Corrin Krogh

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**Nutrition Analysis Review**

The Diet Problem, dates to the 1930s. The question was originally asked by the Army, who were in search of a healthy diet for the GI’s while also trying to minimize cost. For my Semester Project, I wished to complete my own version and bounds of the diet problem. I wanted to perform analysis of nutrition and ways to complete a well-rounded diet from a list of food data.  Another factor I brought in was the cost of all the items. The goal was to not only find a diet in the constraints of nutrition, but also one that was the most affordable. This analysis is a great example of using linear programming and finding optimization.

My tools for this analysis were Excel and <http://nutritiondata.self.com/>. For my current career, I use Excel as an analysis tool every day. Since I am familiar with how to use formulas and the formatting of Excel I chose this as my analysis vessel. The website <http://nutritiondata.self.com/> was very helpful for collecting nutritional information of the food items I chose. The food items were a variety of products I eat in my daily diet. I decided to exclude dairy from this analysis since I personally don’t eat dairy. Another thing to mention is the nutritional bounds on the optimized diet. This is based off my own personal nutritional bound goals, not the standard “healthy” diet.

My goal for this analysis was to use optimization and the duality theory to find the best ways to hit my nutrient goals in a costly manner. I feel I was successful in this analysis not only because I found an answer to my question, but I created a calculator that I can change throughout time. I can change foods in the chart, or my nutritional bounds as needed. There were two very important bounds in this question, servings and cost. The servings played a huge part in hitting the required nutritional bounds. I did find that the chart needs a good variety of food types and food costs. For example, Salmon and chicken are both great sources of proteins, but also very different in cost. On another note, each item fulfills different aspects of the nutritional bounds and at different levels.

In conclusion, the total cost of the cheapest diet was $7.60. I had to bring in the excel solver to run the analysis to its entirety. It would be interesting to give it a larger variety of foods to see what other options the solver would give me. I am confident that this analysis was successful in giving me the answer I needed.