**Nithin Das, CWID: 10422784, Date: 09/18/19 Assignment W&A 4th Edition, Ch 2, Q 6, Page 44**

I pledge on my honor that I have not given or received any unauthorized assistance on this

assignment/examination. I further pledge that I have not copied any material from a book, article,

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Signature: NITHIN DAS

Date: 09/18/2019

**Management Overview**

* **Problem Statement**

To develop a model to determine the order quantity to be placed by the company based on estimated demand using the demand uncertainty modeling and maximum profit. The Profit v/s Order quantity and Demand needs to be visualized using appropriate graphs.

* **Data Sources**

The probability of demand from the past demand data, Regular and Leftover price cost of the books, the quantity discount table

* **Model Approach**

-Calculate the revenue as the sum of revenue from regular product price and revenue from leftover product price

-Calculate the total cost using the cost lookup table and the demand of the product

-Calculate the profit as Revenue – total cost

-Using two-way data table, calculate the profit for various ranges of order quantity and demand

-Using the demand probability data from the past, perform the SUMPRODUCT() function to get the weighted profit value for different values of order quantity

- Get the order quantity corresponding to maximum profit from the above step

* **Solution & Sensitivity Analysis**

The maximum profitability is $12250

The optimized quantity to be ordered is 2000 units.

The sensitivity analysis shows a trend of increasing profit as the demand increases. However, we need to get a realistic figure for the demand. The demand probability table from the past data shows 0.25 chances for both 2000 and 2500 units of demand.

The Profit v/s Demand & Order Quantity was plotted using excel charts

* **Recommendations**

The bookstore can place order for 2000 units of the book for the maximum profit

**Steps to Generate Graph Profit v/s Demand & Order**

1. **Select the Order quantity, Demand and Profit data**
2. **Select bar graph from the ‘Insert Tab’ with ‘Demand’ on x axis, ’Order’ on y axis**