Nells Furniture Company (NFC) sells two main products, sofas and tables. Based on the last few years of experience in the sales region, the marketing department has estimated demand curves relating the price and demand volume for each product.

Sofa Demand = -2.5\*Sofa Price+550

Table Demand = -5 \*Table Price +900

The unit cost to produce each of the products are made up of adding labor, materials, and overhead. The following table contains all the costs associated for each product respectively.

|  |  |  |  |
| --- | --- | --- | --- |
| Product | Labor | Materials | Overhead |
| Sofas | 25 | 20 | 15 |
| Tables | 15 | 20 | 15 |

The company has two main production bays (these are manufacturing lines), which are the Tables and Sofas. Thus, the fixed cost to operate both production line has been found to be $10,000 dollars for both the Sofa Line and the Tables Line. Thus, to open the side of the factory that produces tables it will cost a fixed amount of $10,000. Similarly, the cost would be the same if only the Sofa side of the factory was cranked on. Thus, to have both operating at the same time it is a fixed cost of $20,000.

NFC currently sells the Sofas for a price of $155 and the Tables for $100. Create a structured spreadsheet model to answer the following relevant questions. Begin by completing the following tasks.

1. Create Formula Diagram and Formula Table for each product.
2. Create a computation worksheet for each product line separately. (meaning create two model worksheets, one will contain the computations of Sofas and the other Tables)
3. Create a single worksheet for all the data variables. Name this worksheet “Data”
4. Create an interface worksheet listing the prices for both Sofas and Tables. In addition, the worksheet should also contain the profit for each product. Sofa Profits and Table Profits respectively. Lastly, as an output add the total profit across all products.
5. You now have a what is model.
6. Determine the optimal price for each product separately.
7. Generate a graphic of both profit lines on the same graph. The price range to plot should be between 80 and 160. And highlight the maximum value for each product. Label the chart appropriately. Do not show negative profit numbers in the graphic for either product.

Thus, you should have one excel file containing the following worksheets: Interface, Data, Table Model, Sofa Model, Sofa Formula Diagram, Tables Formula Diagram, Sofa Formula List, Tables Formula List. For a missing worksheet 10% of the grade will be removed. Answer the following questions.

1. What are the current profits for each of the products? And what is the total profit across both products if added?
2. What is the price that maximum the profit for each product line?
3. Given that the price is changed to the optimal value, what is the difference in the total combined profit value?

Answer these questions within the Interface worksheet. Make sure it is readable. Once, you have it all done. Name the Excel file: “your\_full\_name”.xlsx and submit to the assignment.