Macronutrient Estimator Sprint 1

Buyuan Lin; buruce@bu.edu

Product Mission

- Develop a API/App for calculating and tracking the nutrient and calories provided in each meal or dish.
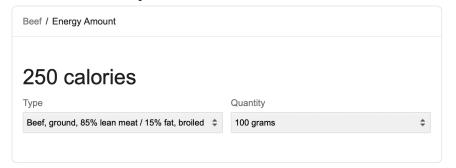
- Goals:
  - Easy to use, ex. simply by taking one picture.
  - Relative accurate: Use trained object detection model to ensure the accuracy.
  - Health advices: Analyze the user's diet. Makes suggestion if the user's diet is lack of some the nutrient or the user's diet is unhealthy.
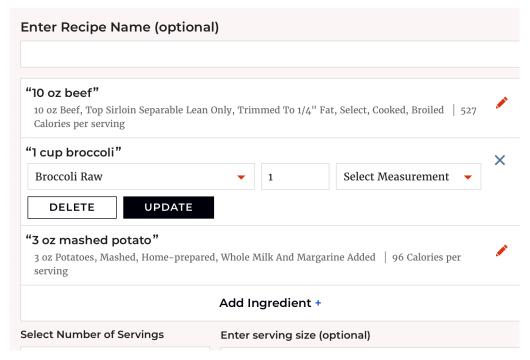
User stories

- As a <u>user</u>, I want to **record and analyze** my **nutrient and calories** intake of each dish.

- As a <u>user</u>, I wish there's an <u>application</u> that can **give me advice** about my diet behavior and warn me if I'm eating unhealthily.

- As a <u>user</u>, I wish the described <u>functionality</u> can be done **easily** such as <u>taking a photo</u> of the I'm eating instead of <u>manually enter</u> all the ingredients.

Comprehensive Literature Review

Beef / Energy Amount

250 calories

Type	Quantity
Beef, ground, 85% lean meat / 15% fat, broiled	100 grams

Google: Accurate, but the user have to enter the ingredients manually. And it only contains calories information.

Enter Recipe Name (optional)

"10 oz beef"
10 oz Beef, Top Sirloin Separable Lean Only, Trimmed To 1/4" Fat, Select, Cooked, Broiled | 527 Calories per serving

"1 cup broccoli"

Broccoli Raw	1	Select Measurement

DELETE   UPDATE

"3 oz mashed potato"
3 oz Potatoes, Mashed, Home-prepared, Whole Milk And Margarine Added | 96 Calories per serving

Add Ingredient +

Select Number of Servings   Enter serving size (optional)

https://www.verywellfit.com/recipe-nutrition-analyzer-4157076
More comprehensive, yet still complicated to use.

Technologies to evaluate

- Tensorflow, keras: Probably the most popular opensource machine learning right now. With exhaustive documentation and lots of existing projects.

- Python: The most wildly used language for machine learning.

Development Environment

- Python; Tensorflow; keras; numpy; Matplotlib;
- https://github.com/rhemon/food_rec
- https://github.com/irfanalidv/Automatically_Recognizing_Pictured_Dishes_using_Keras
- https://github.com/InesFTL/Food-Recognition