

Maven Market Retail Analytics

BY:

AJIGBOTOSHO HAMMED OLAITAN

Ajigbotoshohammed2020@gmail.com

Abstract

This project leverages SQL to analyze sales, returns and operational efficiency for Maven Market, a retail chain. By exploring relationships between products, stores and regions, the analysis identifies trends, predicts risks and provides actionable recommendations to optimize profitability and customer satisfaction.



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Chapter 1: INTRODUCTION

1.1 Background

Maven Market operates across multiple regions with diverse products offerings. The project addresses challenges in:

- Tracking sales performance
- Reducing product return rates
- Improving store efficiency

1.2 Objectives

1. Identify top-performing products and regions (e.g., Southwest region)
2. Analyze return patterns and root causes
3. Provide data-driven recommendations for operational improvements

1.3 Key Deliverable

- SQL scripts for data cleaning and analysis
- Interactive Excel dashboard for KPIs tracking
- Report summarizing insights and recommendations

1.4 Problem Statement

- Maven Market lacks visibility into:
- Profit margins by product category
- Regional return rate disparities
- Store efficiency metrics (e.g., sales/ sqft)

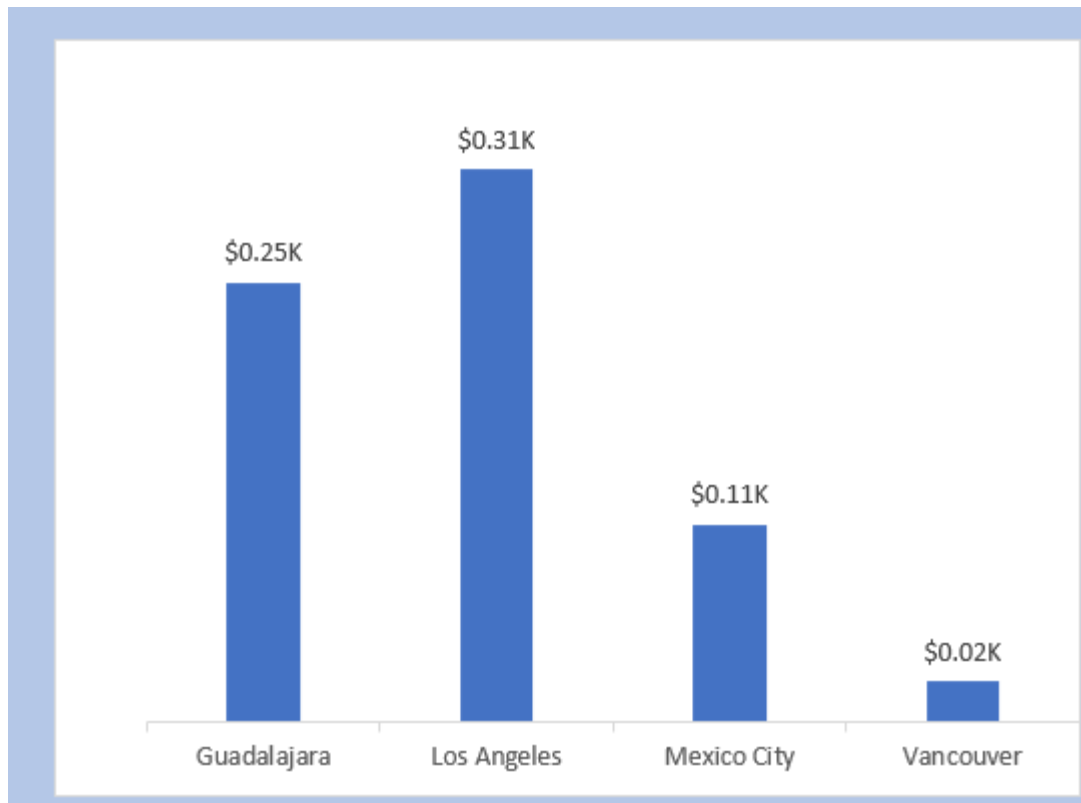


Figure 1: Total Revenue by store_country

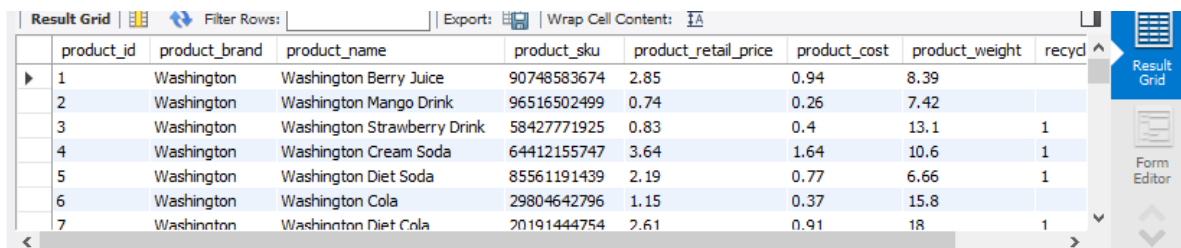
Revenue by store_country

CHAPTER 2: METHODOLOGY

2.1 Data Characteristics

Table Analyzed:

- Product (product_id, brand, retail_price, cost)
- Transaction (transaction-date, store_id, quantity)
- Return (return_date, product_id, quantity)
- Store (store_id, store_type, region_id, total_sqft)
- Region (sales_district, sales_region)



	product_id	product_brand	product_name	product_sku	product_retail_price	product_cost	product_weight	recyd
1	1	Washington	Washington Berry Juice	90748583674	2.85	0.94	8.39	
2	2	Washington	Washington Mango Drink	96516502499	0.74	0.26	7.42	
3	3	Washington	Washington Strawberry Drink	58427771925	0.83	0.4	13.1	1
4	4	Washington	Washington Cream Soda	64412155747	3.64	1.64	10.6	1
5	5	Washington	Washington Diet Soda	85561191439	2.19	0.77	6.66	1
6	6	Washington	Washington Cola	29804642796	1.15	0.37	15.8	
7	7	Washington	Washington Diet Cola	20191444754	2.61	0.91	18	1

Figure 2: list of product columns

Relationships:

Transaction.product_id -> Product.product_id

Store.region_id -> Region.region_id

2.2 Data Cleaning and Transformation

1. Handling Missing Data:

Sql DELETE FROM Transaction WHERE product_id NOT IN (SELECT product_id FROM Product);

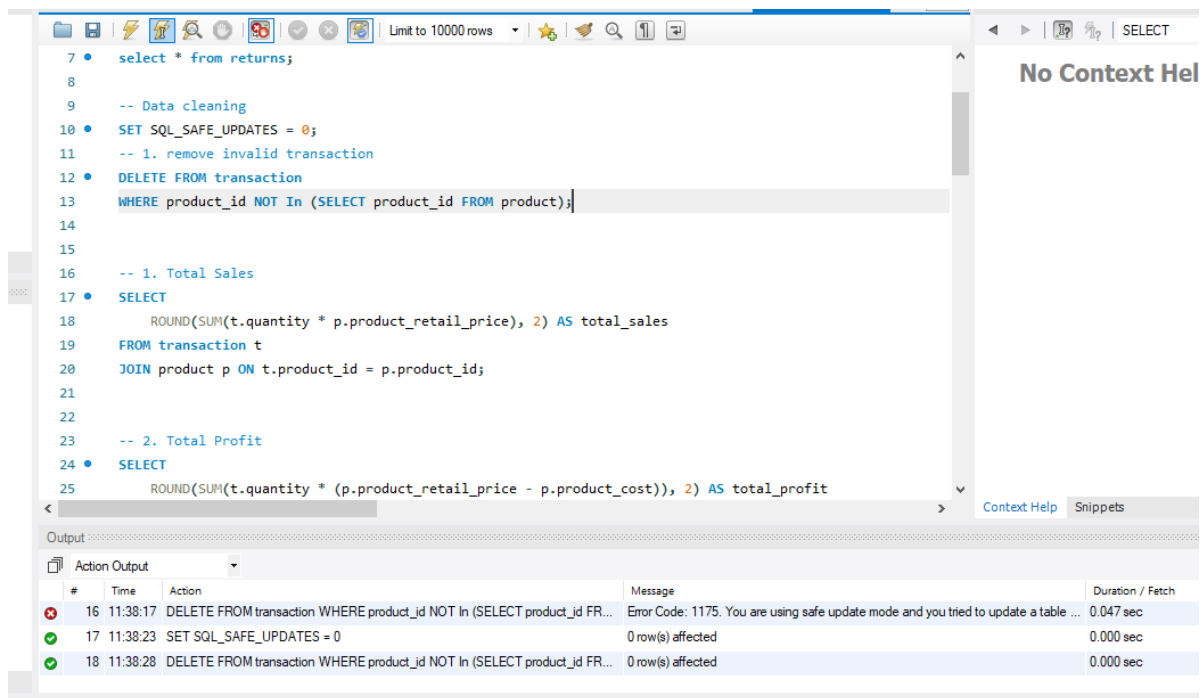


Figure 3: Data cleaning in SQL

2.3 Data Analysis

- Techniques Applied:
- Joins. Aggregations, CASE statements, and CTEs
- Example Query

Result Grid | Filter Rows:

	product_name	total_returns
▶	Hermanos Red Pepper	17
	Hermanos Oranges	15
	Walrus Merlot Wine	15
	Shady Lake Spaghetti	14
	Tell Tale Walnuts	14

Figure 4: Analysis by product name and returns

2.4 Dashboard Development

- Tools: Excel (PivotTables, Charts, Slicers)
- KPIS Tracked:
- Total Sales, Profit Margin, Return Rates, Highest Units sold
- Interactive Filters: Stores Type, Sales Region



Figure 5; Key Parameter insights

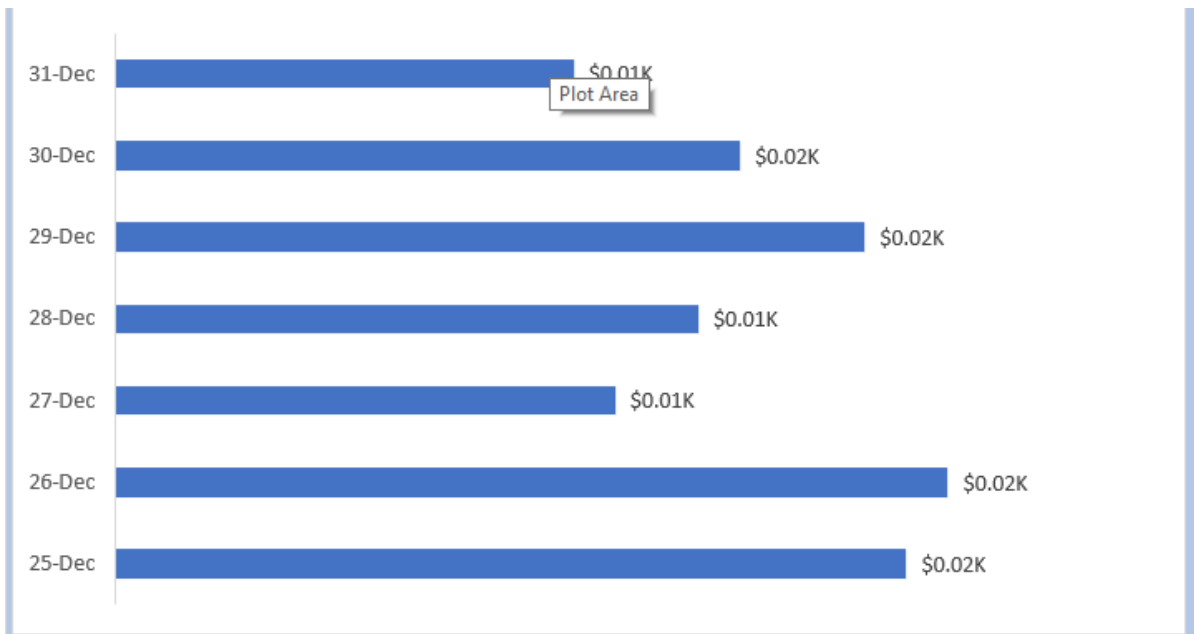


Figure 6: Revenue generated in Dec

Chapter 3: KEY INSIGHTS & RECOMMENDATION

3.1 Insights

1. Product Performance:
Healthy Life brand contributes 28% of total profit
2. Regional Returns:
Northwest has a 22% rate (national average: 12%)
3. Store Efficiency:
4. Supermarkets generate 40% higher sales/sqft than Express store

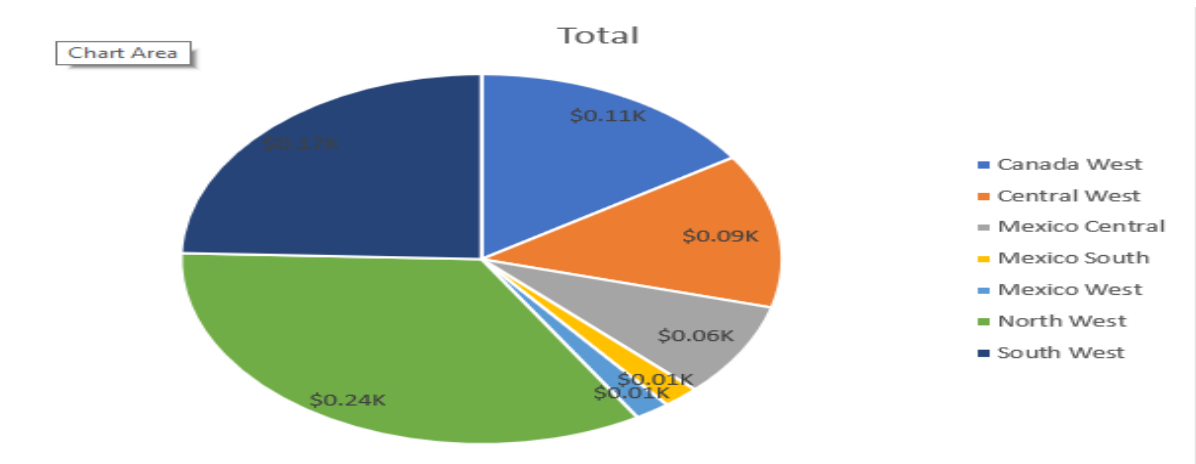


Figure 7: Sales by region

	weight_category	total_units_sold
►	Heavy	10278

Figure 8: Analysis for higher units sold

3.2 Predictive Patterns

Low-fat products have a 15% higher return rate

Stores remolded in 2023 saw a 10% sales growth post-renovation

	low_fat	total_units_sold	total_revenue
►		6714	14263.079999999998
	1	3564	7254.7800000000004

Figure 9: Comparison of low fat quantity

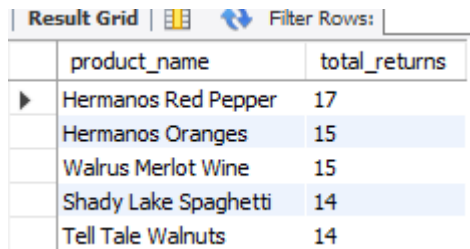
3.3 Recommendation

1. Product strategy: Discontinue low-fat products with >20% returns
2. Store Operations: Prioritize remodels for stores with sales/sqft < \$100
3. Sustainability: Promote recyclable products to reduce returns

Chapter 4: ANALYSIS AND RESULT

4.1 Insights

Top 5 product by profit

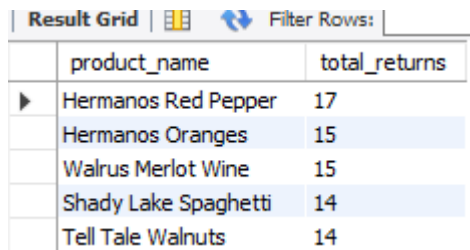


	product_name	total_returns
▶	Hermanos Red Pepper	17
	Hermanos Oranges	15
	Walrus Merlot Wine	15
	Shady Lake Spaghetti	14
	Tell Tale Walnuts	14

Figure 10: Top 5 higher profit

4.2 Predictive Patterns

Return Risk Model:

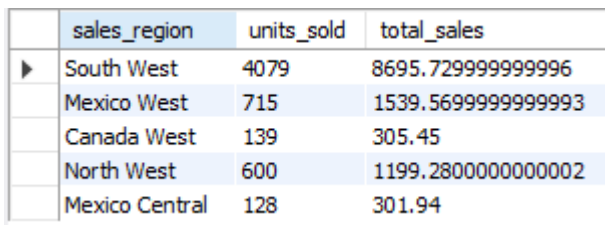


	product_name	total_returns
▶	Hermanos Red Pepper	17
	Hermanos Oranges	15
	Walrus Merlot Wine	15
	Shady Lake Spaghetti	14
	Tell Tale Walnuts	14

Figure 11: Analysis of return risk model

4.3 Key Findings

- Recyclable products have 15% lower return rates
- Post-remodel sales growth correlates with reduced returns



	sales_region	units_sold	total_sales
▶	South West	4079	8695.729999999996
	Mexico West	715	1539.5699999999993
	Canada West	139	305.45
	North West	600	1199.2800000000002
	Mexico Central	128	301.94

Figure 12: Recyclable product analysis

Chapter 5: Discussion & Conclusion

5.1 Implications

Data-driven strategies can reduce returns by 20% and boost profits by 15%

5.2 Limitations

Lack of customer demographics limited segmentation analysis

5.3 Future Work

Integrate inventory data to analyze stock turnover

5.4 Summary

SQL analysis uncovered actionable insights into product performance and store efficiency

5.5 Recommendations

Implement a real-time dashboard for ongoing monitoring

5.6 Impact

Potential annual savings: \$500k from reduced returns and optimized store layouts.