**Project 2 Proposal**

**Fast-food Nutrition Intractive Dashboard**

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**Purpose**

The purpose of this project is to develop an interactive dashboard displaying visualizations of nutrition information for several national (U.S.) fast food chains: McDonalds, Subway, and Starbucks. The dashboard will allow users to explore both the macro and micro-nutritional content of specific menu items at the three food chains. Further, users will be able to interact with the visualizations by choosing menu items of interest based on restaurant and food category. While users will also be able to explore very specific aspects of the data (at the menu item level), there will also be a few visualizations that present aggregate data, e.g., averages of nutrition information based on restaurant and food category.

**Technical aspects**

Using Python Flask as our web framework, we will render data from SQLite into visualizations on a dashboard page. All plots will include interactive features that will be added using JavaScript libraries. Tentatively, our group plans to utilize Plotly, chart.js, AnyChart, and D3.js.

**Database**

The nutritional data were originally extracted from Kaggle and were cleaned as part of another project. The database is relational and consists of four tables: (1) restaurants, (2) categories, (3) menu items, and (4) nutrition. The first three tables serve as junction tables—connecting categories (i.e., restaurant names, food categories, and specific menus items) to id numbers. The fourth table (nutrition) contains the id numbers and the full nutrition information. The original data can be found here:

Nutrition data for McDonalds: https://www.kaggle.com/mcdonalds/nutrition-facts

Nutrition data for Subway: https://www.kaggle.com/davinm/subway-restaurant-nutrition-data

Nutrition data for Starbucks: https://www.kaggle.com/starbucks/starbucks-menu

**Visualizations**

The dashboard will include as least four interactive visualizations:

Visualization 1: A stacked bar chart that displays the macronutrient information for two selected menu items. The user will be able to select which menu items they would like to be compared in the chart, i.e., they will be able to input the restaurant(s) they are interested in, the food category (i.e., breakfast, sides, beverages, etc.), and from these filters, they will then select which menu items they would like to visualize.

Nutrients: Total fat, saturated fat, carbohydrates, sugar, fiber, protein

Visualizations 2 & 3: Two radial charts will display the micronutrient information (such as vitamins and sodium) for selected menu items. These two plots will be tied to the input information described in the stacked bar chart section; thus, allowing users to compare two menu items visually. Further, the radial chart will include a hover event. The main numbers displayed will be the percent of daily value for each micronutrient. When the user hovers their mouse over the specific micronutrient, it will show the specific nutritional value in grams or milligrams.

Nutrients: Sodium, vitamin a, vitamin c, calcium, iron

Visualization 4:A scatterplot will display nutritional data for all items at a selected restaurant. To make this interactive, the plot would include a hover event where users can see the menu item when hovering over a bubble. Further, we would add in an event to allow the user to toggle between restaurants on the x-axis, and to toggle between nutritional variables on the y-axis.

X-axis variables: Menu items

Y-axis variables: Calories, carbohydrates, & protein (or fat)

**Bonus Features**

If there is time, we may add other features to our application, including a table containing the full data with multiple search filters, visualizations or small panels displaying more quick facts about the data, e.g., the highest vs. lowest calorie items at each of the restaurants, and information that gives more context on the data/database.