📊SalesDB Power BI Analysis Report

📁1. Database and Tables Overview

Database Created: `SalesDB`

Tables:

- **Customers**
- Stores customer information: ID, Name, Email, Region, Join Date.
- **Products**
- Stores product details: ID, Name, Category, Price.
- **Orders**
- Records each order with OrderID, CustomerID (FK), OrderDate, TotalAmount.
- **Sales**
- Line-level sales details with SalesID, OrderID (FK), ProductID (FK), Quantity, TotalPrice.

📝2. Data Insertion Summary

✅**Customers:** 10 inserted\ ✅**Products:** 10 inserted\ ✅**Orders:** 10 inserted\ ✅**Sales:** 15 inserted

Sample:

CustomerID	CustomerName	Region
1	Alice Johnson	North America

ProductID	ProductName	Price (\$)
101	Laptop	1200.00

🔍3. Analysis Queries and Insights

🗓️3.1 Total Revenue by Month

```
SELECT
    DATE_FORMAT(OrderDate, '%Y-%m') AS Month,
    SUM(TotalAmount) AS TotalRevenue
FROM Orders
GROUP BY Month
ORDER BY Month;
```

✅ **Purpose:** Analyse monthly revenue trends for financial reporting and time-based performance tracking.

✅**Power BI Visualization:**

- **Line Chart** for Total Revenue over time.
- **Implementation:** Added OrderDate as X-axis and Total Revenue as Y-axis to observe trends.

✅**Insight:** Shows peak and low revenue months to strategize marketing, discounts, and inventory accordingly.

🕑3.2 Sales Performance by Region

```
SELECT
    c.Region,
    SUM(o.TotalAmount) AS TotalRevenue
FROM Orders o
JOIN Customers c ON o.CustomerID = c.CustomerID
GROUP BY c.Region
ORDER BY TotalRevenue DESC;
```

✅**Purpose:** Identify high-performing regions to allocate resources effectively.

✅**Power BI Visualization:**

- **Stacked Bar Chart** representing Total Revenue by Region.

✅**Insight:** Supports decisions for regional campaigns, expansions, or targeted customer outreach.

🕑3.3 Top 5 Best-Selling Products

```
SELECT
    p.ProductName,
    SUM(s.Quantity) AS TotalSold,
    SUM(s.TotalPrice) AS Revenue
FROM Sales s
JOIN Products p ON s.ProductID = p.ProductID
GROUP BY p.ProductName
ORDER BY Revenue DESC
LIMIT 5;
```

✅ **Purpose:** Determine product demand and revenue contribution for inventory and promotional planning.

✅**Power BI Visualization:**

- **Stacked Bar Chart** to display Product Names with their Total Revenue, sorted descending.

✅**Insight:** Informs product focus for upcoming campaigns, supplier negotiation, and procurement strategy.

3.4 Customer Purchase Frequency & Spending

```
SELECT
    c.CustomerName,
    COUNT(o.OrderID) AS OrderCount,
    SUM(o.TotalAmount) AS TotalSpent
FROM Orders o
JOIN Customers c ON o.CustomerID = c.CustomerID
GROUP BY c.CustomerName
ORDER BY TotalSpent DESC;
```

✅**Purpose:** Analyse customer value based on frequency and total spending for loyalty and retention initiatives.

✅**Power BI Visualization:**

- **Table** with Customer Name, Order Count, and Total Spent columns.

✅**Insight:** Prioritize top customers for loyalty offers, personalised engagement, and VIP services.

📊4. Power BI Visualization Implementation

🔧Visualizations Used:

1. **Card**
2. Displays **Total Revenue** to highlight overall business performance instantly.
3. **Card** (Goal vs Actual)
4. Shows **Goal Revenue** vs **Actual Revenue** for target achievement analysis.
5. **Stacked Bar Chart**
6. Used for **Top 5 Best-Selling Products** to compare product revenue visually.
7. **Line Chart**
8. Plotted **Sales Revenue Trend over Order Dates** for time series analysis.
9. **Slicer**
10. Added **Order Date Slicer** to filter all visuals dynamically by selected date ranges for interactive analysis.

📈5. Final Report Summary

✔️Steps Followed:

1. **Database & Tables created** for customers, products, orders, sales.
2. **Data inserted** to simulate business operations.
3. **SQL queries executed** to derive actionable insights:
4. Monthly revenue
5. Regional sales performance
6. Top products
7. Customer purchase behaviour
8. **Power BI Dashboard created** with:
9. Cards for key KPIs
10. Line and stacked bar charts for trends and comparisons
11. Slicer for interactive date filtering
12. **Insights interpreted** to guide:
13. Marketing focus
14. Inventory and procurement
15. Customer engagement strategy

📝6. Next Recommendations

✅Extend analysis to:

- **Profitability** by including product cost data
- **Customer segmentation** by frequency, recency, and monetary value (RFM)
- **Time series forecasting** for revenue predictions
- **Dynamic region-product matrices** for strategic planning

🧱Prepared by: *Your Name Here*

Date: 29-June-2025

```
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### ✅ **Instructions**

1. Download this file as `SalesDB_PowerBI_Report.md`.
2. Push to your **Data Analysis portfolio repository**.
3. Attach Power BI screenshots with clear captions for each visual.
4. Let me know if you want:
   - **LinkedIn-ready post draft**
   - **PDF export with branding**
   - **Interview notes summary** for your upcoming SQL + Power BI prep today.
```