM(UnitPrice* Quantity)
FROM [Order Details]
  Connect ▼ 🚏 ■ ▼ 🖒 👭
  ■ LAPTOP-2GS8BBFP\SQLEXPRESS (SQL S

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   WHEN Sales > 500 THEN 'Sales > 500'
END AS Category,
COUNT(OrderID) AS Count_Order
FROM order_sales
GROUP BY CASE WHEN Sales <= 100 THEN 'Sales <= 100'
WHEN Sales BETWEEN 100 AND 250 THEN '100 < Sales <= 250'
WHEN Sales BETWEEN 150 AND 500 THEN '250 < Sales <= 500'
WHEN Sales > 500 THEN 'Sales > 500'
                                ORDER BY COUNT(OrderID) DESC
                             ⊞ Results 🖓 Messages
                                250 < Sales <= 500 118
100 < Sales <= 250 64
Sales <= 100 37
                                                                                                          LAPTOP-2GS8BBFP\SQLEXPRESS _ | LAPTOP-2GS8BBFP\asus (67) | Northwind | 00:00:00 | 4 rows
```

6. Write a query to get the Company name in the customer table that made purchases above 500 in 1997.

```
WITH customer_order_sales(OrderID, Sales) AS
                                               SELECT OrderID,
                                                                                      SUM(UnitPrice * Quantity)
                                               FROM [Order Details]
                                               GROUP BY OrderID
  SELECT DISTINCT CompanyName
 FROM customer_order_sales AS cs
  JOIN Orders AS o ON cs.OrderID = o.OrderID
  JOIN Customers AS c ON o.CustomerID = c.CustomerID
  WHERE (Sales>500) AND YEAR(OrderDate) = 1997
                                                                                                             sql - LAPTOP-...GS8BBFP\asus (67))* 😕 🗶 case-study-employe...ql - not connected
                                                                                                           --(6) Write a query to get the Company name in the customer table that made purchases above 500 in 1997
MITH customer_order_sales(OrderID, Sales) AS
          SELECT OrderID,
                                                                                                                       SUM(UnitPrice * Quantity)
FROM [Order Details]
GROUP BY OrderID

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                                                                                                          )
SELECT DISTINCT CompanyName
FROM customer_order_sales AS cs
JOIN Orders AS o ON cs.OrderID = o.OrderID
JOIN Customers AS c ON c.CustomerID = c.CustomerID
MHERE (Sales>500) AND YEAR(OrderDate) = 1997
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```

7. Write a query to get the product name that is the Top 5 highest sales per month in 1997.

```
WITH sales_product(Month, ProductName, Sales, Ranking) AS(
SELECT MONTH(o.OrderDate),
             p.ProductName,
             SUM(od.Quantity * od.UnitPrice),
             ROW NUMBER() OVER (PARTITION by MONTH(o.OrderDate) ORDER BY SUM(od.Quantity *
                                                                                                                                                od.UnitPrice) DESC)
FROM [Order Details] AS od
JOIN Orders AS o
   ON od.OrderID = o.OrderID
JOIN Products AS p
   ON od.ProductID = p.ProductID
WHERE YEAR(o.OrderDate) = 1997
GROUP BY MONTH(o.OrderDate), p.ProductName
SELECT *
FROM sales product
WHERE Ranking <= 5
ORDER BY Month, Ranking
                                     --(7) Write a query to get the product name that is the Top 5 highest sales per month in 1997

"MITH sales_product(Month, ProductName, Sales, Ranking) AS(

SELECT MONTH(o.OrderDate),
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                                        P.ProductName,
p.ProductName,
SUM(od.Quantity * od.UnitPrice),
ROW NUMBER() OVER (PARTITION by MONTH(o.OrderDate) ORDER BY SUM(od.Quantity * od.UnitPrice) DESC)

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                                     ROW_NUMBER() OVER (PARTITION by MONI
FROM [Order Details] AS od
JOIN Orders AS o
ON od. OrderID = 0.OrderID
JOIN ProductS AS p
ON od. ProductID = p.ProductID
WHERE YEAR(O.OrderDate) = 1997
GROUP BY MONITH(O.OrderDate), p.ProductName
                                       /
SELECT
                                      FROM sales_product
WHERE Ranking <= 5
ORDER BY Month, Ranking
                                         LAPTOP-2GS8BBFP\SQLEXPRESS ... | LAPTOP-2GS8BBFP\asus (67) | Northwind | 00:00:00 | 60 rows
```

