

## **Project Title**

Sales performance analysis using Excel and Power BI

## **Objectives**

To analyze sales data for the year 2024 to identify trends, monitor performance metrics by product, sales representatives, buyer location and age category, and provide actionable insights and/or recommendations.

## **Dataset Description**

Source: Practice sales dataset for January to December, 2024, from Tech Command Academy.

Size: 12,000 rows and 16 columns

## **Key columns**

- Transaction Date – The date of the transaction
- Product Name – Name of the product sold
- Sales Representative – Name of the sales representative that made the sale
- Quantity Purchased – Total quantity of product purchased by a customer per time
- Revenue – Total sales value generated from the transaction
- Cost – Amount it cost to purchase/procure the product

## **Initial observations**

There were no missing values in the dataset but had 5 empty columns

## **Tools used**

### **Microsoft Excel**

- Data cleaning with power query (proper dataset/table formatting, removing duplicates)
- Use some Excel aggregate and logical functions to return columns like and product name, unit cost, unit price, Cost, Revenue and Profit, and further prepare the data for analysis.

### **Power BI**

- Interactive dashboards.
- Advanced data visualization (e.g., slicers, filters)
- Calculated measures to group 'Buyer Age' and 'Order Quantity' using DAX for deeper insights

## **Methodology**

### **Data cleaning and preparation**

- Removed 5 empty columns using power query.
- Corrected 10 outliers in the 'Revenue' column by cross-checking source data.
- Split 'Customer name' column into 'First Name' and 'Last name' for better aggregation
- Used excel logical functions to return product name with the corresponding product code.

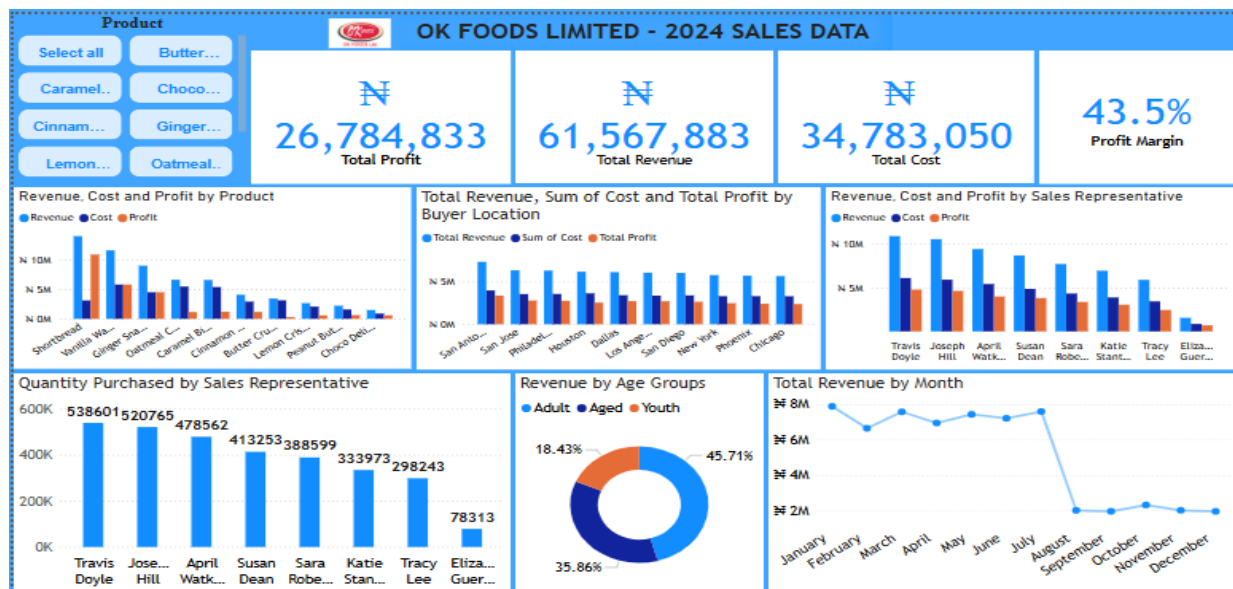
## Exploratory Data Analysis (EDA)

- Used DAX query to create columns categorizing buyers into three (3) age categories (“Youth” – less than 30yrs, “Adult” – 30-60yrs, and “Aged” – Above 60yrs) by their date of birth, and categorizing orders into three (3) categories (Low – below 180, Medium – 180-349, and High Orders – 350 and above) for deeper insight and better understanding.
- Detected seasonality in sales, with peak sales running between January to July.

## Visualization and insights

Created a Power BI dashboard with the following visuals

- Revenue, Cost and Profit by Product, Buyer Location and Sales Representative (Bar Charts)
- Quantity Purchased/sold by sales representative (Bar Chart)
- Revenue by Age group (Donut Chart)
- Monthly Sales Trend (Line Chart)



## Recommendation

- Produce and stock high-demand products (Shortbread, Vanilla wafers and Ginger Snaps) ahead of the school/academic sessions.
- Sales target and bonus rewards on meeting target should be given to sales representatives in order to boost their morale to market and make more sales.
- In as much as considerably high revenue was generated from all of the buyer locations, more marketing efforts should be focused on buyer locations with higher revenue generation/sales (San Antonio, San Jose and Philadelphia)
- Improved marketing strategies and adverts should be considered to create awareness in areas/locations with low sales to boost sales/revenue from these locations.
- Promotions for low/under-performing products should equally be considered in order to boost sales of these products to further improve revenue.

- Promotions should be targeted towards the end of the year to boost/improve sales during this period. Promotions should also be targeted to capture mostly the female gender and the youths in order to improve sales from these groups since it was discovered from the analysis that revenue from these groups were low. The 'Male' gender was recorded as the top performing gender by revenue generation while, the 'Adult' age category (30-60yrs) was recorded to be the top performing age category.

## **Results and Insights**

### **Sales Performance:**

- Overall sales increased by 23% compared to the previous year, with a very high profit margin of 43.5%. Effort should be made to maintain/improve this profit margin.
- Total quantity of products sold was 3,050,309 while, total order received was 12,000.
- In as much as all other category were considerably high and within the same range/level, it was observed that customers mostly purchased 'Low end' order (quantity below 180) which category was higher than others in terms of total count and quantity (sum).
- The 'Adult' age category contributed about 45% of the total revenue generated. The Adult group is the top performing age category and these are within the ages of 30-60. This age bracket are adult male and female that are likely to be involved in retail sales and/or purchases for their family/school children.
- San Antonio, San Jose and Philadelphia are the top three (3) performing customer locations, contributing about 33% of the total revenue generated.

### **Insights from Performance of Sales Representative:**

- Quantity sold/purchased directed affected and reflected on the revenue generated. Travis Doyle, Joseph Hill and April Watkins were sales representatives with higher performance and contributed over 50% of Quantity purchased and Revenue generated. This could be because of their vast network with top purchasing customers in top performing locations.
- Distance/sales representative location could be a factor to low sales/revenue from Elizabeth Guerrero.

### **Product Performance and Seasonal Trends:**

- Shortbread, Vanilla wafers and Ginger Snaps are the three (3) top performing products and contributed over 55% of the total Revenue.
- Product usage, taste and cost might be a factor to low sales/revenue of products like Choco Delight, Peanut Butter and Lemon Crisps.
- Sales peaked in January and remained considerably stable through July, driven by school sessions and ongoing academic activities. Students and school children are most likely to consume more snacks in school during breaks/free periods.
- Sales dip observed in August through December could be attributed to holidays that's often observed during these periods. Students and school children are most like to be at home and consume mostly home-made foods.

## **Conclusion**

The analysis identified that Shortbread, Vanilla wafers and Ginger Snaps are the most profitable products with strong performance in locations like, San Antonio, San Jose and Philadelphia. Sales trends indicate the importance of promotions during schools/academic sessions and in high performance locations. It also showcases the individual strengths of the sales representatives, and gives more insight on who our target audience by age groups/categories are. It is recommended to focus marketing and inventory planning efforts on high-demand products, sales representatives and top sales locations, and improve marketing efforts in locations with low sales to sustain and improve growth. Promotions for low/under-performing products should equally be considered in order to boost sales of these products.