Sales & Purchase Data Analysis – Gomla Market

Unveiling Key Insights with Power BI and Python

By: Abdelrahman Said Mohamed

Analyzing Wholesale Sales and Purchase Data for Gomla Market

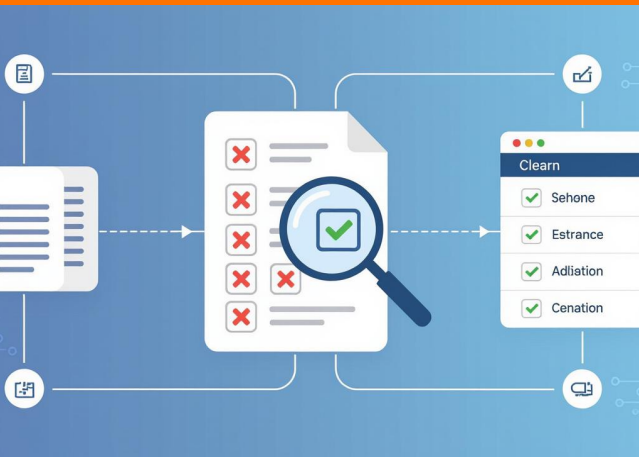
This project analyzes simulated sales and purchase data for Gomla Market, using Python and Power BI. It identifies top-selling and unsold products, classifies sales speed, calculates gross profit, and measures inventory turnover to support better decisions.

Data Analysis Overview

We used two datasets:

- Sales (CSV)
- Purchases (Excel)
  Time range: June 1, 2024 – April 30, 2025
  This data was used to build performance indicators, monitor inventory, and detect patterns in sales behavior.

Data Cleaning and Preparation



Data was cleaned using Python (Pandas):

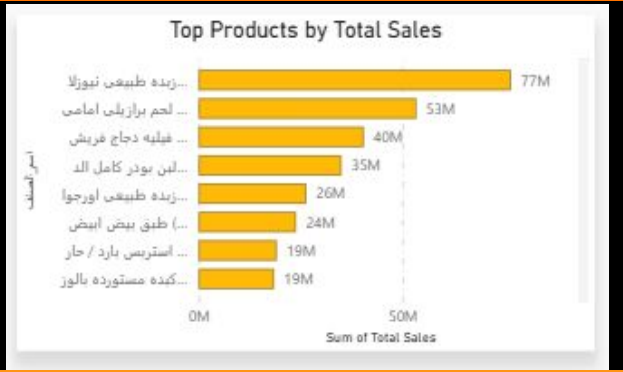
- Removed missing & negative values
- Converted numeric fields
- Dropped unused columns (e.g. Unnamed)
- Removed duplicates
  Cleaned data was saved in Excel for Power BI use.

Identifying Top-Selling and Unsold Products

Top-Selling Products

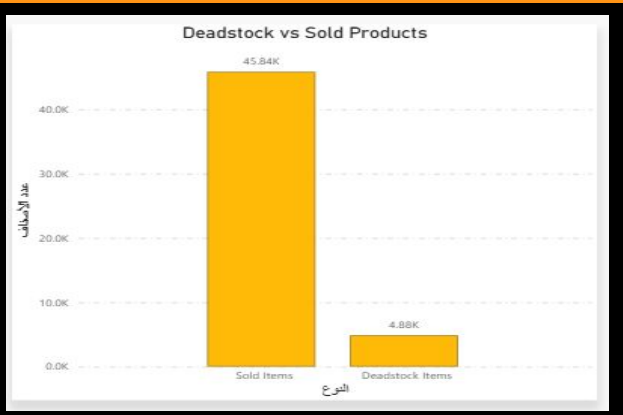
Top products were identified based on quantity and sales value.
Example:

- 🥇 Highest quantity: “الحم برازيلى امامى مفروم” –units= .28M
- 💰 Highest value: “زبدة نيوزلاندى” – EGP= 76.6M



Unsold Products (Deadstock)

4,883 products were purchased but never sold, detected via anti-join between sales and purchases.