8. Create a view to view Order Details that contains OrderID, ProductID, ProductName, UnitPrice, Quantity, Discount, Price after discount.

```
CREATE VIEW Order_Details_Table (OrderID, ProductID, ProductName, UnitPrice, Quantity,
                                                               Discount, Discounted_Price)
AS
            SELECT od.OrderID,
                          od.ProductID,
                          p.ProductName,
                          od.UnitPrice,
                          od.Quantity,
                          od.Discount,
                          (1.0 - od.Discount) * od.UnitPrice
FROM [Order Details] AS od
JOIN Products AS p
ON od.ProductID = p.ProductID
--Checking the view
SELECT *
FROM Order_Details_Table
                                  de.sql - LAPTOP-...GS8BBFP\asus (67))* - 2 × case-study-employe...ql - not connected
                                   --(8) Create a view to view Order Details that contains OrderID, ProductID, ProductName, UnitPrice, Quantity, Disco
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                                       SELECT od.OrderID,
od.ProductID,
                                            p.ProductName
od.UnitPrice,
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                                   od.UnitPrice,
od.Quantity,
od.Discount,
(1.0 - od.Discount) * od.UnitPrice
FROM [Order Details] AS od
JOHN Products AS p
ON od.ProductID = p.ProductID
                                     -Checking the view
                                    FROM Order_Details_Table
                                Ravioli Angelo
Louisiana Fiery Hot Pepper Sauce
                                                 Sir Rodney's Marmalade
                                                                                                                   LAPTOP-2GS8BBFP\SQLEXPRESS ... LAPTOP-2GS8BBFP\asus (67) | Northwind | 00:00:00 | 2.155 rows
```

Create an Invoice procedure to call CustomerID, CustomerName/company name,
 OrderID, OrderDate, RequiredDate, ShippedDate if there is a specific CustomerID input

```
CREATE PROCEDURE GET_INVOICE(@CustomerID VARCHAR(10))
AS
BEGIN
                                      SELECT c.CustomerID,
                                                                               c.CompanyName,
                                                                               o.OrderID,
                                                                               o.OrderDate,
                                                                               o.RequiredDate,
                                                                               o.ShippedDate
FROM Customers AS c
JOIN Orders AS o ON c.CustomerID = o.CustomerID
WHERE c.CustomerID = @CustomerID
END
 -- Checking the procedure
EXECUTE GET_INVOICE FAMIA
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                                                                                                                                                                                                                                                              stomerName/company name, OrderID, OrderDate, RequiredDate, ShippedDate if there is a specific CustomerID input
                                                                                                            GCREATE PROCEDURE GET_INVOICE(@CustomerID VARCHAR(10))

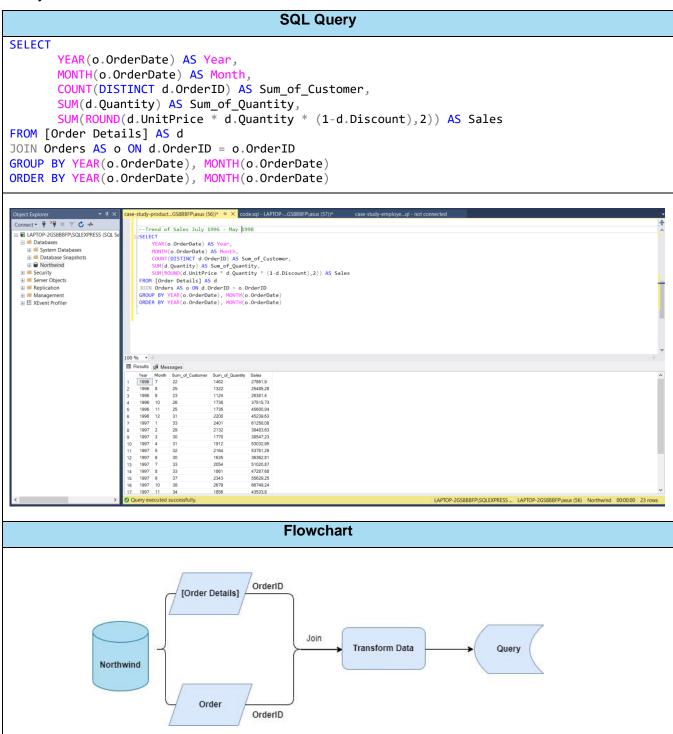
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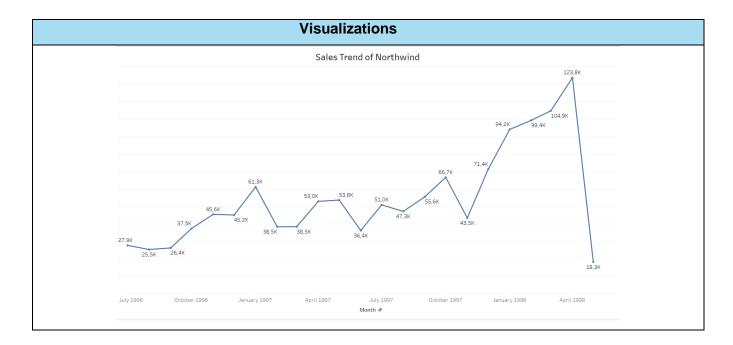
                                                                                                                       SELECT c.CustomerID,
c.CompanyName,
o.OrderID,
o.OrderDate,
o.RequiredDate,
o.ShippedDate
         O.Shippedusce
FROM Customers AS c
JOIN Orders AS o ON c.CustomerID = o.CustomerID
WHERE c.CustomerID = @CustomerID
                                                                                                             -- Checking the procedure EXECUTE GET_INVOICE FAMIA
                                                                                                         \text{Customer(ID)} \text{ Messages} \te
```

