Summary

I use the special library which is "Plotly" for all the graphs.

📅 Converting Date Columns

- The `Order Date` and `Ship Date` columns were converted to datetime format using `pd.to_datetime()`.

- This step ensures proper temporal operations like filtering, grouping, or extracting parts of dates.

🧩 Adding New Date-Based Columns

- New columns were created from `Order Date`:

    - `Order Year`

    - `Order Month`

    - `Order by Week` (day of the week)

- This allows analysis to be broken down by time units like month or weekday.

📈 Monthly Sales Analysis

- Sales data was grouped by `Order Month`.

- A line chart was plotted (using Plotly Express) to visualize monthly sales trends.

- This helps identify seasonal patterns or monthly spikes/dips in sales.

I will now continue summarizing the rest of the notebook. Please hold on.

Continuing the summary of your notebook:

🗂️ Sales Analysis by Category

- Sales totals were grouped by **Category**.

- A line chart visualizes how each product category contributes to overall sales.

🏷️ Sales Analysis by Sub-Category

- Further breakdown of sales by **Sub-Category**.

- A bar chart provides a clear view of which sub-categories generate the most revenue.

💰 Monthly Profit Analysis

- Profit data was grouped by month.

- A line chart tracks monthly profit trends, allowing comparison with monthly sales.

🧁 Profit Analysis by Category

- Profit grouped by category and displayed using a **donut pie chart**.

- Gives a percentage breakdown of profit by product category with visual clarity.

🧱 Profit Analysis by Sub-Category

- Profits analyzed by sub-category.

- A bar chart showcases which sub-categories are more profitable than others.

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👥 Sales and Profit Analysis by Customer Segment

- Aggregated both **Sales** and **Profit** by customer segments (e.g., Consumer, Corporate, Home Office).

- A grouped bar chart visualizes:

    - How much each segment contributes to sales

    - How much profit they generate

- Helps identify which customer segment is more profitable or drives more revenue.

⚖️ Analyse Sales-to-Profit Ratio

- A new metric `Sales_to_Profit_Ratio` was calculated.

- This highlights **efficiency**—i.e., how much sales volume is required to generate a unit of profit for each segment.

- Useful for identifying segments that may drive revenue but are less efficient in terms of profit.