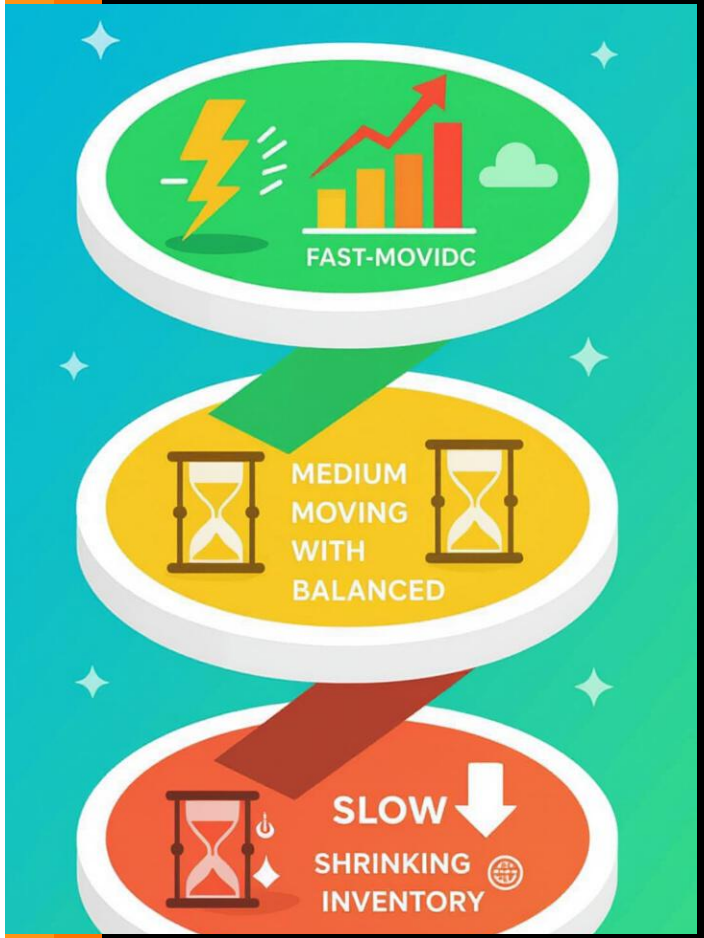
Classification of Products

Products were classified by sales volume:

- **Fast-Moving**: High turnover, **>800** units, we got **11.7K (25.5%)**

- **Medium-Moving**: Moderate sales, **10–800** units, we got **23.15K (50.5%)**
- **Slow-Moving**: Low sales, **≤10** units, we got **10.99K (24%)**

Implications for Inventory Management: Understanding these classifications helps in optimizing stock levels and reducing holding costs.



Gross Profit Calculation

Gross profit = Total Sales – Purchase Cost

The methodology for calculating gross profit per product included:

- **Total Earned: 28.21M**
- **Total Lost: -1.28M**
- **Net Profit: 26.93M**

Duplicates and mismatched records were cleaned before calculation

Relevance to Financial Performance: This metric is essential for assessing product profitability and guiding pricing strategies.

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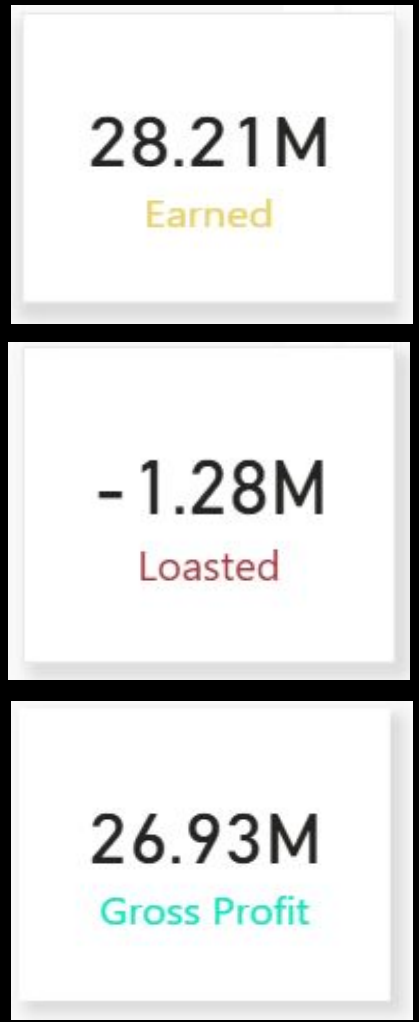