(2B) CASE STUDY

1. SALES ANALYSIS

In this study case, the sales department want to find insight of the sales during July 1996 – May 1998.





Based on the chart above, the trend of sales is up and the by month. The highest sales in April 1998 (123.8K) but in May the sales increase until (18.3K).

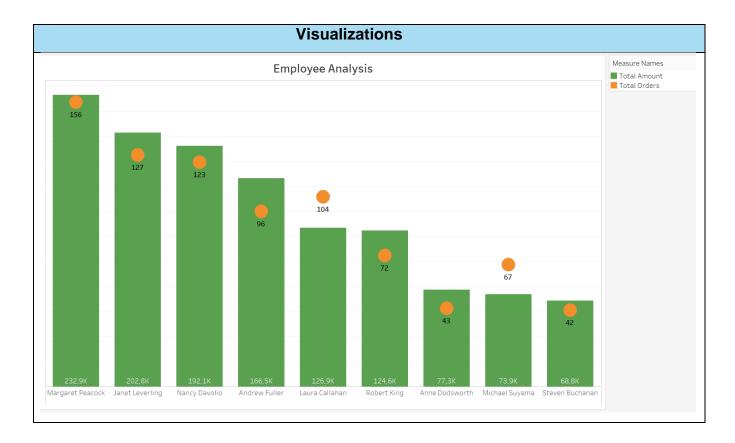
2. EMPLOYEE ANALYSIS

```
SQL Query
WITH employee_order AS (
SELECT CONCAT(e.FirstName, ' ',e.LastName) AS employee_name,
               e. Title AS employee title,
               COUNT(DISTINCT d.OrderID) AS total_orders,
               SUM(ROUND(d.UnitPrice * d.Quantity * (1-d.Discount),2)) AS total_amount
FROM Employees AS e
JOIN Orders AS o ON e.EmployeeID = o.EmployeeID
JOIN [Order Details] AS d ON o.OrderID = d.OrderID
GROUP BY CONCAT(e.FirstName, ' ',e.LastName), e.Title
)
SELECT *,
             100 * total_amount / (SELECT SUM(total_amount) FROM employee_order) AS '%_total_amount'
FROM employee_order
ORDER BY total amount DESC
  Connect ▼ 🏺 🌹 🗏 🤍 🔥
                                   SHITH employee_order AS (
SELECT COMCAT(e.FirstName, '',e.LastName) AS employee_name,
e.fitle AS employee_title,
CONT(IOSITINC 10.orderID) AS total_orders,
SUM(COUNT(IO, UnitPrice * d.Quantity * (1-d.Discount),2)) AS total_amount
FROM Employees AS e
JOHN Orders AS o ON e.EmployeeID = 0.EmployeeID
JOHN (Order Details) AS d ON o.OrderID * d.OrderID
GROUP BY CONCAT(e.FirstName, '',e.LastName), e.Title
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   )
SELECT *,
180 * total_amount / (SELECT SUM(total_amount) FROM employee_order) AS '%_total_amount
                                    FROM employee_order
ORDER BY total_amount DESC
                                                                             %_lotal_amount
18.398074576291
16.0225906731481
15.17685930335
13.1567907483907
10.02235610086
9.84112112217258
6.10748118054789
5.83927462778714
5.43471880611649
                                                                     total_amoun
232890.85
202812.86
192107.65
166537.76
126862.3
124568.24
77308.08
73913.14
68792.3
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                                                 Employees
                                                                    EmployeeID
                                                                                          Join
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                                                                      EmployeeID
                                                    Order
                                                                                    OrderID
                                                                                                  Join
                                                                                                              Transform
                                                                                                                                                      Query
                                                                                    OrderID
                                              [Order Details]
```



Based on the chart above, Margaret Peacock is the Most Valuable Employee who handle the most orders with a total sales 232.9K and total orders 156 for customer purchase.

