Market Analysis Report for National Clothing Chain

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General Analysis

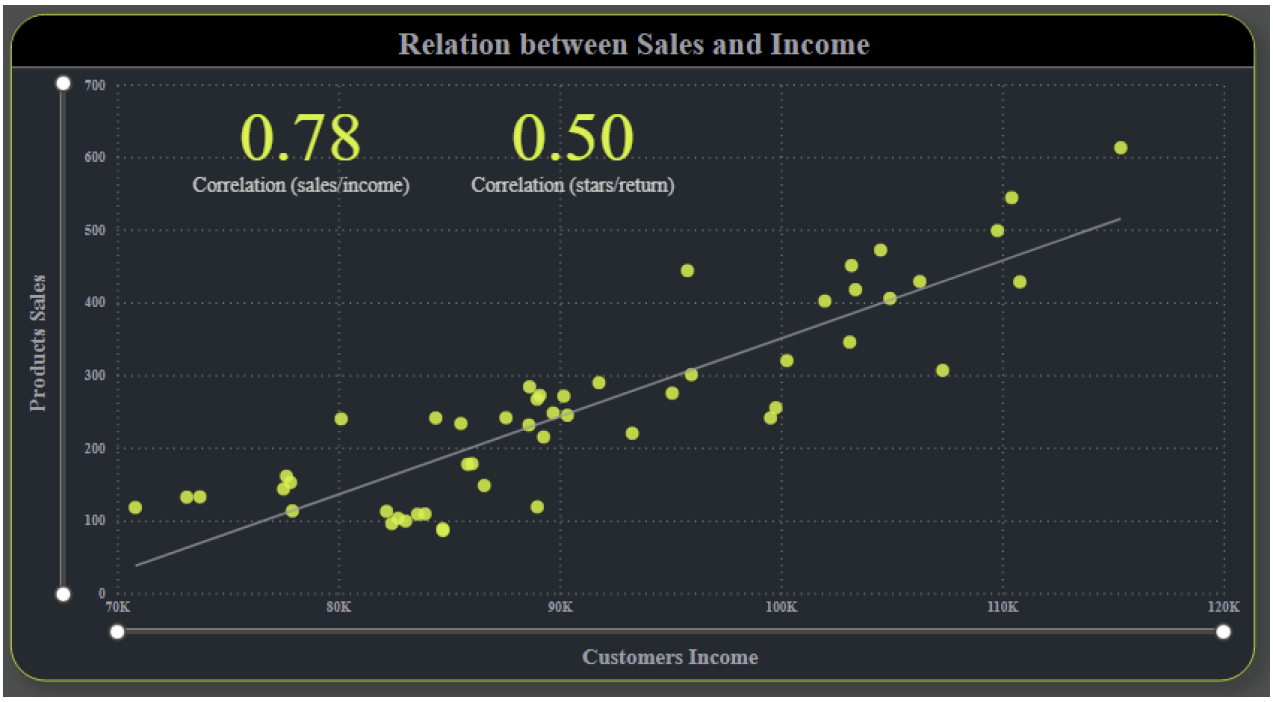
The Analysis started by predicting the income of the customers depending on their last 6 months purchase, by using linear regression formula: $Y = mX + b$

In Our case: (Y): Is the Average sale per state, which depend on (X): the average income per sate.

The Relation between the customers income and products sales

After Calculating all the requirements for the formula, we will get, X = -722.14-Y / m

And that will show the correlation between the average sales and average income which is 0.78



The charts above explain how there is a strong relation between the Customers Incomes and their purchases.

Customers Analysis

Predicting the income of the customers allow as to analysis the customers deeply and to see what they are mostly to buy so we can recommend them specific products.

After using this formula to predict the customer incomes:
Predicted Income = -722.14 - Y / -0.01

Or as a Dax formula we can write it as this:
Predicted Income = DIVIDE (CALCULATE([b], ALL ()) - 'Customer List'[Last 6 Months Purchases], CALCULATE(-[m], ALL ()))

And after analyzing the predicting income for each customer we can find that:

- The highest income between the customers is for (**Jon Little**) with an income of (**556.79k**)
- The correlation between the income and the sale is R^2 = (**0.78)**

After predicting the customers incomes, we divide the customers into multiple Buckets according to their incomes so we can predict which product will match their income.

