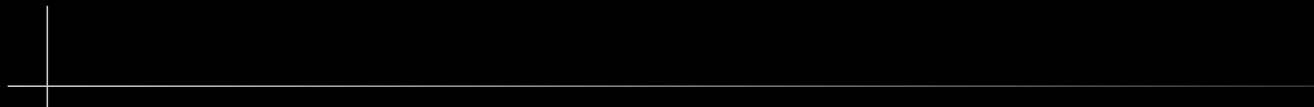


# TechMart Black Friday Sales Analysis

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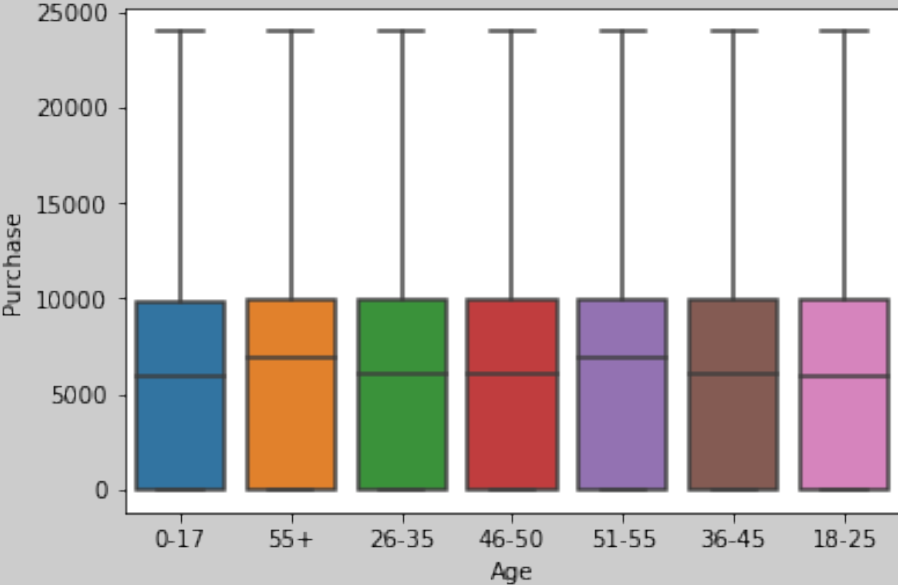
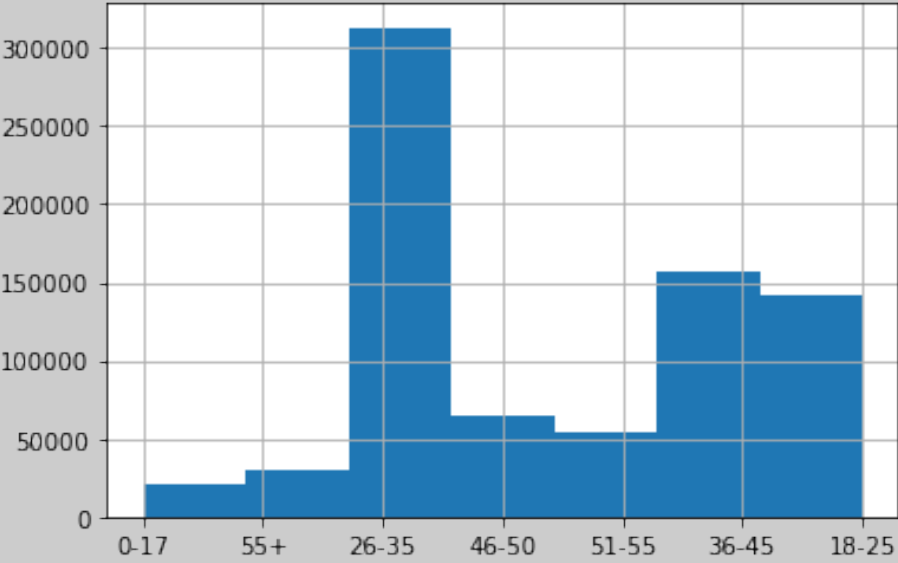
What is the benefit of knowing future profits?

Can we predict profits based on different scenarios?

How does knowing your demographic helpful in marketing?

