Zoe Cheng, Catherine Xu
MIS3640
Professor Zhi Li
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Python Term Project Proposal

I. The Big Idea

According to the World Health Organization, 67.9% of the US population was overweight as of 2016. Considering the consistent upward trend starting from 1975 to 2016, the prevalence of overweight and obesity seems to persist in 2020. A way to combat this problem is to monitor our diets. Therefore, the main idea of this project is to help users keep track of their diets using simple functions in an application: the user uploads a photo of food, and the application returns the food elements in the photo as well as their respective calories. To further our project, we may look into adding additional features such as having users input their weight and height and return their BMI and suggested daily calorie intake, and providing users with recommendations to decrease their calorie intake if time permits.

II. Learning Goals

The prevalence of overweight and obesity is an issue that surrounds us. As college students, we have experienced the common “Freshman 15”, and moments in which we binge eat or stress eat. Due to the stress faced by students while balancing schoolwork, extracurricular activities, and job/internship search, we are sometimes unaware of the nutrition in what we eat, the time of day during which we eat, and the amount that we eat, all contributing factors to unhealthy diets, leading to the possibility of becoming overweight. Therefore, we believe that this application would not only help others monitor their diet and weight, but also spread awareness of this prevalent issue.

III. Implementation Plan

- We’ve found an AI API, Clarifai, that is already trained to recognize more than 1000 food items in images, and even their respective ingredients. Therefore, we will use this API to recognize the food in the image that the user uploads, and return the predicted items to the user. (https://www.clarifai.com/models/food-image-recognition-model-bd367be194cf45149e75f01d59f77ba7)

- We also came across a food database API by Edamam that provides the nutritional data for generic foods, packaged foods, as well as restaurant meals. By using this, we can take the predicted food item from the food image recognition API and return the food's caloric information for users. (developer.edamam.com/food-database-api-docs)
- In terms of building the web application, we will be using Flask.

IV. Project Schedule

4/25 - Project Proposal Done
4/27-4/28 - Meet with Professor Li to update him on the progress of our project, ask questions, gather feedback.
5/1 - 5/2 - Completed Code, set up meeting with Professor Li to review code
5/3 - Project Presentation/Final Website

V. Collaboration Plan

We plan to pair program the entire way. We believe that working together is most efficient for bigger tasks because we can combine ideas and insights from what we've both self-learned. This particular way can ensure that we will be able to make mistakes together and work through issues side by side. Making sure we carve out time to work together on programming is key to the success of this project, especially considering our dramatic time zone difference. If along the way, there are certain things that can be handled individually, we will access and split up tasks as seen fit. Because we have worked in a team together before and found that this collaboration plan has worked for us in the past, we plan on continuing this style of teamwork for this project as well.

VI. Risks

Some risks to this project may include having to self-learn many new concepts to get the web application running, coordination of our project due to time zone differences, and perhaps not having a perfect API or database that will provide 100% accuracy to the user. However, many of these risks can be mitigated by asking Professor Li for additional assistance and advice while running into these issues, efficient time management, and teamwork.

VII. Additional Course Content

We believe that our takeaways and learnings from completing Assignment 3 will be particularly helpful for our project. We have learned Flask with basic HTML, and plan to incorporate some CSS to add some flair to our Web App. We have learned how to extract and handle data from web APIs, which we will find particularly useful as well.