# BeMo Functional Test (Sales Report)

Data cleaning steps:
1. Identified duplicate values.
2. Checked missing values and trimmed extra spaces (date, quantity and unit price)
3. Spelling correction on categorical fields
4. Replaced missing values
5. Replacing missing value of categorical value.
6. Create new fields (week number) for time-series analysis.

Note: Please find the dashboard in the sheet named "**Workings**" in the attached Excel file. I computed total sales by multiplying unit price with quantity. However, the sales number was 10 times smaller than the mentioned target sales. In order to balance out the discrepancy, I considered regional target sales 10 times more than the given value.

Data analysis and visualization:
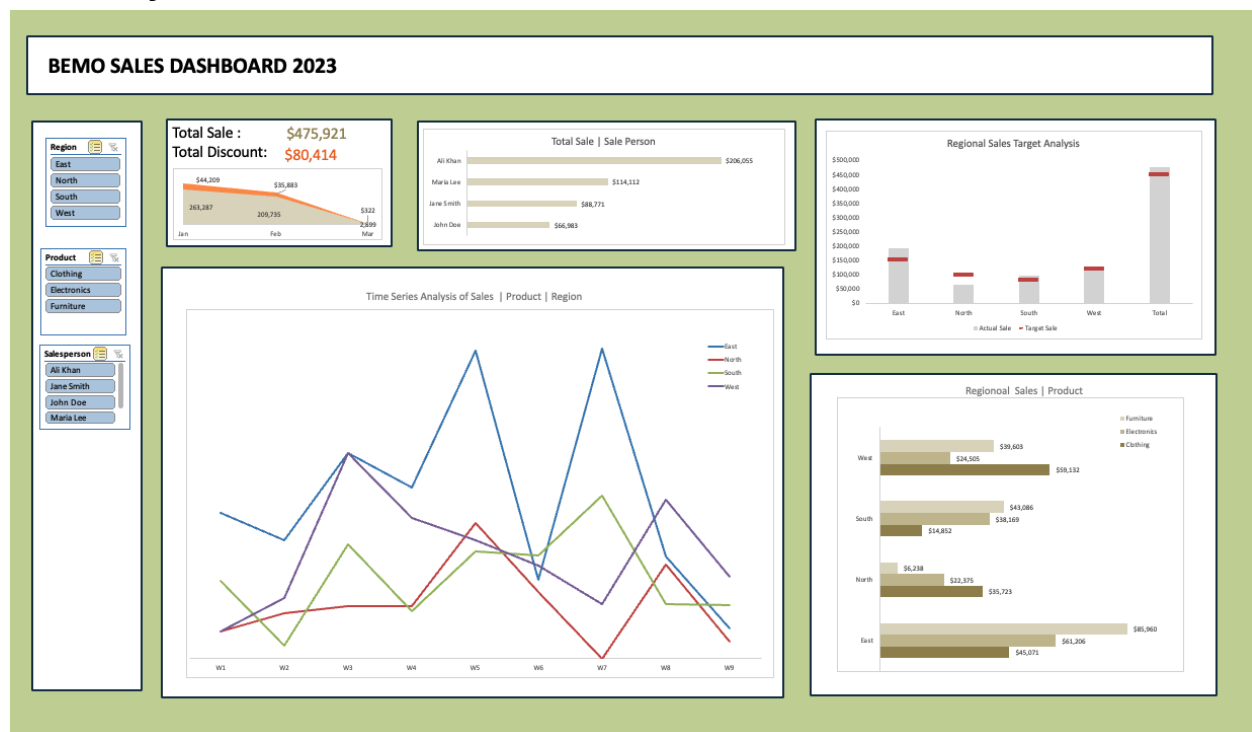
Business metrics and dimensions : Total sales units**,** Total revenue, Total discount, target achievement rate (%), Monthly revenue growth rate (%)

Summery of Insights:
1. **Sales Trends: The** total actual sales met the target sales with 5%. Particularly the **East** and **South** regions perform well by 23% and 20% overflow over target sales. The **North** region needs the most improvement as it fails to meet the target by 35%, particularly furniture and electronics.

However, both the total units sold and total sales show a **downward trend** from January to March, indicating a **23% decline** in sales performance over January to February.

2. **Regional Sales:** The time series analysis reveals fluctuations in sales for all regions, with peaks in certain weeks, especially for the **East region**, which consistently performs better than the others. A majority of East regional sales come from **February's first** and **third** weeks.

3. **Sales Person Trends:** The top-performing salesperson is **Ali Khan** throughout all regions**,** responsible for around 50% of total sales ($206,000). The second and third top-performing salespersons are **Maria Lee** and **Jane Smith.**

4. **Product Category Breakdown: Furniture** leads in total sales, followed by clothing and electronics. The majority of furniture sales occur in the East, West, and South regions, with the North having the lowest sales for this category. **Clothing** ranks as the second-best-selling item overall. However, in terms of clothing, the **West** region performed well, while the **South** region consistently underperformed compared to other regions during the entire period. Electronic sales peaked in the **East region** at the end of **January** and in **February**, while the **North** and **West regions** consistently underperformed during this period.

Recommendations:

- **Investigate Sales Incline and Decline:** The **East** region performed exceptionally well throughout January and the first three weeks of February. In contrast, the **West** region performed well in clothing in January (third week), while the **North** region showed particularly poor performance in furniture sales. Analyzing factors such as market conditions, product availability, and seasonal demand can help identify the underlying reasons.

- **Focus on Areas on High-Performing Products:** Strengthen strategies in the **West** and **North** for **clothing** and in the **East** region for **furniture** products where sales are consistently high.

- **Improve Underperforming Areas:** Addressing low sales in regions like the **North**, with a focus on **furniture** and **electronics,** the marketing efforts and strategies need reformation**.**

- **Leverage Sales Team Strengths:** Recognizing top-performing salespeople, such as **Ali Khan**, and incentivizing their efforts can motivate others. Additionally, offering further training to lower-performing salespeople, like **John Doe**, can help balance overall performance.

- **Seasonal Promotions:** There is a decline in sales from January to February. Promotional activities can boost sales during slower periods, particularly focusing sales in February to March.