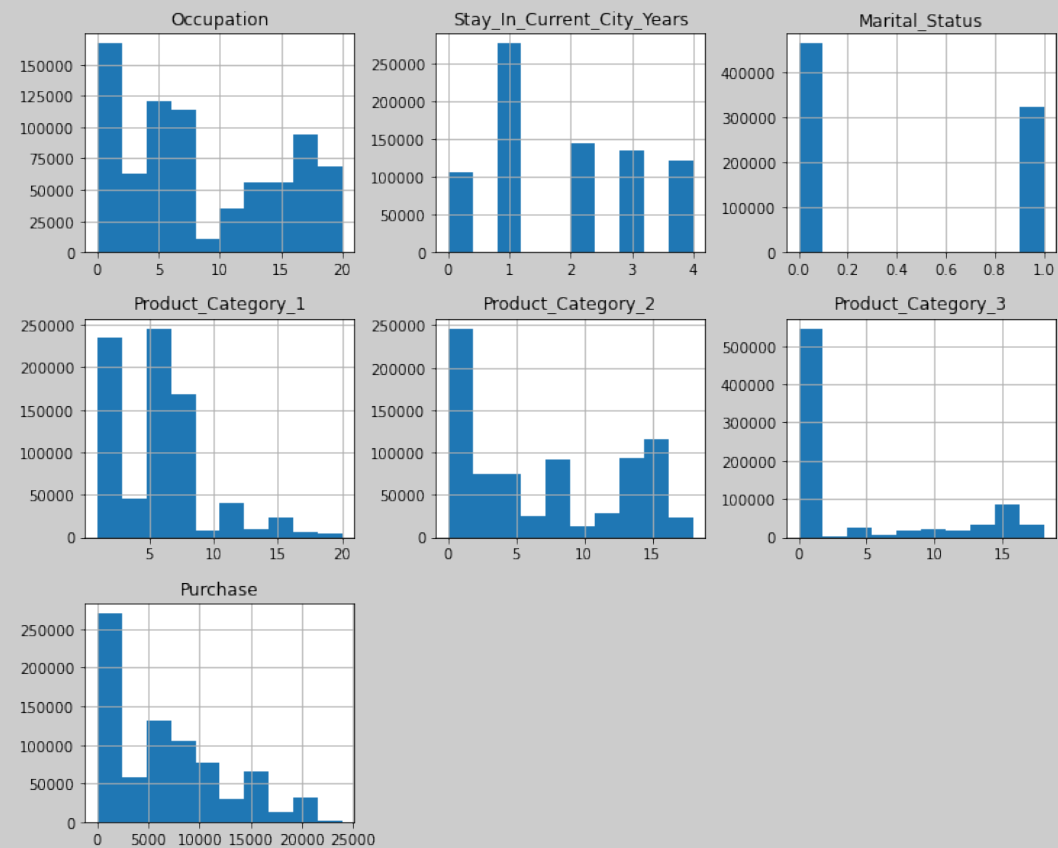
These are questions that will be addressed

# Demographic



In the first figure we can see that ages 18-45 are the most frequent customers  
Although the primary age group is 26-35  
In the second figure the age and average purchase price are displayed  
Revealing that older customers tend to place more expensive orders

# Demographic part 3



The above figure provides some detail into the purchases place by customers,  
A point of interest is the graph depicting stay in current city.  
Specifically, the customers that have moved recently (1 year or less) visit the  
store more often than others.

Multiple models were tested on the existing data.

Random Forest Regressor

Ridge Regressor

Linear Regressor

Linear SVR

Of these models the Linear SVR performed the best providing an accuracy of 0.37 standard deviations. Or approx.  $\pm \$2000$ .

An additional test was performed that separated the purchases into bins. This turned it into a multi-classification problem.

Unfortunately, the models did not perform as well as the regressors.

With accuracy hitting 0.506 at most.



The previously shown diagrams provide insights into the businesses demographic. This is very valuable and can be used to tweak marketing strategies.

Predicting potential scenarios with the trained machine learning model can also provide information that might assist the business in preparing for unusual situations.

1. Market towards the age groups according to the demographic insights.
2. Capitalize on customers that have just moved into the area.
3. Use made up scenario data to predict profits in unusual situations