

## **Project - Power BI Project Summary: Northwind Data Analysis**

**Dates: 08.01.2025 – 16.01.2025**

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### **Background and Objective**

The objective of this project was to create interactive dashboards using Power BI to analyze data from the Northwind database, which describes business operations, including sales, suppliers, customers, employees, and products.

### **Key Steps in the Project**

1. Data Preparation and Modeling:
  - Imported data from the Northwind database.
  - Ensured data quality and completeness.
  - Built relationships between tables such as Orders, Customers, Suppliers, Employees, and Products.
2. Measure Development: Created custom DAX measures, including:
  - Total Sales: Calculating overall sales.
  - Average Sales per Order: Determining average revenue per order.
  - Year-over-Year Growth: Analyzing yearly changes in sales.
3. Dashboard and Page Creation:
  - Page 1: General Sales Analysis
    - Sales by product categories
    - Top 10 products by sales.
    - Geographic breakdown of sales.
  - Page 2: Customer Analysis
    - Top 10 customers by sales.
    - Geographic distribution of customer sales.
    - Customer segmentation by revenue buckets.
  - Page 3: Supplier Analysis
    - Top 10 suppliers by sales.
    - Geographic map of supplier locations.
    - Matrix showing sales by supplier and product.
  - Page 4: Time Trends Analysis
    - Monthly and yearly sales trends.
    - Category performance over time.
    - Yearly sales comparisons.
4. Design and Interactivity:
  - Integrated dynamic slicers for filtering by year, category, supplier, and more.
  - Applied custom design elements, clear labels, and intuitive color schemes.

### **Key Results**

Insights Gained:

- Identified top-performing product categories and their contribution to revenue.
- Analyzed purchase patterns of key customers and suppliers.
- Detected seasonal and yearly sales trends.

### **Improved Decision-Making:**

- Created interactive reports enabling users to derive insights quickly.
- Performed multidimensional analysis of business data across various sources.

### **Challenges and Solutions**

- Managing Complex Data Relationships: Built robust table relationships to ensure accurate calculations.
- Creating Advanced Measures: Used DAX for custom formulas to handle trends and time-based data.

### **Summary**

This project demonstrates the ability to analyze data and build professional dashboards using Power BI. It highlights:

- Strong business understanding.
- Proficiency with advanced BI tools.
- Ability to present data insights clearly and interactively.