Inventory Turnover Measurement

Inventory Turnover = Quantity Sold ÷ Quantity Purchased

High turnover = fast-moving products

Low turnover = overstocked items

Examples:

🔼 **High Turnover Items:**

- Al-Duha Rice 5kg → 4.7
- 4.0 → بيتزا قطعة

⚠️ **These two items were skewing the average. Once excluded, the average dropped from 83.5 to a more realistic 10.92.**

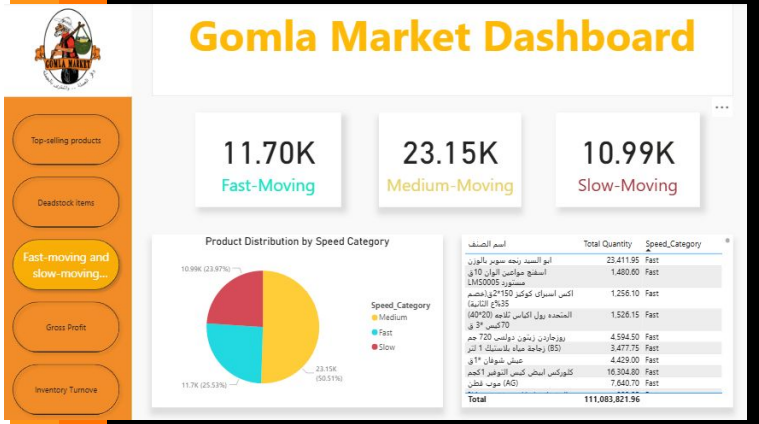
🔽 **Low Turnover Items:**

- Many products have a turnover below 0.2, indicating overstocking or poor sales performance.

Building Interactive Dashboards

Interactive dashboards were created using Power BI to visualize data insights:

- **Data Integration**: Combined sales and purchase data for comprehensive analysis.
- **User-Friendly Interface**: Designed dashboards for easy navigation and interpretation.

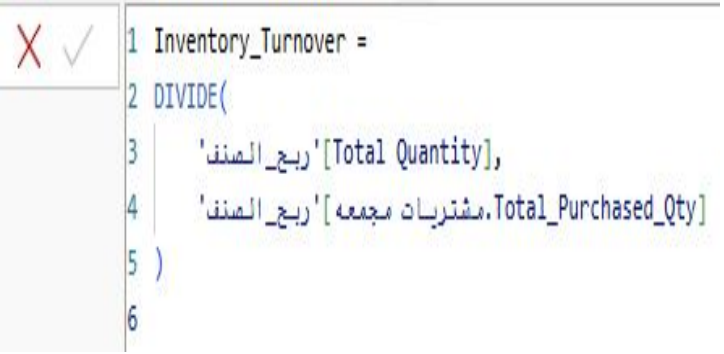


Utilizing DAX and Visuals

DAX (Data Analysis Expressions) was employed to enhance data analysis:

- **Calculated Measures**: Created custom metrics for deeper insights.
  - Gross Profit
  - Inventory Turnover
  - Speed Category

- **Visual Elements**: Utilized cards, bar charts, pie charts, and tables to present data clearly and effectively.



```
1 Inventory_Turnover =
2 DIVIDE(
3     'ربح_الصنف'[Total Quantity],
4     'ربح_الصنف'[مشتريات مجمعه.Total_Purchased_Qty]
5 )
6
```

Data-Driven Recommendations

Based on the analysis, several recommendations were made for stock optimization:

- **Increase stock of fast-moving items**
- **Run promotions on slow/unsold items**
- **Regularly monitor turnover to reduce holding costs**
- **Review items with negative profit for pricing review**

Conclusion: Skills and Project Impact

This project showcases my ability to:

- Clean and prepare real-world data using **Python**.
- Apply business logic to derive insights.
- Build clear and interactive dashboards using **Power BI**.

Overall Impact: Helped simulate data-driven decisions for a wholesale business.

Thanks a lot. 🫡

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