MAR6668 Individual Assignment 2 (Due on Oct 6th before class)

This assignment must be answered on an individual basis without consulting with the classmates' write-ups. Please submit the write-up of all your answers in a word/PDF file. Please also include your Python codes in separate files as supplement materials.

1. Suppose you are at the time when eBooks are about to be launched to the market. The Bass Model parameters for eBook *annual* adoption are p = 0.0395, q = 0.556, M = 21 million.

   (1) Plot adoptions of eBooks, N(t), as a function of time for this new product for 30 years. Report N(t) for the first five years.
   (2) What is the predicted peak time of adoption for eBooks? How many adoptions will occur for eBooks during its peak time of adoption?

   Furthermore, suppose each adopter of eBooks will purchase 4 electronic books per year after becoming an adopter of eBooks.
   (3) Plot sales of electronic books, S(t), as a function of time for this new product for 30 years.
   (4) How does the plot above differ from the plot in question (1)? Why does the difference occur?

2. Using the dataset titled "CoffeeDataStoreB.csv," run a Scan*Pro model for Maxwell House in Store B. Then run a Scan*Pro model for Folgers in Store B.

$$\text{Maxwell: } \ln(Q_m) = \alpha_m + \beta_{m,own} \cdot \ln(P_m) + \beta_{m,cross} \cdot \ln(P_f) + \beta_{m,F} \cdot F_m + \beta_{m,D} \cdot D_m$$

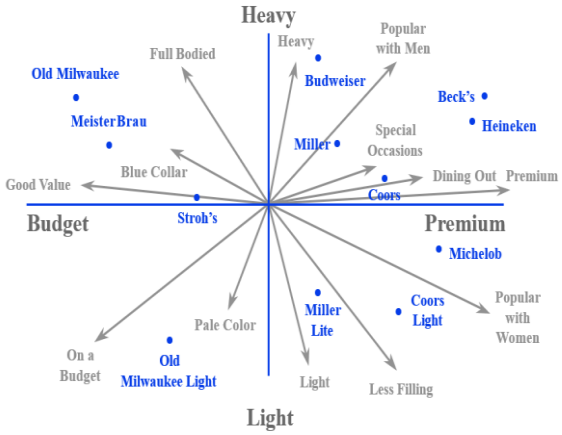
$$\text{Folgers: } \ln(Q_f) = \alpha_f + \beta_{f,own} \cdot \ln(P_f) + \beta_{f,cross} \cdot \ln(P_m) + \beta_{f,F} \cdot F_f + \beta_{f,D} \cdot D_f$$

   a. Between Maxwell House and Folgers, which brand has higher brand equity? Explain its brand equity in words.
   b. Between Maxwell House and Folgers, which brand has higher vulnerability to its competitor's price cut? Explain the quantity of the vulnerability in words.

c. Between Maxwell House and Folgers, which brand will gain a larger percentage increase in sales from a 1 % price cut? Why?

d. Report the feature multiplier and the display multiplier for Maxwell. Explain their quantities in words.

3. Consider the following AR perceptual map reporting the brand positions, as perceived by survey respondents, of 12 beer brands relative to each other.



Answer the following questions and explain your answers.

a. Between Miller and Miller Lite, which brand is perceived as more popular with women?

b. Between Old Milwaukee and Old Milwaukee Light?

c. Suppose Miller wants to reposition itself to be perceived to be more popular with women. In achieving so, can Miller also be perceived to be more popular with men?