Project Summary

A detailed analysis of a company's ideal customers is referred to as customer personality analysis. It enables a company to comprehend its patrons and makes it easier to reconfigure products to meet the unique needs, behaviors, and concerns of different kinds of customers. Rather than paying funds to market a new product to every customer in the client database, a company can evaluate which consumer group is most likely to purchase the product and then market the product only to that segment of clientele.

We chose to identify and classify the customer's marital status as single or relationship for our analysis. The number of children and teenagers living in a household was combined into one variable. This variable was used to generate another variable that indicates whether the customer is a parent or not. The purchasing parameters were combined into a single variable that shows how much each customer spent. We combined the variables that outlined where each customer bought each item into a single variable that described how many transactions each client made. We consolidated the campaign variables into one variable that describes the number of campaigns that each customer responded to. The birth year parameter was used to determine each customer's age. A small number of customers missed income values; due to the size of this sample we omitted these customers. Below you can find graphs for our clustering model and decision tree from our classification model to aid in understanding the analysis but, for a more detailed explanation refer to the formal report.

To analyze the data, we first used exploratory data analysis to determine some basic characteristics of the data and created many interesting graphs to display these different characteristics. These graphs are explained in further detail in our report. Following this we did Principal Component Analysis to make the data a lot easier to interpret, these components are also explained in detail in our report. After conducting Principal Component Analysis, we decided to run cluster analysis on the data. Finally, we did classification analysis to classify customers total number of purchases and used this classification model to predict whether a customer would be ideal for a test campaign target to customers with a total purchase amount above 30.

From our analysis we were able to conclude that customers with lower incomes will spend less and make fewer purchases. Customers with lower incomes are also more likely to purchase at a price reduction and are less likely to accept marketing campaigns. Also, customers who make many purchases in-store will spend more money and accept more promotions. With this stated, we determined that younger customers are less likely to accept marketing messages. As a result, it may be best to market to older customers with higher incomes.