

REPORT MAKING ASSIGNMENT (DBMS LAB)

Name : Alisha Nasir Id: 20221-33353 Faculty name: Muhammad Irtiza

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

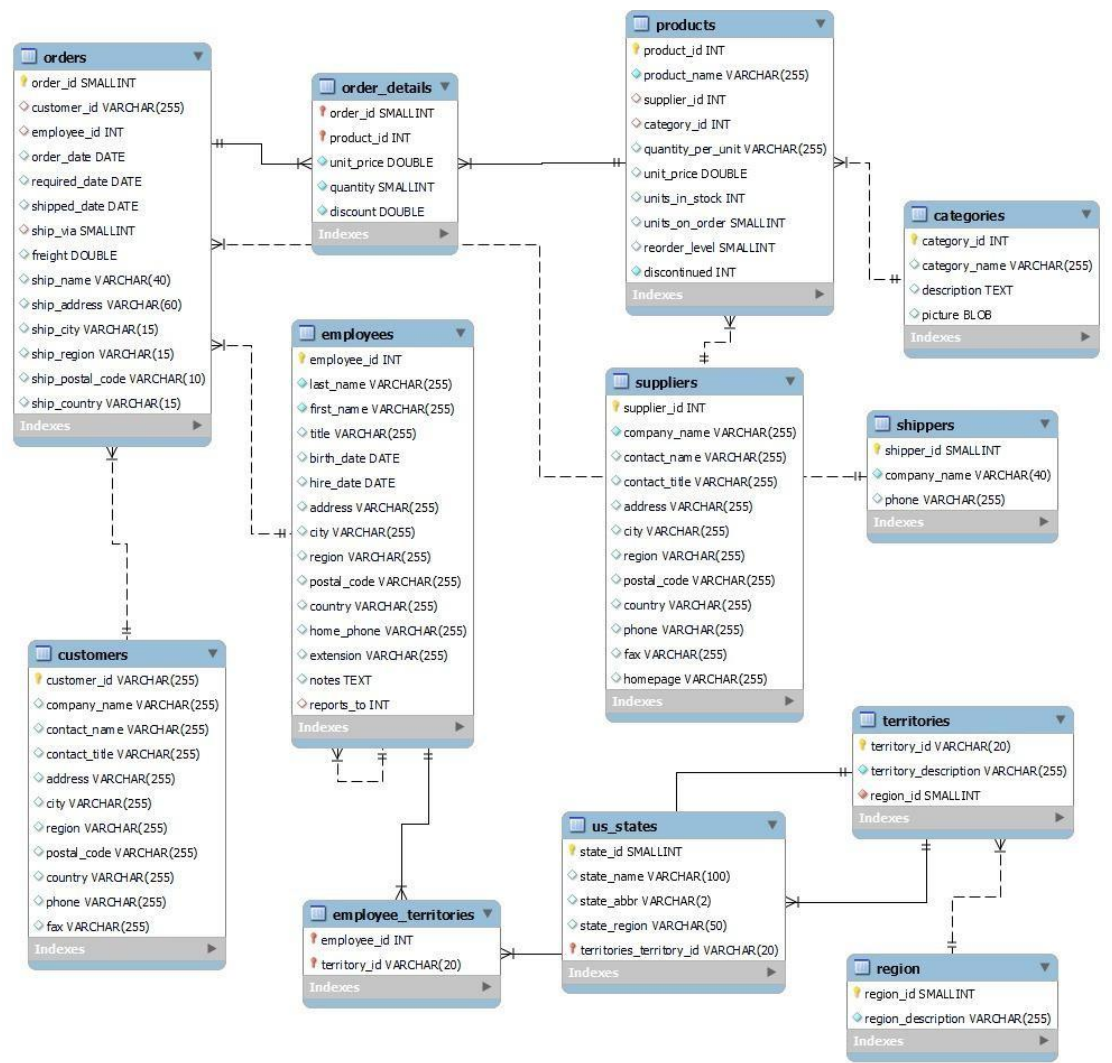
Problem Statement:

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:

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

Limit to 1000 rows

```
1  -- top customers by sales values
2  • SELECT
3      cu.customer_id,
4      cu.company_name,
5      SUM(od.unit_price * od.quantity * (1 - od.discount)) AS customer_sales
6  FROM
7      customers cu
8      JOIN orders o ON cu.customer_id = o.customer_id
9      JOIN order_details od ON o.order_id = od.order_id
10 GROUP BY
11     cu.customer_id, cu.company_name
12 ORDER BY
13     customer_sales DESC
14 ITMTT 10:
```

