

The overall objective of this project is to build a logistic regression model that best explains a consumer's likelihood to purchase a service contract. You will use a mix of variables such as product type, MSRP, service contract price, and brand. In addition, demographic variables are available for the consumer's US Census block group. You will need to convert the Census data to percentages, as the counts by block group will not be meaningful. To eliminate multicollinearity and for variable reduction, you should use also PCA on the Census data (after conversion to percentages). The principal components will then be used in logistic regression, which we will discuss in class.

The final output should include notated SAS or R code, including prep work, variable transformations, exploratory analysis, and various iterations of models that you went through. In addition, a brief write up or PowerPoint should be included, where the primary focus is on interpretation of the model results and how the model could be used for marketing purposes. For example, statements like "For every \$100 increase in MSRP, the odds of service contract purchase increase/decrease by X%." or "The odds of a consumer purchasing a service contract on their refrigerator is X times greater than the odds of purchasing on their range." Also, "Component 1 with Varimax rotation is primarily concerned with X, Y, and Z, and it had a significant positive/negative effect in the logistic regression model." Etc.