Group2Excel Data Analysis Project: Superstore Sales Analysis (USA)

Dataset Overview

The dataset consists of transactional sales records from a superstore. It contains **customer details, order information, shipping details, and sales data.** Below are the key attributes:

- rder Details: Order ID, Order Date, Ship Date, Shipping Cost, Discount
- **Customer Information:** Customer ID, Name, Segment (Corporate, Small Business, etc.)
- roduct Information: Product Category, Sub-Category, Container Type, Unit Price
- * Financial Metrics: Quantity Sold, Sales, Profit, Product Base Margin
- ★ Geographical Data: Country, Region, State, City, Postal Code

You will analyze how different factors (such as **product categories**, **regions**, **and shipping methods**) impact **sales and profit trends**.

Project Objectives

В	y ·	the	end	of	this	project.	, you	shou	ld	be	able	to:
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- Clean and preprocess the dataset for analysis
- ✓ Analyze overall sales and profit performance
- ✓ Identify **best-selling and worst-performing products**
- Investigate the impact of **discounts on profitability**
- Examine the relationship between shipping costs and profit
- **✓** Evaluate **regional and state-wise sales trends**
- Assess which customer segments contribute the most to revenue
- ✓ Identify **inefficiencies** in the supply chain or product performance

Project Tasks

- Task 1: Data Cleaning & Preprocessing
- ★ Identify and handle missing values in shipping cost, profit, or unit price
- ★ Convert date fields (Order Date, Ship Date) into a proper format and calculate order processing time
- * Standardize inconsistent values in Order Priority, Customer Segment, and Product

Category

- * Create **new calculated fields** such as:
 - **Profit Margin** (%) = (Profit / Sales) * 100
 - **Discount Impact Factor** = (Sales Before Discount Sales After Discount)

Task 2: Exploratory Data Analysis (EDA)

★ Sales & Profit Analysis

- Calculate total sales, total profit, and average profit margin
- Identify the most profitable product categories and sub-categories
- Determine the least profitable or loss-making products

📌 Impact of Discounts on Sales & Profit

- Analyze the correlation between discount rates and profit margins
- Identify the threshold at which discounts become unprofitable
- Compare sales performance of discounted vs. non-discounted products

★ Shipping & Logistics Analysis

- Compare the cost of different shipping modes (Express Air, Regular Air, Truck, etc.)
- Evaluate the **fastest and slowest delivery times**
- Determine the effect of shipping cost on profitability

* Regional & State-wise Performance

- Identify top-performing regions (West, East, Central, etc.)
- Find states with the highest and lowest total sales
- Analyze how geographical location affects shipping cost and profit

Customer Behavior & Segmentation

- Compare sales performance across different customer segments
- Identify **high-value customers** contributing the most revenue
- Find out which segment is most **price-sensitive** (affected by discounts)

Task 3: Data Visualization & Reporting

You will create **interactive dashboards and visualizations** in Excel to communicate your findings.

	Key Visualizations:
\leq	Sales & Profit Trends: Line chart showing monthly sales fluctuations
\subseteq	Top Products & Categories: Bar chart ranking most and least profitable products
\leq	Discount Impact: Scatter plot showing profit vs. discount percentage
\Box	Regional Performance: Heatmap of sales by state/region

Shipping Efficiency: Column chart comparing shipping mode costs and delivery time

Customer Segments: Pie chart representing revenue contribution of each segment

Task 4: Business Insights & Recommendations

Based on your analysis, answer the following questions and provide actionable recommendations:

§ Sales & Profitability:

- **✓** Which product categories drive the most revenue and profit?
- ✓ Which products **frequently sell at a loss**, and should they be discontinued or repriced?

Polycount Strategy:

- ✓ Should discounts be increased or decreased based on their impact on sales and profit?
- ✓ What is the **optimal discount rate** that maximizes both sales and profit?

§ Shipping & Logistics:

- ✓ Which shipping method offers the **best balance between cost and delivery time**?
- ✓ How can the company reduce **high shipping costs** in certain regions?

Regional Insights:

- ✓ Which regions should the company focus on expanding?
- ✓ Are there states or cities where demand is declining?

? Customer Segmentation:

- ✓ Which customer segments are **most valuable** and should be targeted more?
- ✓ How does customer behavior differ across segments (corporate vs. small business)?

Project Deliverables

Final Submission Includes:

- igspace Excel File with cleaned data, pivot tables, and charts
- **☑ Business Report** summarizing key findings and insights
- **☑ Dashboard** with interactive visualizations