

Matplotlib Assignment 1

Dataset:

https://drive.google.com/file/d/1v6XkdVWF6HBL_2eb8CtZ0ut-mnLgmAUh/view?usp=sharing

Q1. Track the Profitability Over the Year

The company wants to analyse how its total profits evolved throughout the year. Create a line plot of **total profit** against **month_number** to visualize this trend.

- Add markers and a title to make the trend more readable.
- Highlight any significant spikes or drops in profits.

Q2. Seasonal Demand Analysis for Products

The marketing team wants to track seasonal demand for their products. Plot the monthly sales trends for **face cream**, **toothpaste**, and **shampoo** on the same graph.

- Use different line styles and colors for each product.
- Add a legend, grid, and appropriate labels for better clarity.

Q3. Profit Growth by Month

The finance team wants to see how profits grew month by month. Create a bar plot for **month_number** versus **total_profit**.

- Color-code the bars to indicate growth (e.g., green for increasing, red for decreasing).
- Highlight the month with the highest profit.

Q4. Profitability vs. Sales Volume

Investigate whether higher sales volumes lead to higher profits. Create a scatter plot of **total_units** versus **total_profit**.

- Use color or size to represent another variable, such as **month_number**.
- Identify any outliers where sales did not translate into higher profits.

Q5. Comparing Face Cream and Face Wash Sales

The company wants to compare the monthly sales of **face cream** and **face wash**. Create a grouped bar plot for these two products.

- Add labels to each group to indicate exact sales.
- Analyze if their sales move together or independently.

Q6. Monthly Product Contribution to Total Sales

Visualize how each product contributes to the total monthly sales using a stacked bar plot.

- Use distinct colors for each product category.
- Identify the product that consistently contributes the most to total sales.

Q7. Product Share in Sales for June

The company wants to know the percentage share of each product in total sales for June. Create a pie chart for month 6, showing the contribution of each product.

- Add percentage labels to the pie slices.
- Highlight the product with the largest share using an exploded slice.

Q8. Monthly Sales Breakdown

For a detailed view of monthly performance, create a subplot grid showing the monthly sales trends for each product individually.

- Use a consistent style for all subplots for easy comparison.
- Add a summary plot comparing **total_units** and **total_profit** to conclude the analysis.