3. SHIPPER ANALYSIS

```
SQL Query
WITH send_order (Month, ProductName, CompanyName, Total_Orders, Sales) AS(
SELECT MONTH(o.ShippedDate),
                                 p.ProductName,
                                 sh.CompanyName,
                                 COUNT(DISTINCT o.OrderID),
                                 SUM(d.Quantity * d.UnitPrice)
FROM orders AS o
JOIN Shippers AS sh ON o.ShipVia = sh.ShipperID
JOIN [Order Details] AS d ON o.OrderID = d.OrderID
JOIN Products AS p ON d.ProductID = p.ProductID
GROUP BY MONTH(o.ShippedDate), p.ProductName, sh.CompanyName
SELECT CompanyName, SUM(Total_Orders) AS Total_Orders, SUM(Sales) AS Sum_of_Sales
FROM send order
GROUP BY CompanyName
ORDER BY SUM(Total Orders) DESC, SUM(Sales)
                                                                              -study-shipper_GS8BBFPasus (71)) 4 × (zaze-study-employ_GS8BBFPasus (71)) 5 × (zaze-study-employ_GS8BBFPasus (71)) 5 × (zaze-study-employ_GS8BBFPasus (71)) 6 × (zaze-study-employ_GS8BBFPasus (71)) 7 × (zaze-study-employ_GS8BFPasus (71)) 7 × (zaze-study-employ_GSBBFPasus (71)) 7 × (zaze

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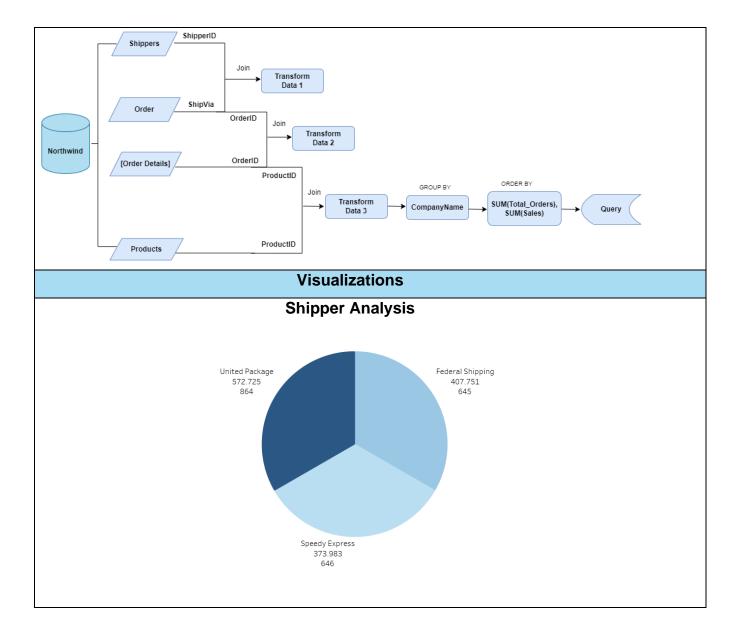
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       SELECT CompanyName, SUM(Total_Orders) AS Total_Orders, SUM(Sales) AS Sum_of_Sales
                                                                              SELECT Companymame, SUMITOCAL_MINEST, NO. 17 FROM send_order
GROUP BY CompanyName
ORDER BY SUMITOCAL_Orders) DESC, SUMI(Sales)
                                                                      | Results @ Messages | CompanyName | Total_Orders | Sum_of_Sales |
| United Package | 864 | 57,774.58 |
| 2 Speed/Express | 646 | 37,3933.19 |
| 3 Federal Shipping | 645 | 40,7750.82
```

Flowchart

LAPTOP-2GS8BBFP\SQLEXPRESS ... | LAPTOP-2GS8BBFP\asus (71) | Northwind | 00:00:00 | 3 rows



The shipping company name United Package is the favorite by customer to shipping their order. For July 1996 – May 1998 has delivered around 864.