The Buckets:

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Bucket =
IF('Customer List'[Predicted Income] < 10000, "10k",
IF('Customer List'[Predicted Income] >= 10000 && 'Customer List'[Predicted Income] < 20000, "20k",
IF('Customer List'[Predicted Income] >= 20000 && 'Customer List'[Predicted Income] < 40000, "40k",
IF('Customer List'[Predicted Income] >= 40000 && 'Customer List'[Predicted Income] < 60000, "60k",
IF('Customer List'[Predicted Income] >= 60000 && 'Customer List'[Predicted Income] < 80000, "80k",
IF('Customer List'[Predicted Income] >= 80000 && 'Customer List'[Predicted Income] < 100000, "100k",
IF('Customer List'[Predicted Income] >= 100000 && 'Customer List'[Predicted Income] < 120000, "120k",
IF('Customer List'[Predicted Income] >= 120000 && 'Customer List'[Predicted Income] < 140000, "140k",
IF('Customer List'[Predicted Income] >= 140000 && 'Customer List'[Predicted Income] < 160000, "160k",
IF('Customer List'[Predicted Income] >= 160000 && 'Customer List'[Predicted Income] < 180000, "180k",
IF('Customer List'[Predicted Income] >= 180000 && 'Customer List'[Predicted Income] < 200000, "200k",
IF('Customer List'[Predicted Income] > 200000, "more than 200k"))))))))))))
```

Products Analysis

Building on customer analysis, we categorize customers into three income ranges:

- ***Low Income:*** *Incomes less than $80,000*
- ***Medium Incomes:*** *Incomes between $80,000 and $120,000*
- ***High Income:*** *Incomes higher than $120,000*

Recommendations by category:

- ***Low-Income Category:*** *Recommend (Shirt) to **44%** of customers.*
- ***Medium-Income Category:*** *Recommend (Shirt and Sweater) to **39.70%** of customers.*
- ***High-Income Category:*** *Recommend (Shirt, Sweater, and Leather Bag) to **16.30%** of customers.*

From the earlier analysis we can notice the following:

- The Shirt will be advertised the most, since most of the customers fall into the Low-Income **Category, then the Sweater will follow it by advertising.**

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And after studying and analyzing the relation between the customers rating and the return rate of the products, we can find that the correlation between the return rate and the customers rating is R^2 = (**0.50)**

Other Analysis and Recommendations

Less 10 Sate by income

State	Sum of Predicted Income
Montana	762502.99
Missouri	765794.05
South Carolina	769383.46
Tennessee	778165.84
Alabama	778893.05
Mississippi	783274.92
West Virginia	796327.30
Arkansas	796793.46
Kentucky	806955.67
Louisiana	815439.71

Top 10 Sate by income

State	Sum of Predicted Income
Massachusetts	1252222.88
Maryland	1298745.30
District of Columbia	1369149.84
Pennsylvania	3425446.60
New Jersey	3968927.08
Illinois	5000322.02
New York	5837603.47
Texas	7923941.85
Florida	9064971.63
California	16096365.66

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Here we show the 10 highest and lowest states by income, which the advertising and product recommendation should consider with the earlier findings such as the customers buys and incomes.

Recommendation:

- The Sweater, identified as a product with significant potential, should be strategically marketed in states with colder climates, tailoring promotional campaigns to highlight the product's warmth and comfort would resonate well with customers in these states, maximizing sales opportunities.
- The Leather Bag should be advertised for the customers with high income range which they found in the states mentioned in the above chart, also its rating is (3.2), one of the lowest rating products, that is why the quality for that product should be improved to match the taste and the style of the high income customers.
- The Shirts are the highest rating and the most preferable between the lowest range income customers, that is why they should advertise mostly between the lowest 10 state shown in the earlier chart.

The End