Result Grid

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 få HB	29567.5625

2. TOTAL SALES REVENUE BY PRODUCT AND CATEGORY

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

Limit to 1000 rows

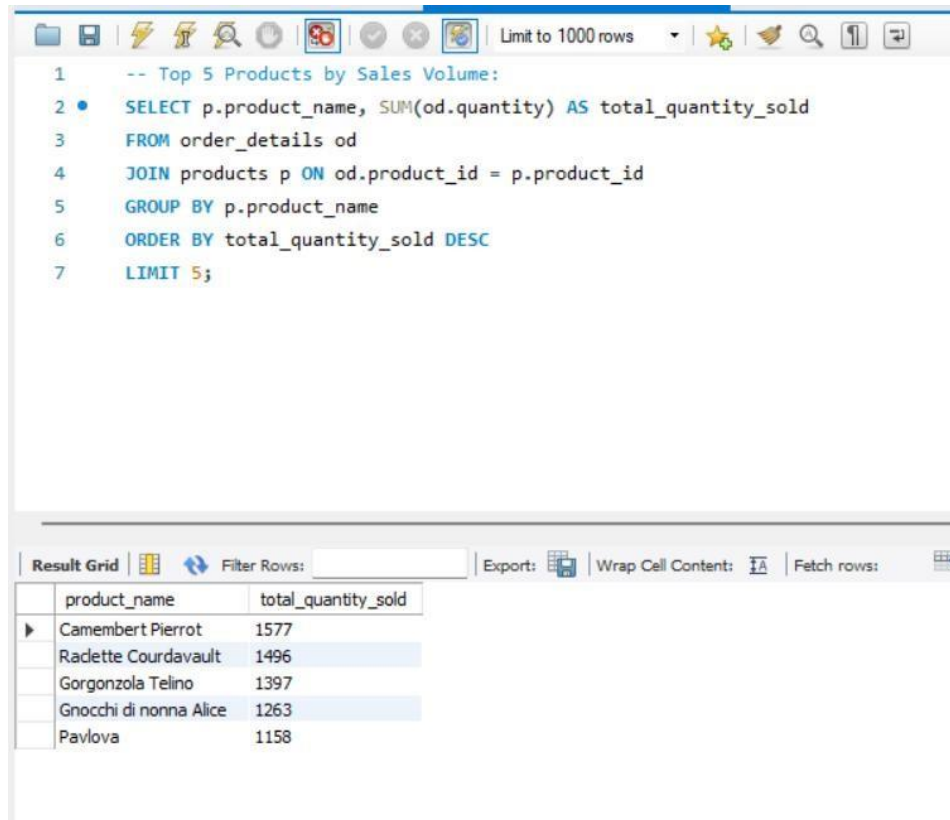
```
1  -- Total Sales Revenue by Product and Category:
2  • SELECT
3      c.category_name,
4      p.product_name,
5      SUM(od.unit_price * od.quantity * (1 - od.discount)) AS total_sales
6  FROM
7      products p
8      JOIN categories c ON p.category_id = c.category_id
9      JOIN order_details od ON p.product_id = od.product_id
10 GROUP BY
11     c.category_name, p.product_name
12 ORDER BY
13     total_sales DESC;
14
```

Result Grid

category_name	product_name	total_sales
Beverages	Côte de Blaye	141396.735
Meat/Poultry	Thüringer Rostbratwurst	80368.672
Dairy Products	Radette Courdavault	71155.7
Confections	Tarte au sucre	47234.97
Dairy Products	Camembert Pierrot	46825.48
Grains/Cereals	Gnocchi di nonna Alice	42593.06
Produce	Mantoux Dried Apples	41810.65

Result 1 x

5. TOP 5 PRODUCTS BY SALES VOLUME:



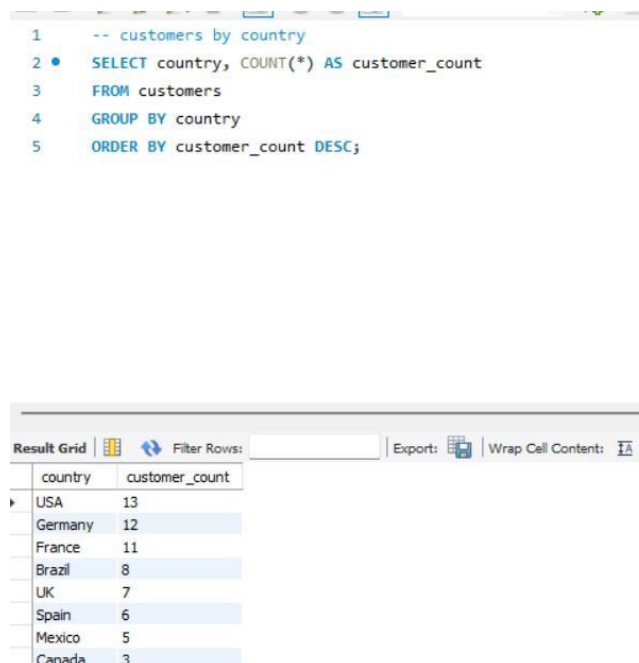
The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and a 'Limit to 1000 rows' dropdown. The SQL editor contains the following query:

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

Below the editor is the 'Result Grid' section. It includes a 'Filter Rows' input, an 'Export' button, a 'Wrap Cell Content' toggle, and a 'Fetch rows' button. The result grid displays the following data:

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

6. CUSTOMERS BY COUNTRY:



The screenshot shows a SQL IDE interface. The top toolbar includes icons for file operations, execution, and a 'Limit to 1000 rows' dropdown. The SQL editor contains the following query:

```
1  -- customers by country
2  • SELECT country, COUNT(*) AS customer_count
3  FROM customers
4  GROUP BY country
5  ORDER BY customer_count DESC;
```

Below the editor is the 'Result Grid' section. It includes a 'Filter Rows' input, an 'Export' button, a 'Wrap Cell Content' toggle, and a 'Fetch rows' button. The result grid displays the following data:

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:

```

1  -- top 5 countries with most customers
2
3  • SELECT country, COUNT(*) AS customer_count
4    FROM customers
5    GROUP BY country
6    ORDER BY customer_count DESC
7    LIMIT 5;

```

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

DATA VISUALIZATION:

DASHBOARD 01:



DASHBOARD 02:

