

# Project: SQL Analysis

The full project is on GitHub - [shorturl.at/Bi5kY](https://shorturl.at/Bi5kY)

Tools: Mostly SQL, Excel, Power BI | Focus: Sales • Returns • Customers

## ◆ Project Highlights

- Consolidated 3 years of sales into unified tables (UNION ALL, joins).
- Built KPIs: Revenue, Profit, Margin %, Returns. Segmented by Region, Product, Customer demographics.
- Used SQL CTEs, aggregations, and PIVOT for trend analysis.

## ◆ SQL Query Examples

### Revenue by Country

```
SELECT country,
SUM(p.ProductPrice*s.OrderQuantity) AS totalsale
FROM Sales s
JOIN Product p ON s.ProductKey=p.ProductKey
JOIN Territory t ON s.TerritoryKey=t.SalesTerritoryKey
GROUP BY country
ORDER BY totalsale DESC
```

### Profit & Margin by Category

```
SELECT CategoryName,
SUM(OrderQuantity*GrossMargin) AS total_profit,
ROUND(SUM(GrossMargin)/SUM(ProductPrice)*100
,1) AS margin_pct
FROM sales_analysis
GROUP BY CategoryName
```

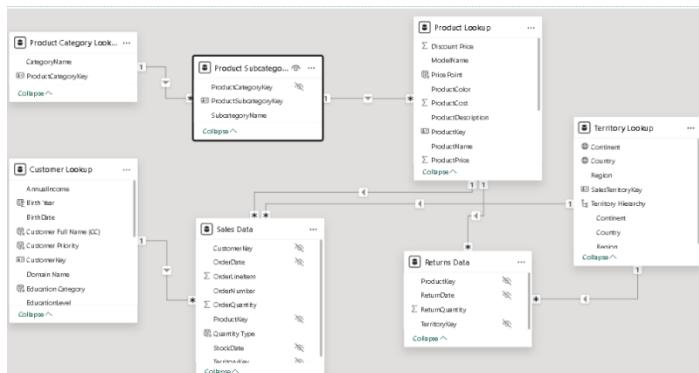
### Top 10 Products by Revenue

```
SELECT TOP 10 ProductName, subcategoryname,
categoryname, ROUND(SUM(orderquantity *
ProductPrice), 0) AS product_sales_revenue,
SUM(orderquantity) AS total_order_no,
ROUND(ProductPrice, 0) AS ProductPrice
FROM sales_analysis
GROUP BY ProductName, subcategoryname,
categoryname, ProductPrice
ORDER BY SUM(orderquantity * ProductPrice) DESC
```

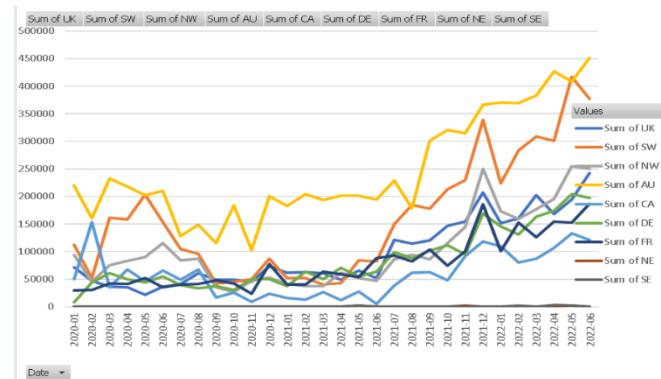
## ◆ Insights (at a glance)

- **Bikes** = 95% of revenue; Mountain Bikes strongest margin.
- **US & Australia** dominate sales; other US regions weak.
- **Accessories** = highest margin but most returns.
- **Age 45–69 & Professionals** spend the most.

## Power BI Data Model



## Monthly Revenue by Region Over Time



## SQL query table: margin calculation, return product by subcategory

total_profit	avg_margin	SubcategoryName	total_products	total_returned_products	ProductsSubcategory	total_returned_price	returned_over_profit	percent_products_returned
1	4368347	Road Bikes	7099	223	Road Bikes	358438	8.21	3.1400000000000000
2	3930662	Mountain Bikes	4706	136	Mountain Bikes	249424	6.35	2.8900000000000000
3	1427160	Touring Bikes	2124	70	Touring Bikes	123079	8.62	3.3000000000000000
4	238396	Tires and Tubes	29772	534	Tires and Tubes	7781	3.26	1.7900000000000000
5	131036	Helmets	6034	188	Helmets	6419	4.9	3.1200000000000000
6	67448	Bottles and Cages	15106	288	Bottles and Cages	1977	2.93	1.9100000000000000
7	54488	Fenders	3960	54	Fenders	1187	2.18	1.3600000000000000
8	44956	Jerseys	3113	93	Jerseys	4713	10.48	2.9900000000000000
9	41360	Shorts	944	40	Shorts	2800	6.77	4.2400000000000000
10	36578	Gloves	2644	49	Gloves	1154	3.15	1.8500000000000000
11	23924	Hydration Packs	695	25	Hydration Packs	1375	5.75	3.6000000000000000
12	23291	Bike Stands	234	8	Bike Stands	1272	5.46	3.4200000000000000
13	22686	Bike Racks	302	8	Bike Racks	960	4.23	2.6500000000000000
14	20710	Vests	521	19	Vests	1207	5.83	3.6500000000000000
15	12200	Caps	4151	46	Caps	389	3.19	1.1100000000000000
16	8490	Cleaners	1706	25	Cleaners	199	2.34	1.4700000000000000
17	5982	Socks	1063	22	Socks	189	3.16	2.0700000000000000

## ◆ Outcome – action recommended:

Focus on Mountain Bikes, improve Road/Touring margins, reduce Clothing & Accessories returns, and expand in Australia & US Southwest while targeting professionals aged 45–69.