BIA 650 A Homework W&A Chapter 2, Problem 6

Management Overview

Problem Statement:

The Objective is to choose a chart type that best explains how profit can be maximized the factors being demand and order quantity

Data Sources:

* + The inputs are identified as Original price and leftover price and Quantity Discount Structure.
  + The key decision variable is **Order Quantity.**
  + **Demand** is the Uncertain variable.
  + The **Profit** is determined by Demand and Order Quantity

Model Approach:

* + Separate the data into inputs, decision variables, uncertain variables and output.
  + Units sold at regular price and units sold at leftover price is calculated based on the Order quantity and Demand
  + The VLOOKUP function in Excel is used to determine cost
  + The data table that shows profits for different values of Order Quantity and Demand are plotted on a chart as follows
    - X - axis: Demand, Y - axis: Profits, Colour coded lines: Order Quantities
    - The yellow highlighted line represents the lowest order quantity of 500 books
    - The red highlighted line represents the order quantity of 4500 books

Solution:

* + The red line in the chart shows that an Order Quantity of 4500 is the riskiest position and it has the maximum profit potential of 39,150$
  + The yellow line in the chart shows that an Order Quantity of 500 is the riskless position and it brings a sure profit of 3,000$
  + If the probability weights given for the demand are considered, an order quantity of 2500 is expected to give a profit of 12,500 with a maximum potential profit of 28,875$ shown by the green line.