**Predicting Catalog Demand**

Project Overview

In this project, we are analyzing a business problem in the mail-order catalog business. We are being tasked with predicting how much money our company can expect to earn from sending out catalogs to new customers. This task will involve building the model and applying the results in order to provide a recommendation to management.

The Business Problem

We recently started working for a company that manufactures and sells high-end home goods. Last year the company sent out its first print catalog, and is preparing to send out this year’s catalog in the coming months. The company has 250 new customers from their mailing list that they want to send the catalog to.

Our manager has been asked to determine how much profit the company can expect from sending a catalog to these customers. We are being assigned to help the manager run these numbers. While fairly knowledgeable about data analysis, our manager is not very familiar with predictive models.

We’ve been asked to predict the expected profit from these 250 new customers. Management does not want to send the catalog out to these new customers unless the expected profit contribution exceeds $10,000

Details

* The costs of printing and distributing is $6.50 per catalog
* The average gross margin (price-cost) on all products sold through the catalog is 50%
* Make sure to multiply our revenue by the gross margin first before we subtract out the $6.50 cost when calculating our profit

Steps to Success

Step 1: Business and Data Understanding

Our project should include:

* A description of the key business decisions that need to be made

Step 2: Analysis, Modeling, and Validation

Build a linear regression model, then use it to predict sales for the 250 customers. It is encouraged to use Alteryx to build the best linear model with our data.

Step 3: Writeup

Once we have our predicted or expected profit, write a brief report with our recommendation to whether the company should send the catalog or not.

We want to calculate the expected revenue from these 250 people in order to get the expected profit. This means we need to multiply the probability that a person will buy our catalog as well. For example, if a customer were to buy from us, we predict this customer will buy $450 worth of products. At a 30% chance that this person will actually buy from us, we can expect the revenue to be $450 x 30% = $135