Northeastern University
College of Professional Studies
Analytics Program

ALY 6050 Project 4

Problem 1

A manufacturer is preparing to set the price on a new action game. Demand is thought to depend on the price and is represented by the model: $D = 2{,}000 - 3.5P$

The accounting department estimates that the total costs can be represented by:

$C = 5{,}000 + 4.1D$

a. Develop a model for the total profit and implement it on a spreadsheet.
b. Develop a one-way data table to evaluate profit as a function of price (choose a price range that is reasonable and appropriate).
c. Use Solver to find the price that maximizes profit.

Problem 2

The Radio Shop sells two popular models of portable sport radios: model A and model B. The sales of these products are not independent of each other (in economics, we call these substitutable products, because if the price of one increases, sales of the other will increase). The store wishes to establish a pricing policy to maximize revenue from the products. A study of price and sales data shows the following relationships between the quantity sold (N) and prices (P) of each model:

NA = 20 – 0.62PA + 0.30PB

NB = 29 + 0.10PA – 0.60PB

a. Construct a model for the total revenue and implement it on a spreadsheet.
b. Develop a two-way data table to estimate the optimal prices for each product in order to maximize the total revenue.
c. Use Solver to find the optimal prices.