**Nithin Das, CWID: 10422784, Date: 11/7/19 Assignment W&A 4th Edition, Ch 7, Q 54**

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,

the Internet or any other source except where I have expressly cited the source.

Signature: NITHIN DAS

Date: 11/7/2019

**Management Overview**

* **Problem Statement**

To use Non-Linear Programming to maximize the profit by changing the units to be produced and the price to be charged.

* **Data Sources**

**Input**: Unit cost of the products

**Decision variables**: Price to be charged for the product

**Constraints**: The price to be charged should be greater than the cost of the product

* **Model Approach**
* Enter all the inputs in the spreadsheet
* Identify the changing cells and constraints for the model
* Enter random values for ‘Price Charged’ field, as this is the changing cell**.**
* Calculate ‘Sales’ for product 1 as q1 = 60 - 3p1 + p2
* Calculate ‘Sales’ for product 2 as q2 =80 -2p2 + p1
* Calculate ‘Profit per product’ as Sales \* (Price Charged - Cost) for each product
* Calculate Total Profit as sum of individual product profit
* Use Solver to maximize the Total Profit
* **Solution**

Results:

The maximized total profit = $1230 after the sale of 30 units each product and charging Product 1 for $22 and Product 2 for $36.