REPORT MAKING ASSIGNMENT (DBMS LAB)

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Task:

Using the document provided on your lms do the following steps:

Step1: use database structure file and create table in database named north wind

Step2: after creating all the tables create ERD diagram.

Step3: check what connection each table have with each other and create a problem statement

Step4: after using the erd diagram for your problem statement use the insertion file to input the data within the table

Step5: write queries for your required problem and take its screen shots along with that save the file in csv format

Step6: visualize data using Excel or Power Bi

Step7: create a report with problem statement, screen shots, queries, and visualization

Problem Statement:

The Northwind database is utilized by a global trading company to manage various business operations, including customer orders, employee territories, product inventories, supplier relationships, and shipping logistics. Northwind seeks an in-depth analysis across several key dimensions to optimize operations and drive strategic insights. This analysis will focus on the following areas:

1. **Sales Performance:** Assess total sales revenue by product and category to identify top-performing areas. Highlight the **Top 5 Products by Sales Volume** and uncover sales trends to guide inventory and marketing strategies.

2. **Customer Insights**: Identify the **Top 5 Countries with the Most Customers** and analyze customer behavior based on order frequency, average order value, and geographic distribution. This will enhance customer retention efforts and help tailor region-specific marketing strategies.

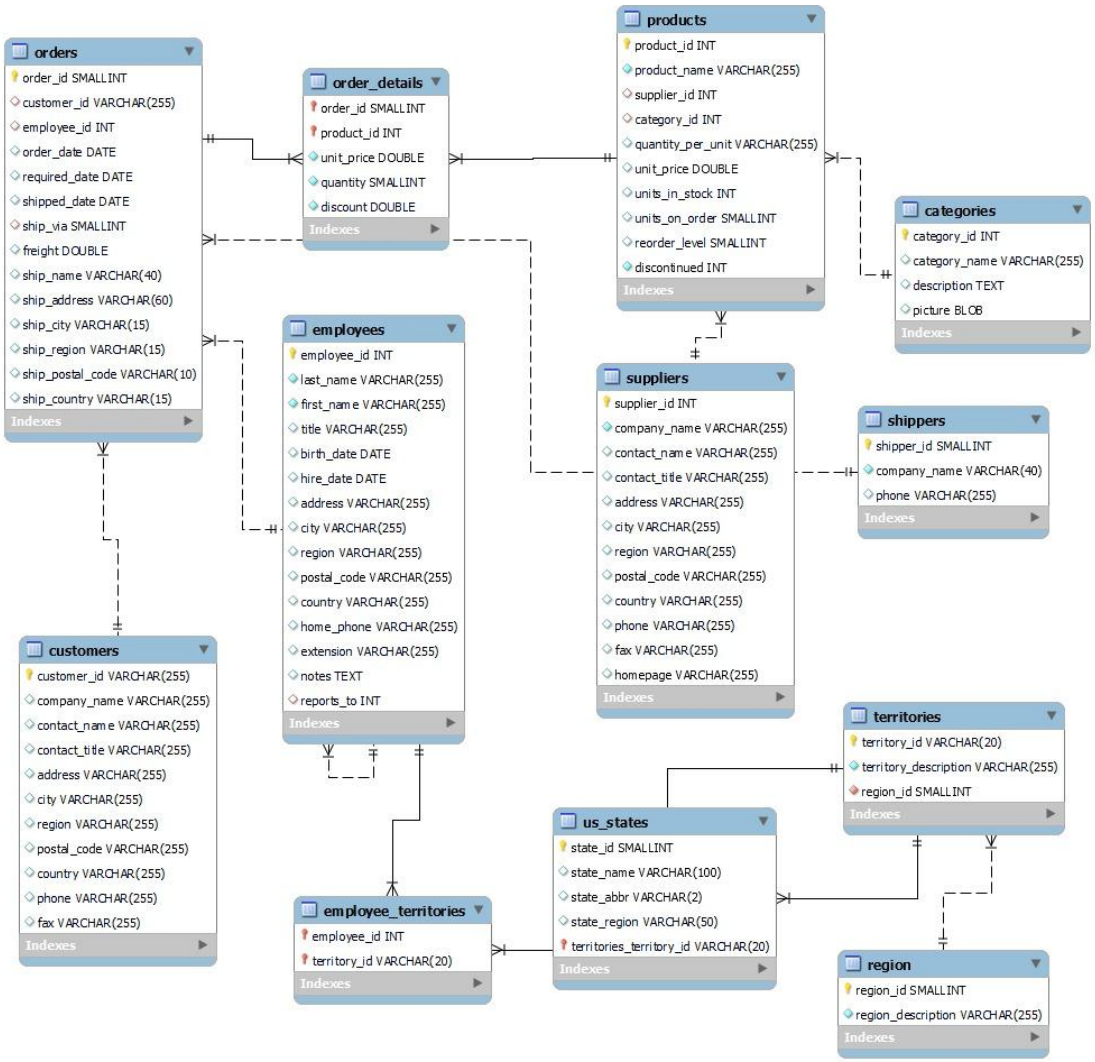
3. **Top Customers by Sales Value**: Recognize high-value customers by calculating total sales contributions, enabling targeted loyalty and reward programs.

