



Udacity and Banque Saudi Fransi Collaboration
Introduction to Data Analytics and Visualization using
Power BI Nanodegree

Project 3
**Market Analysis Report for National
Clothing Chain**

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For
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Executive Summary

The sales for the National Clothing Store have been flat and they need to lure lost customers. They need to advertise specific products to specific customers in specific locations. There are three different products to market: Shirt, Sweater, and Leather Bag. This report indicates the coefficient of correlation between different variables, the average income of the customers by state, predicting the incomes using a linear regression formula, and the relationship between average income and average purchases.

Questions

- 1- What is the correlation (R² value) between sales and income?**

Referring to the Power BI report. There is a strong positive relation between the sales and income with $R = 0.88$ and $R^2 = 0.78$.

0.78

CoD of avg. sales
and avg. income

- 2- What is the correlation (R² value) between customer ratings and product return rate?**

Referring to the quick measure in the Power BI, there is a strong negative relationship between the customer ratings and the product return rate with $R = -0.83$.

-0.83

Relationship between customer rating
and return rate

3- What are the linear regression formulas to predict customer income from customer sales?

The regression formula is $X = (-722.14 - Y) / 0.01$.

4- Which customer do you predict has the highest income?

John Little has the highest income with a value of 115.35k.

Jon Little 115.35K

Highest Income Customer

Max of Average Income

5- Which product will be advertised the most?

Since the sweater has a rating of 4.1 out of 5. It is the product that should be advertised the most.

Findings

- The top three most expensive products are: Leather bag (1000\$), Oversized Coat (650\$), and Chronograph Watch (350\$).
- The top three product in terms of ratings are Chronograph Watch, Leather Sneakers, and Long Dress with ratings of 4.90, 4.70, and 4.50, respectively. While the lowest three products are Leather Bag, Button Shirt, and Light Sweatshirt with a rating of 3.30, 3.50, and 3.50, respectively.

Product Name	Current Price
Chronograph Watch	350
Leather Bag	1000
Leather Sneakers	175
Leather Wallet	175
Oversized Coat	650

Product Name	Customer Rating (stars)
Leather Bag	3.30
Button Shirt	3.50
Light Sweatshirt	3.50
Spring T-Shirt	3.70
Cotton Blouse	3.75
Sweater Dress	3.80
Flip Flops	3.90
Pleated Skirt	4.00
Cotton Sweater	4.10
Polo Shirt	4.20
Long Dress	4.50
Leather Sneakers	4.70
Chronograph Watch	4.90

- The top three states in terms of average income are District of Columbia, New Jersey, and Maryland with average incomes of 115354.29, 110794.20, and 110424.19, respectively. While the lowest three average incomes are Mississippi, West Virginia, and Arkansas with average incomes of 70814.13, 73139.12, and 73734.11, respectively.

State	Average Income ▼	Sum of Population
District of Columbia	115,354.29	387826
New Jersey	110,794.20	4496699
Maryland	110,424.19	3098870

State	Average Income ▲	Sum of Population
Mississippi	70,814.13	1240752
West Virginia	73,139.12	744981
Arkansas	73,734.11	1325091

Recommendations

- Since Leather Bag, Oversized Coat, Chronograph Watch are the most expensive products, they should be advertised in the states with the highest average income (District of Columbia, New Jersey, and Maryland)
- Leather Bag is the most expensive product and at the same time has one of the lowest ratings. I would recommend lowering the price and try to investigate the reasons for the low rating.
- The store should have a loyalty program to track the customers that have the highest purchases amount and create special offer for them.