OM 386: Pricing & Revenue Management
Assignment #3

Please paste your answers within this file and save it as "HW3_ eid1_eid2_eid3" (Where eids refer to your group members' EIDs) on Canvas at appropriate place. If you used MS Excel or any other statistical software to arrive at your answers, please submit the relevant files/annotated code as well.

Write the names of your team members here:

1. Meeth Yogesh Handa (EID: mh58668)
2. Rishabh Tiwari (EID: rt27739)
3. Saurabh Arora (EID: sa55445)
4. Rianna Patel (EID: rnp599)
5. Parthiv Borgohain (EID: pb25347)

Part 1: ABB Segmentation Case (Course Pack)

You are hired as a consultant to help ABB determine which types of their potential customers they shall invest most of their sales resources to target. To assist your task, ABB ran a survey study and the data are provided in the excel file which you can download from the online course pack. You decide to estimate an MNL model to predict the potential customers' purchase probabilities. Assume the customers who were surveyed only have the 4 choices listed in the dataset (i.e., no outside option). Fill in your estimators for the following coefficients (16 points):

Variables / Coefficient estimates	Coefficient estimates
Price	2.18072173
Energy Loss	2.65548171
Maintenance	0.59402156
Warranty	1.14063325
Spare Parts	-0.132684
Ease of Install	0.52004424
Prob Solver	2.03219225
Quality	2.63951056
Intercept ABB	-0.123855960304097

Intercept	**GE**	-0.671576438
Intercept	**Westinghouse**	-0.687298701

Intercepts:	ABB	GE	Westinghouse	Coefficients:						
	-0.12385596	-0.671576438	-0.687298701	2.18072173	2.65548171	0.59402156	1.14063325	-0.132684	0.52004424	2.03219225	2.63951056

Based on the estimated model, discuss (briefly with some example customers from the dataset) your recommendation for ABB about which type of customers that ABB's salesforce should really target? (4 points)

Answer:

ABB's salesforce should target customers of Edison since the intercept value of ABB is quite close to 0 when Edison is taken as the baseline case. This indicates that the customer utility function does not change massively when Edison is replaced by ABB.

Some examples of customers to target from the data set: Customer 2, Customer 4, Customer 7, Customer 8, Customer 9, Customer 12

Part 2: Using Multinomial Logit to Optimize Prices

GAMEDUDES makes a specific game console called Console A. In this market, there are two other competing brands, called Console B and Console C. GAMEDUDES is anxious about whether its console is priced at the optimal level. So, the company hired you as a consultant to sort this out. To assist your task, GAMEDUDES conducted 8 hypothetical sales experiments. In each experiment, the three consoles were priced at different levels and 100 customers who were interested in game consoles were recruited to assess their purchase choices. The detailed data are provided in "HW2 Console Data.xls".

You decide to construct an MNL model to estimate the purchasing probability of Console A. To do so, you assume that the three brands have different brand values, but the customers' sensitivity over price is the same across the three brands. Please provide your estimators of the 4 coefficients of the model. (16 points)

Answer:

a1	1.911544
a2	2.110139
a3	1.7536
Price coef	-0.01257

Coefficients:

Console A = 1.912
Console B = 2.110
Console C = 1.754
Price = -0.0126
(**Note:** Coefficient values rounded up to 3 decimal places)

GAMEDUDES just informed you that the manufacturing cost of Console A is $180 per unit, and the real market prices of Consoles B and C are simply fixed at $215 and $190 per unit, respectively. Given this information, you decide to run price optimization for GAMEDUDES. What is the price you would recommend GAMEDUDES to set for its Console A to maximize its expected profit? (4 points)

Answer:

	Console A	Console B	Console C	Nothing
Selling Price($)	**268.42036**	215	190	0
Score	-1.461907	-0.591936	-0.6342795	0
Market Share	10.01%	23.89%	22.90%	43.19%

Recommended selling price for GAMEDUDES' Console A = **$268.42**