Sales SQL Analysis – Explained Document

📊SALES DATABASE ANALYSIS – EXPLANATION

1. Database and Table Creation

```
CREATE DATABASE SALES;
USE SALES;

CREATE TABLE OnlineRetail (
    InvoiceNo VARCHAR(20),
    StockCode VARCHAR(20),
    Description TEXT,
    Quantity INT,
    InvoiceDate DATETIME,
    UnitPrice DECIMAL(10, 2),
    CustomerID VARCHAR(20),
    Country VARCHAR(50)
);
```

Explanation:

- Creates a database named **SALES**.
- Creates a table **OnlineRetail** to store invoice details, product info, customer ID, and country.

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2. Joining Different Data Chunks

```
SELECT a.CustomerID, a.InvoiceNo, b.Quantity, c.UnitPrice
FROM sales.onlineretail a
JOIN sales.onlineretail_1501_to_2000 b ON a.CustomerID = b.CustomerID
JOIN sales.onlineretail_2001_to_3000 c ON a.CustomerID = c.CustomerID;
```

Explanation:

- Joins three data chunks by **CustomerID** to merge their details for integrated analysis.

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3. Combining All Chunks into a Single Table

```
CREATE TABLE sales.combined_onlineretail AS
SELECT * FROM sales.onlineretail
```

```
UNION ALL
SELECT * FROM sales.onlineretail_1501_to_2000
UNION ALL
SELECT * FROM sales.onlineretail_2001_to_3000;
```

Explanation:

- Combines all separate data tables into one **combined_onlineretail** table for overall analysis.

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4. Calculating Total Revenue

```
SELECT
    ROUND(SUM(Quantity * UnitPrice), 2) AS TotalRevenue
FROM sales.combined_onlineretail;
```

Explanation:

- Calculates **total revenue** from all sales records.

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5. Monthly Revenue Calculation

```
SELECT
    DATE_FORMAT(InvoiceDate, '%Y-%m') AS Month,
    ROUND(SUM(Quantity * UnitPrice), 2) AS MonthlyRevenue
FROM sales.combined_onlineretail
GROUP BY Month
ORDER BY Month;
```

Explanation:

- Calculates **monthly revenue** for trend analysis.

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6. Top 10 Customers by Revenue

```
SELECT
    CustomerID,
    ROUND(SUM(Quantity * UnitPrice), 2) AS CustomerRevenue
FROM sales.combined_onlineretail
GROUP BY CustomerID
```

```
ORDER BY CustomerRevenue DESC
LIMIT 10;
```

Explanation:

- Identifies top 10 **most valuable customers**.

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7. Top 5 Products by Revenue

```
SELECT
    Description,
    ROUND(SUM(Quantity * UnitPrice), 2) AS Revenue
FROM sales.combined_onlineretail
GROUP BY Description
ORDER BY Revenue DESC
LIMIT 5;
```

Explanation:

- Finds top 5 **best-selling products** by revenue.

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8. Revenue by Country

```
SELECT
    Country,
    ROUND(SUM(Quantity * UnitPrice), 2) AS RevenueByCountry
FROM sales.combined_onlineretail
GROUP BY Country
ORDER BY RevenueByCountry DESC;
```

Explanation:

- Shows **country-wise revenue distribution**.

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9. Average Basket Value

```
SELECT
    ROUND(SUM(Quantity * UnitPrice) / COUNT(DISTINCT InvoiceNo), 2) AS
AvgBasketValue
FROM sales.combined_onlineretail;
```

Explanation:

- Calculates **average revenue per invoice** (Avg Basket Value).

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10. RFM Analysis Data Preparation

```sql
SELECT
    CustomerID,
    MAX(InvoiceDate) AS LastPurchase,
    COUNT(DISTINCT InvoiceNo) AS Frequency,
    ROUND(SUM(Quantity * UnitPrice), 2) AS Monetary
FROM sales.combined_onlineretail
GROUP BY CustomerID;
```

Explanation:

- Prepares **Recency, Frequency, Monetary (RFM) data** for customer segmentation.

🧱 Summary

This SQL script **combines and analyses sales data** to derive insights such as:

- Total and monthly revenue
- Top customers and products
- Country-wise performance
- Average purchase value
- RFM analysis for marketing strategies
