**Nithin Das, CWID: 10422784, Date: 10/17/19 Assignment W&A 4th Edition, Ch 5, Q 20, Page 256**

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: 10/17/2019

**Management Overview**

* **Problem Statement**

To find the minimum-cost way to ship the tomato product from suppliers to customers, so that customer demands are met, and supplier capacities are not exceeded.

* **Data Sources**

Plant capacities, customer demands, unit shipping costs on allowable arcs, common arc capacity

* **Model Approach**
* Enter all the nodes with the allowable arcs for both origin and destination.
* Enter all the input parameters for the model
* Enter Initial random values for the ‘Flow’
* Add plant, warehouse and customer constraints
* Calculate the net outflow for each node for plant, warehouse and customer using the formula Inflow- outflow. Use excel formula : SUMIF(Origin, node, Flow)-SUMIF(Destination, node, Flow)
* Calculate total cost as the SUMPRODUCT of ‘Unit cost’ and ‘Flow’
* Use Solver to find the optimal value for total cost
* **Solution**

Results:

The updated total cost is $4,160,000

Therefore, total cost increased by (4,160,000-3,260,000) = $900,000

* **Recommendations**

If the plants and customers are not allowed to ship to each other, the total cost of shipping increases.