Introduction and Question:

Customer segmentation involves dividing customers into groups based on common characteristics. This helps in tailoring marketing strategies, improving customer service, and increasing sales. Additionally, consumer segmentation allows for companies to set prices at an optimal point for each consumer which allows for the consumer to buy a good at an ideal price for them while maximizing profits. This also leads to price discrimination which could run certain promotions on gods for certain segments of the population. One high-level example would be student pricing for sporting events.

Objective:

We intend on building a machine learning model which relies on K-Means clustering and XGBoost Regression. This will allow us to split the customer base into different segments based on company sales and profits. Additionally we are predicting future demand for each segment using historical pricing data using machine learning.

Methodology:

We are using machine learning and data mining techniques to develop predictive models using historical data from an anonymous store. To segment customers, we are using K Means and hierarchical clustering. Finally, to predict future demand, we are using an XGBoost regression model.