Data Visualization – PowerBI

Guided Exercise

**Exercise Set: Sales Performance Dashboard in PowerBI**

Introduction:

Welcome to this guided exercise where we will embark on creating a Sales Performance Dashboard using PowerBI. This exercise is designed to hone your analytical skills, inference capability, and data presentation prowess within a business context. As beginners in PowerBI, you will find this exercise both challenging and enlightening, offering a real-world simulation of PowerBI's application in business analytics.

Business Context:

You are a data analyst at "TechGadgets Inc.", a company specializing in consumer electronics. The company operates across several regions and has multiple product lines. The management team is interested in understanding sales performance to make informed decisions about future strategies. Your task is to create a dashboard that provid7es insights into sales trends, regional performance, and product line success.

Problem Statement:

The management team needs clarity on the following aspects:

* Overall sales trends over the past year
* Comparison of sales performance across different regions
* Sales breakdown by product line
* Identification of top-performing products and underperforming products
* Month-on-month sales growth

Data Set:

You are provided with a dataset "Sales\_Data.csv" that contains the following columns:

* Date (YYYY-MM-DD)
* Region
* Product Line
* Product
* Quantity Sold
* Unit Price
* Total Sales

Exercise Steps:

**Step 1: Load and Explore the Data**

* Import the "Sales\_Data.csv" file into PowerBI.
* Familiarize yourself with the dataset. Identify the key columns that will be used in our analysis.

**Step 2: Data Transformation**

* Create a new column for "Month-Year" from the "Date" column for better aggregation in visuals. (= Text.From([Month]) & "-" & Text.From([Year])
* Calculate "Month-on-Month Growth" in sales to understand the growth pattern.

= if [Index] = 1 then null else ([Sales] - #"Previous Row"[Sales]) / #"Previous Row"[Sales]

**Step 3: Building the Dashboard**

Your dashboard will consist of the following visual elements:

**3.1 Sales Trends Over Time**

* Create a line chart to display total sales over time. This will help the management team to understand the overall sales trend.

**3.2 Regional Performance Comparison**

* Use a bar chart to compare the total sales across different regions. This will highlight which regions are performing well and which are lagging.

**3.3 Sales Breakdown by Product Line**

* Design a pie chart to show the sales contribution of each product line. This visual will help in understanding the product line's performance.

**3.4 Top and Bottom Performing Products**

* Implement a table or a bar chart to list the top 5 performing products based on total sales.
* Similarly, list the bottom 5 performing products to identify areas of concern.

**3.5 Month-on-Month Sales Growth**

* Create a column chart to represent the Month-on-Month sales growth. Use a color scheme to differentiate between positive and negative growth.

**Step 4: Interactivity and Filtering**

* Add slicers for "Region" and "Product Line" to allow the management team to filter the dashboard and drill down into specific areas of interest.

**Step 5: Insights and Observations**

* Based on the visualizations, provide at least three insights or observations that could be valuable for the management team. These could relate to trends, anomalies, or opportunities suggested by the data.

Deliverables:

* A fully functional Sales Performance Dashboard in PowerBI, encompassing all the visual elements outlined above.
* A brief report summarizing key insights and observations derived from the dashboard.

Evaluation Criteria:

* Accuracy of data manipulation and transformation.
* Effectiveness and relevance of visualizations in conveying the desired insights.
* Creativity in dashboard design and layout.
* Clarity and depth of the insights provided in the final report.

I've created a voluminous dataset that you can use for your exercise. Here's a glimpse of the data:

| **Date** | **Region** | **Product Line** | **Product** | **Quantity Sold** | **Unit Price** | **Total Sales** |
| --- | --- | --- | --- | --- | --- | --- |
| 2023-01-01 | North America | Smartphones | Model A | 7 | 1204.99 | 8434.91 |
| 2023-01-01 | North America | Smartphones | Model B | 15 | 1111.39 | 16670.87 |
| 2023-01-01 | North America | Smartphones | Model C | 7 | 696.46 | 4875.20 |
| 2023-01-01 | North America | Smartphones | Model D | 11 | 715.91 | 7875.02 |
| 2023-01-01 | North America | Laptops | Laptop A | 4 | 257.16 | 1028.63 |



The dataset covers a full year (from January 1, 2023, to December 31, 2023) and includes daily sales data across multiple regions and product lines. Each row represents a unique combination of date, region, product line, and product, along with the quantity sold, unit price, and total sales for that combination.

This dataset will allow you to perform comprehensive analyses and create insightful visualizations in PowerBI as outlined in the exercise set. You can explore sales trends over time, compare performance across different regions, analyze sales breakdown by product line, identify top and bottom-performing products, and calculate month-on-month sales growth.