Dietary Tradeoff System

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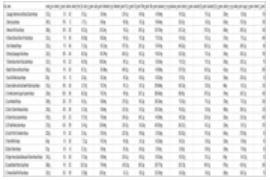
Introduction

- The goal of this project is to enable users to decide on recipes that best suit their preferences in terms of nutrition value.
- Using this model, the user can plan their diet and choose from the best recipes to suit their dietary requirement.
- The model enables users to define their nutrition goals and provides a short list of recipes along with comparisons regarding nutrient tradeoffs among these recipes for the user to select the best one.

- ***Data Source:*** www.caloriecount.com
- ***Tool:*** **IBM Watson Tradeoff Analytics**
- ***Input Process to IBM Watson Tradeoff Analytics***

Web Scrapping Using R: Output in .CSV



Conversion to JSON Format

Input: The decision problem to IBM Bluemix-Tradeoff Analytics Service

HTTP `POST dilemmas` method

Submit the objectives and options for the decision problem to the Tradeoff Analytics Service:

JSON `Problem` Object

Send this JSON `Problem` Object **for programming with the Tradeoff Analytics Widget**

The IBM Watson Trade Off Analytics Process:

- We setup and feed the Decision Problem and the Options to the Tradeoff Analytics API and the User can provide their criteria with the Interactive Interface.
- The underlying mechanism for Watson Tradeoff Process is the mathematical filtering technique of **Pareto Optimization**.
- It enables users to explore tradeoffs when considering multiple nutrient criteria for a single decision of what recipe is the best for the defined criteria.
- The process is primarily carried out in 3 steps:

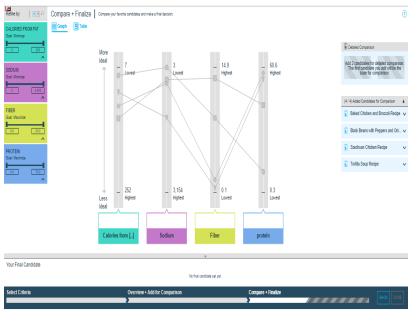
1: Finding the top recipe options, out of many possible options according to the nutrient criteria.

2: Visually presenting these recipe options and the tradeoffs among the nutrients for these top recipes.

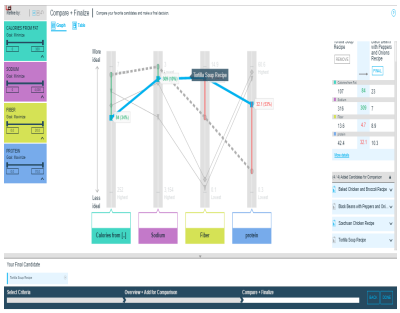
3: Simulating human judgment to guide the user through selecting the best recipe

Results:

Top Recipe choices for input criteria



Tradeoff among the recipes in regards to nutrients



Analyzing the tradeoff to select the best recipe

Conclusion

- The model is primarily targeted for diet conscious people who like to keep track of their their nutrient intake and plan their meals accordingly in advance. Further work will be carried out to incorporate a price criteria in the decision problem and expand the existing recipe database. An other application of a similar model would be to expand into a suggestion of a customized fitness program based on inputs from the user regarding expectation from the workout like calories to burn, area to target and time willing to spend.

Link to IBM Watson Tradeoff Analytics Tool: https://console.ng.bluemix.net/