4. **Employee Performance**: Evaluate employee effectiveness by measuring order count and revenue managed by each employee and across territories, providing insights for performance assessments and resource allocation.

5. **Supply Chain Analysis:** Review supplier performance and product availability to maintain steady inventory levels and minimize stockouts, ensuring reliable product fulfillment.

6. **Shipping Efficiency:** Examine shipping data, focusing on **Shipping Cost and Duration by Shipper** to identify cost-effective options and improve delivery timelines.

ERD DIAGRAM:



SQL QUERIES:

1. TOP CUSTOMERS BY SALES VALUE:

ecific category | sales by product category* | customers by country | Top 5 Products by Sales Volume | top customers by sales values | Total Sa

Limit to 1000 rows

```sql
-- top customers by sales values
SELECT
    cu.customer_id,
    cu.company_name,
    SUM(od.unit_price * od.quantity * (1 - od.discount)) AS customer_sales
FROM
    customers cu
    JOIN orders o ON cu.customer_id = o.customer_id
    JOIN order_details od ON o.order_id = od.order_id
GROUP BY
    cu.customer_id, cu.company_name
ORDER BY
    customer_sales DESC
LIMIT 10;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

customer_id	company_name	customer_sales
QUICK	QUICK-Stop	110277.30500000001
ERNSH	Ernst Handel	104874.9785
SAVEA	Save-a-lot Markets	104361.95000000001
RATTC	Rattlesnake Canyon Grocery	51097.80049999999
HUNGO	Hungry Owl All-Night Grocers	49979.905000000006
HANAR	Hanna Moos	32841.369999999995
KOENE	Königlich Essen	30908.384000000002
FOLKO	Folk och fä HB	29567.5625

2. TOTAL SALES REVENUE BY PRODUCT AND CATEGORY

ecific category | sales by product category* | customers by country | Top 5 Products by Sales Volume | top cus

Limit to 1000 rows

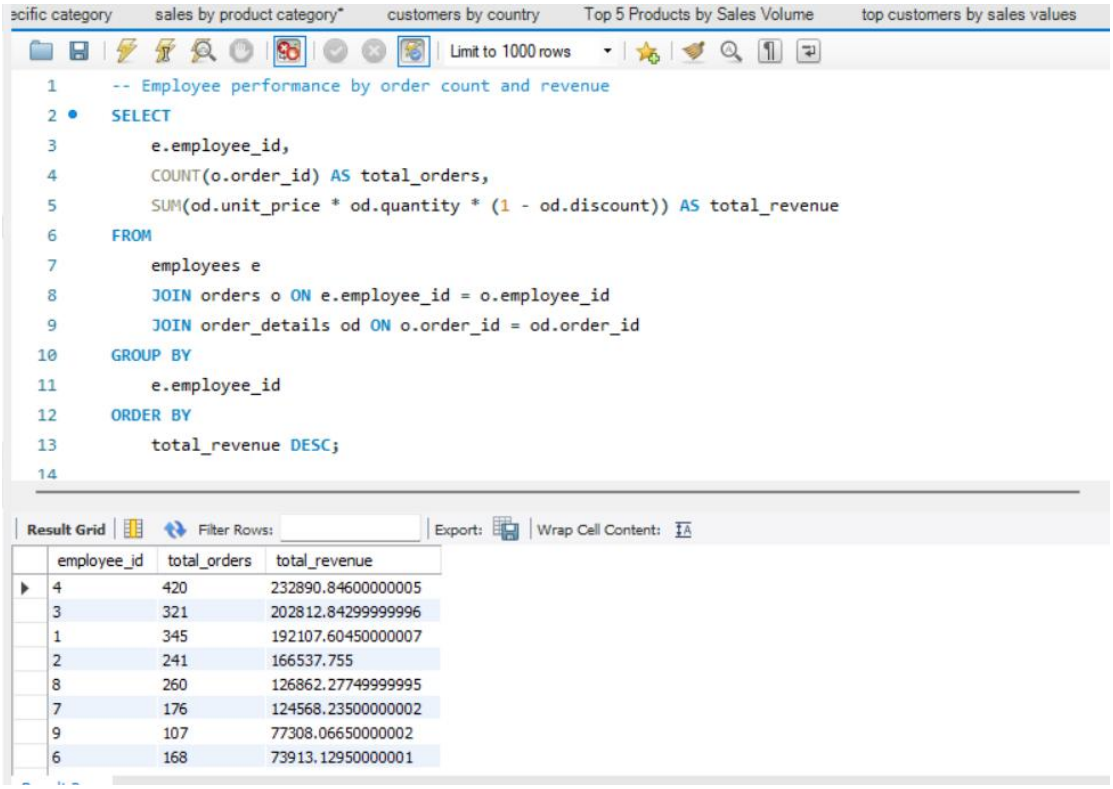
```sql
-- Total Sales Revenue by Product and Category:
SELECT
    c.category_name,
    p.product_name,
    SUM(od.unit_price * od.quantity * (1 - od.discount)) AS total_sales
FROM
    products p
    JOIN categories c ON p.category_id = c.category_id
    JOIN order_details od ON p.product_id = od.product_id
GROUP BY
    c.category_name, p.product_name
ORDER BY
    total_sales DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

