

Wholesale Revenue Analysis for Motorcycle Parts Sales

Executive Summary

This project analyzes wholesale revenue trends for a multi-warehouse motorcycle parts distributor. Using a detailed SQL-based approach, the goal was to understand how **net revenue**—after payment processing fees—varies across product lines, warehouses, and months. The findings help management identify high-performing product categories and optimize warehouse strategies.

Project Objectives

- Calculate net revenue from **wholesale** orders, grouped by product line, warehouse, and month.
- Evaluate which product categories and warehouses contribute most to revenue.
- Provide actionable insights for the board to improve warehouse operations and product focus.

Technologies & Tools Used

- **SQL** (PostgreSQL syntax): Advanced filtering, aggregation, grouping, and calculated fields.
- **Jupyter Notebook**: Interactive development and data presentation.
- **DataCamp DataLab**: Cloud-hosted project environment.

Dataset Description

- **Source**: Simulated company transaction database (sales table).
- **Period**: June to August 2021.
- **Structure**:
 - **order_number**: Unique ID
 - **date**: Order date
 - **warehouse**: North, Central, or West

- `client_type`: Wholesale or Retail (only Wholesale analyzed)
- `product_line`: Main product area
- `quantity`, `unit_price`, `total`: Sales details
- `payment`, `payment_fee`: Payment method and associated fee (% of total)

Approach & Methodology

1. Data Filtering:

- Focused only on rows where `client_type = 'Wholesale'`.

2. Revenue Calculation:

- For each group (product line, warehouse, month), calculated net revenue = Total - Payment Fee.
- Used SQL aggregation and date extraction for month grouping.

3. Output Formatting:

- Results presented in a recruitment-ready, tabular form by product, month, and warehouse.

Key SQL Query

```
SELECT
    product_line,
    CASE
        WHEN EXTRACT(MONTH FROM date) = 6 THEN 'June'
        WHEN EXTRACT(MONTH FROM date) = 7 THEN 'July'
        WHEN EXTRACT(MONTH FROM date) = 8 THEN 'August'
    END AS month,
    warehouse,
    ROUND(SUM(total) - SUM(payment_fee), 2) AS net_revenue
FROM sales
WHERE client_type = 'Wholesale'
GROUP BY product_line, warehouse, EXTRACT(MONTH FROM date)
ORDER BY product_line, month, net_revenue DESC;
```

Results & Impact

Product Line	Month	Warehouse	Net Revenue (\$)
Braking system	June	Central	3,684.89
Braking system	June	North	1,487.77
Braking system	June	West	1,212.75
...
Suspension & traction	August	Central	5,416.70
Suspension & traction	August	North	4,923.69
Suspension & traction	August	West	1,080.79

Full detailed breakdown is available in the project notebook.

Key Insights:

- **Central warehouse** consistently drives the highest net revenue for multiple product lines.
- **Suspension & traction, Engine, and Frame & body** show the strongest performance, especially in Central and North warehouses.
- Seasonality is visible among product lines, hinting at potential demand cycles.

Challenges & Solutions

- **Payment Fee Calculation:**
Payment fees varied by method, so fees were aggregated appropriately to reflect true net revenue.
- **Time Grouping:**
Used SQL date extraction for correct month-based grouping.
- **Result Presentation:**
Formatted output clearly for actionable business review, supporting decision-making by line, month, and warehouse.

Conclusion

This analysis gives warehouse and business managers a clear picture of which product lines and warehouse locations generate the most net revenue from wholesale sales. The techniques demonstrate advanced SQL skills, from complex aggregation to dynamic output formatting.

Next Steps & Recommendations

- Automate reporting for current month tracking and year-over-year analysis.
- Integrate retail sales for holistic revenue analysis.
- Visualize trends with dashboards for faster strategic decisions.
- Analyze drivers behind high/low revenue by combining with inventory and customer feedback data.