Leslie B. Klein **Contribution to Udacity CS101 Contest** **April 11, 2012**
(My first python program after taking CS101.)

Problem:

1. What are the nutrients (and quantity) in my daily diet?
2. How do I score on percent RDA (Recommended Daily Allowance, Recommended Daily Intake, Dietary Recommended Intake)?
3. How much sugar do I consume in my food and how does it compare to the new, much lower numbers than previously assumed? This question was motivated by the 60 Minutes segment on "Is Sugar Toxic?"
4. How does my diet score using RDI numbers from different countries, such as Canada, UK, and Australia?

Method:

1. I used food data from USDA National Nutrient Database for Standard Reference, Release 24 (ABBREV.txt). See sr24_doc.pdf (Abbreviated File, p. 34) for a description of the data.
2. I used the Dietary Reference Intakes: Recommended Intakes for Individuals from the USDA National Agricultural Library found here. See Tables on pp. 2, 4, 5 (I captured this data in the file RDIUS.txt)
3. I used information from Australia/New Zealand and UK dietary guidelines posted here.

Solution

I parsed the ABBREV.txt database and stored it in a dictionary: foodIndex keyed on the unique NDB number

I created a nutrientIndex dictionary keyed on each nutrient in the foodIndex. Its values store the RDI values for each country. The RDI values are based on age, gender, weight.

I verified my RDI results against the RDI results obtained from www.fitday.com for one food: GRUYERE CHEESE, 50g. I calculate RDI for more nutrients, but for those in common with fitday, see the end of my code for the two sets of results. Gave me confidence my program is generating the correct numbers.

Input/Output

A meal is defined as a list of food items. Each food item is a list. For example:

[['CEREALS RTE, QUAKER, TSTD OATMEAL SUPREME ', '08545', 1.2*wtInGrams], ..]

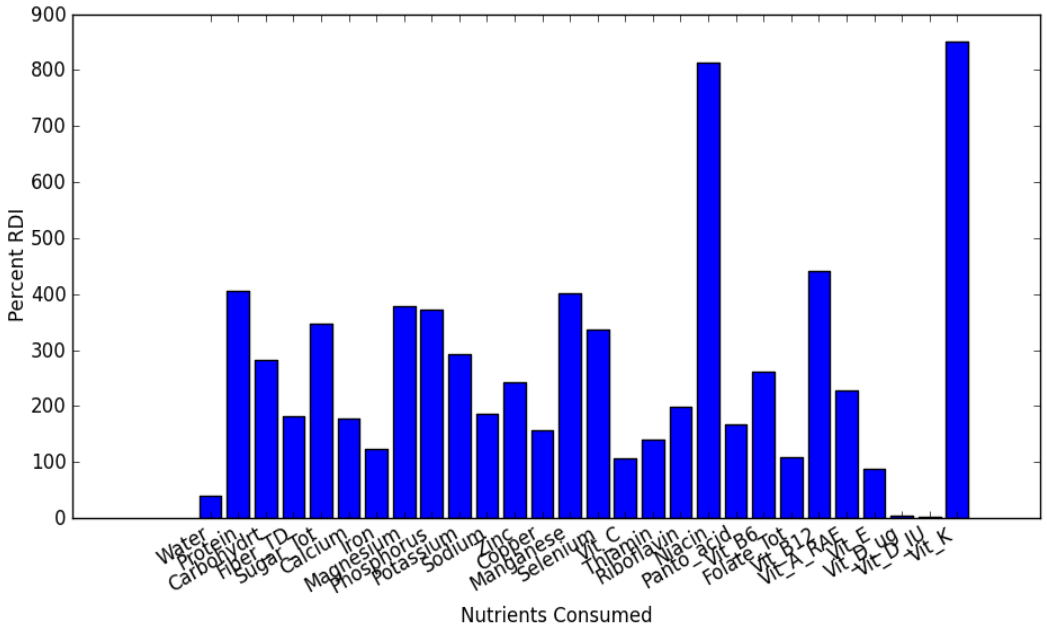
where food item = [description, code, weight]

You can search your own food items by running **searchForFoodItem**(item). For example, searchForFoodItem('MILK') . The result is a foodList that you can manually cut and paste from to create a

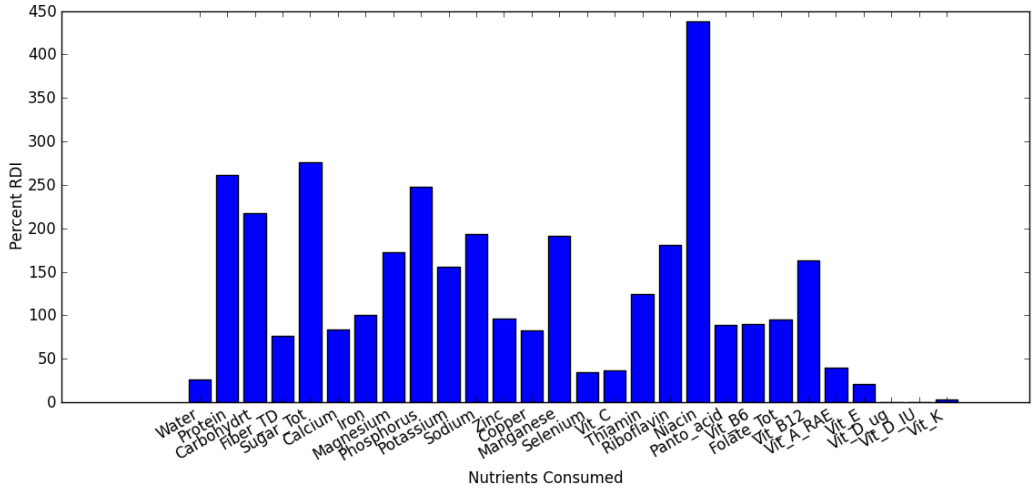
meal. This simulates "going shopping." After shopping for food and defining the list **mealPlan ,** call **analyzeFood()** to get results.

Below are the outputs of the program after running it twice: once with the Healthful food plan and once with the McDonald's food plan. The output is a bar chart. x-axis is nutrients. y-axis is RDI.

Healthful Food Plan:



McDonald's Food Plan:



Unfortunately, I do not know how to plot more than 1 data set. So even though I can store RDI data for multiple countries, my program only plots 1 set of RDI data for each food plan. Therefore, my country list contains only 'US' when I want to plot. 'UK' data is provided in the RDIUK.txt file. Australia/New Zealand data is in the AUSNZ.txt file. You can uncomment the multi-country list if you comment out the plotData() procedure.

What Did I Learn?

The ABBREV.txt data set from the USDA is a mess. It has null characters in random places. This took a while to parse correctly.

I need to learn about how to plot data.

Figuring out how to input data in a user-friendly way is an entirely different problem.

I need to take Vitamin D.

See how well you are eating. Here is the code:

myEntry5.py

RDIUS.txt # United States

RDIUK.txt # UK

RDIAUSNZ.txt # AUS and NZ

ABBREV.txt # USDA National Nutrient Database