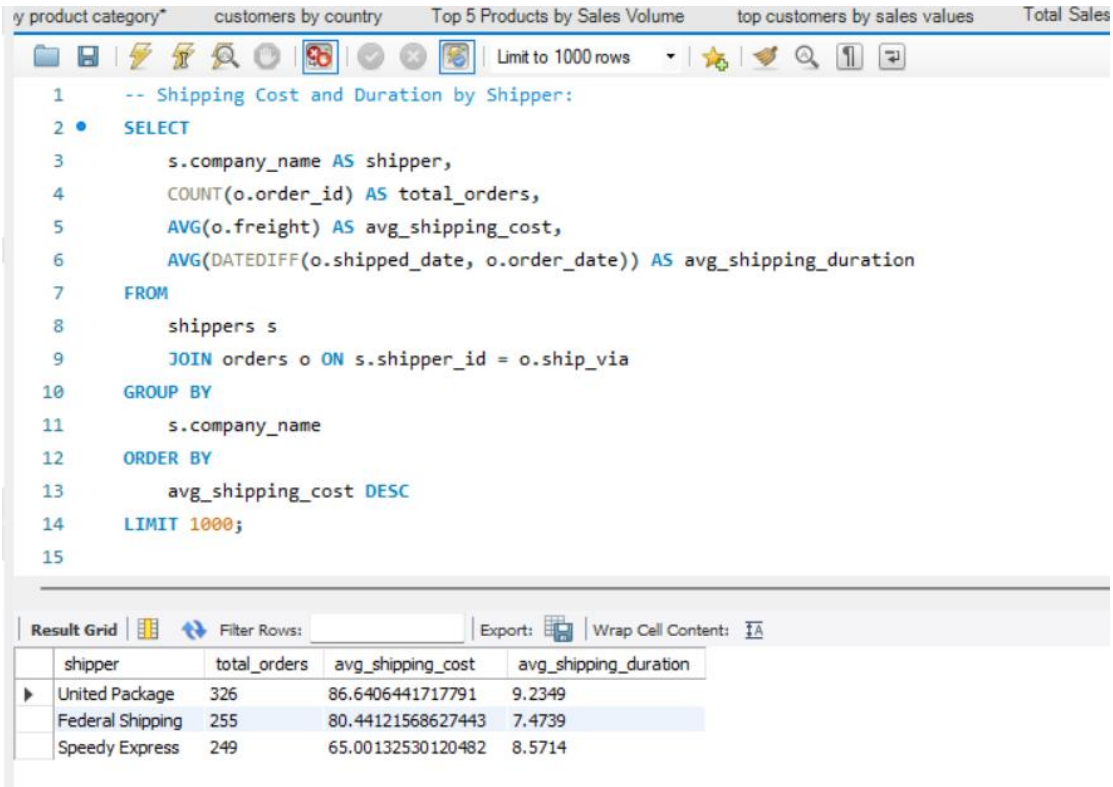
category_name	product_name	total_sales
Beverages	Côte de Blaye	141396.735
Meat/Poultry	Thüringer Rostbratwurst	80368.672
Dairy Products	Raclette Courdavault	71155.7
Confections	Tarte au sucre	47234.97
Dairy Products	Camembert Pierrot	46825.48
Grains/Cereals	Gnocchi di nonna Alice	42593.06
Produce	Manjimup Dried Apples	41819.65

Result 1

3. EMPLOYEE PERFORMANCE BY ORDER COUNT AND REVENUE:



4. SHIPPING COST AND DURATION BY SHIPPER:



5. TOP 5 PRODUCTS BY SALES VOLUME:

```sql
-- Top 5 Products by Sales Volume:
SELECT p.product_name, SUM(od.quantity) AS total_quantity_sold
FROM order_details od
JOIN products p ON od.product_id = p.product_id
GROUP BY p.product_name
ORDER BY total_quantity_sold DESC
LIMIT 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

product_name	total_quantity_sold
Camembert Pierrot	1577
Raclette Courdavault	1496
Gorgonzola Telino	1397
Gnocchi di nonna Alice	1263
Pavlova	1158

6. CUSTOMERS BY COUNTRY:

```sql
-- customers by country
SELECT country, COUNT(*) AS customer_count
FROM customers
GROUP BY country
ORDER BY customer_count DESC;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

country	customer_count
USA	13
Germany	12
France	11
Brazil	8
UK	7
Spain	6
Mexico	5
Canada	3

7. **TOP 5 COUNTRIES WITH MOST CUSTOMERS:**

```sql
-- top 5 countries with most customers

SELECT country, COUNT(*) AS customer_count
FROM customers
GROUP BY country
ORDER BY customer_count DESC
LIMIT 5;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

country	customer_count
USA	13
Germany	12
France	11
Brazil	8
UK	7

DATA VISUALIZATION:

DASHBOARD 01:

DASHBOARD 02: