

Customer Purchase Behavior in Retail using Data Analytics

Project Objective

To analyze customer and sales data from a retail business using Excel, SQL, and Power BI in order to derive actionable insights, optimize inventory, enhance customer satisfaction, and support strategic decision-making.

Problem Statement

Retail companies often struggle with managing large volumes of sales, inventory, and customer data. This project aims to leverage Excel, SQL, and Power BI to analyze customer purchase behavior, monitor sales performance, and uncover actionable insights for business growth. The analysis focuses on optimizing inventory levels, improving staff performance, and enhancing the customer experience across different store locations.

Key Metrics Summary

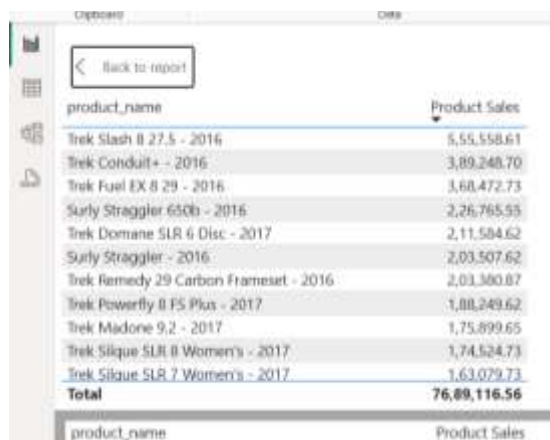
Total Revenue: **76,89,116.56**

Total Orders: **1615**

Total Unique Customers: **1445**

Average Order Value: **4,761.06**

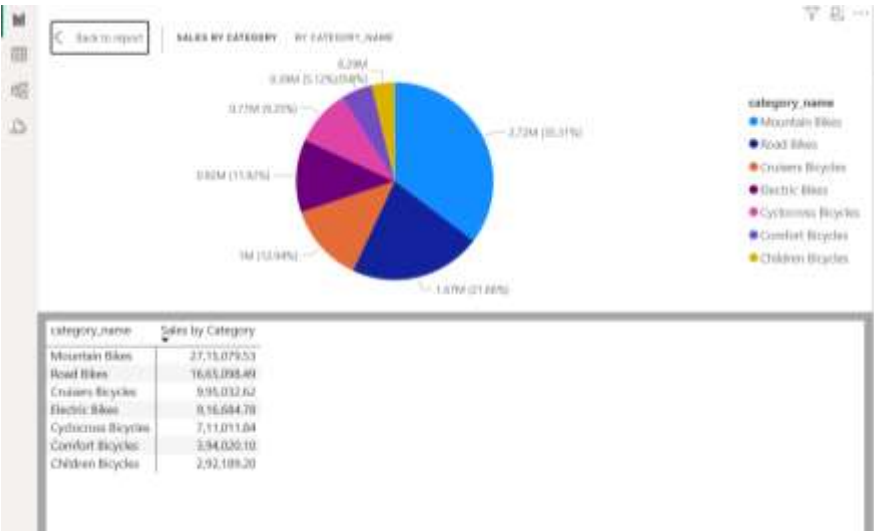
Top Performing Product: **Trek Slash 8 27.5 - 2016**



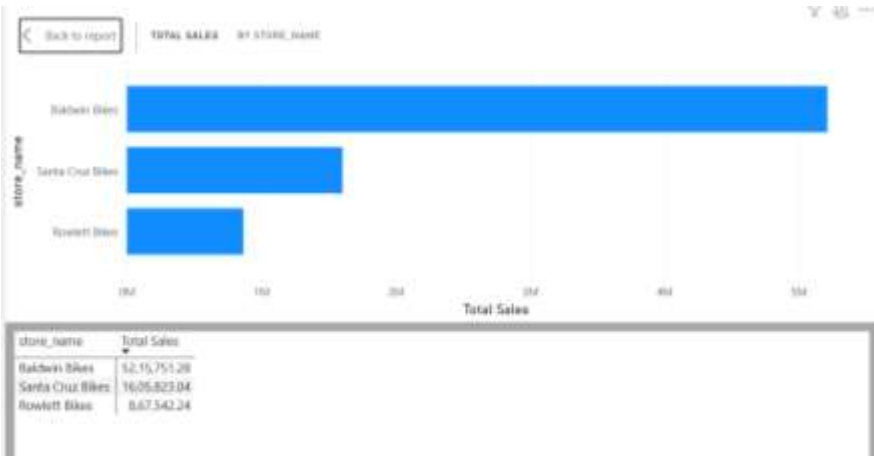
The screenshot shows a Power BI report interface. At the top, there's a navigation bar with a 'Back to report' button. Below it is a table with two columns: 'product_name' and 'Product Sales'. The table lists various Trek bicycle models and their corresponding sales figures. The total sales for all products is 76,89,116.56.

product_name	Product Sales
Trek Slash 8 27.5 - 2016	5,55,558.61
Trek Conduit+- - 2016	3,89,248.70
Trek Fuel EX 8 29 - 2016	3,68,472.73
Surly Straggler 650b - 2016	2,26,765.55
Trek Domane SLR 6 Disc - 2017	2,11,584.62
Surly Straggler - 2016	2,03,507.62
Trek Remedy 29 Carbon Frameset - 2016	2,03,380.87
Trek Powerfly II FS Plus - 2017	1,88,249.62
Trek Madone 9.2 - 2017	1,75,899.65
Trek Sisque SLR II Women's - 2017	1,74,524.73
Trek Sisque SLR 7 Women's - 2017	1,63,079.73
Total	76,89,116.56

Top Product Category: **Mountain Bikes**



Top Performing Store: **Baldwin Bikes**



Top Performing Brand: **Trek**

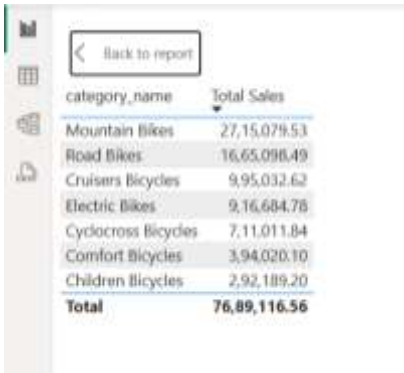


Deep-Dive Insights

Revenue Breakdown

By Category:

- Mountain Bikes: 27.15 lakh
- Road Bikes: 16.65 lakh
- Cruisers Bicycles: 9.95 lakh

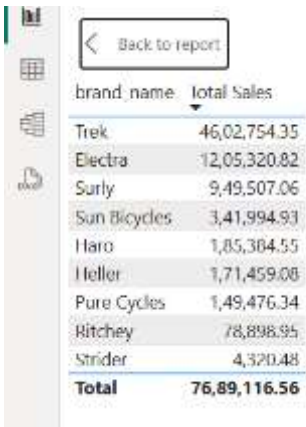


The screenshot shows a report interface with a sidebar on the left containing icons for a bar chart, table, funnel, and a 'road' icon. The main content area has a 'Back to report' button at the top left. Below it is a table with the following data:

category_name	Total Sales
Mountain Bikes	27,15,079.53
Road Bikes	16,65,098.49
Cruisers Bicycles	9,95,032.62
Electric Bikes	9,16,684.78
Cyclocross Bicycles	7,11,011.84
Comfort Bicycles	3,94,020.10
Children Bicycles	2,92,189.20
Total	76,89,116.56

By Brand:

- Trek: 46.02 lakh
- Electra: 12.05 lakh
- Surly: 9.49 lakh



The screenshot shows a report interface with a sidebar on the left containing icons for a bar chart, table, funnel, and a 'road' icon. The main content area has a 'Back to report' button at the top left. Below it is a table with the following data:

brand name	Total Sales
Trek	46,02,754.35
Electra	12,05,320.82
Surly	9,49,507.06
Sun Bicycles	3,41,994.93
Haro	1,85,364.55
Heller	1,71,459.08
Pure Cycles	1,49,476.34
Ritchey	78,898.95
Strider	4,320.48
Total	76,89,116.56

Top Customers (by Spend)

Customer ID 94: 34,808

Customer ID 10: 33,634

Customer ID 75: 32,803

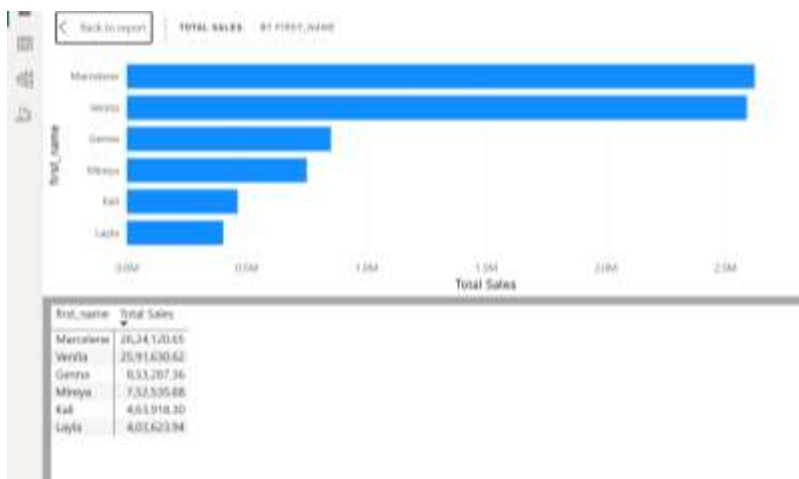
customer_id	Total Sales
54	34,007.94
10	33,634.26
75	32,803.01
6	32,675.07
16	31,925.89
73	31,913.69
1	27,888.18
61	25,636.45
93	25,612.70
122	24,890.62
1224	24,607.03
Total	76,89,116.56

Top Staff Performance (by Sales)

Marcelene Boyer: 26.24 lakh

Venita Daniel: 25.91 lakh

Genna Serrano: 8.53 lakh



Operational Observations

Unsold Products: 14

Zero Stock Inventory: 25

Delayed Orders: 458

Recommendations

Sales Strategy

- Promote top-performing products like Trek Slash 8 and Mountain Bikes.
- Run brand-specific campaigns to boost Trek and Electra sales.

Customer Retention

- Reward high-value customers with loyalty perks.

- - Re-engage dormant customers with personalized offers.



Staff Management

- - Acknowledge top performers with incentives.
- - Provide coaching for underperforming staff.



Inventory Optimization

- - Replenish fast-moving items regularly.
- - Discount or remove unsold products to free up space.



Order Fulfillment

- - Review and optimize shipping for late deliveries.
- - Use alerts for orders at risk of delay.



Tools & Skills Used

Excel: Data cleaning, pivot tables, summary statistics

SQL: Data extraction, transformations, joins, aggregations

Power BI: Visual dashboards, KPIs, interactive filters, DAX calculations