

Final Project Proposal

Group 62

Team Name: AmanTech

Team Members: Alen Zacharia, Jared Mindlin, Robert Medina

Project Title: FoodSearch

Problem: What problem are we trying to solve? [0.25 point]

Many people struggle with meal planning and ensuring they are getting the necessary nutrients, especially those who are dieting, trying to bulk up, or lose weight. This can be particularly challenging for people living in food deserts or who lack the resources to access nutritious foods. We are trying to address this issue by providing an easy and convenient way for people to find recommended foods based on their desired nutritional content.

Motivation: Why is this a problem? [0.25 point]

Ensuring proper nutrition is critical for maintaining good health and well-being. Poor nutrition can lead to a range of health problems, including obesity, diabetes, and heart disease. Meal planning and food selection can be time-consuming and difficult for many people, leading to unhealthy eating habits and poor nutritional choices. Not everyone is aware of the nutrient values of what they eat everyday.

Features: When do we know that we have solved the problem? [0.25 point]

Our program, FoodSearch, will provide users with easy access to a variety of recommended foods based on their desired nutritional content. Users should be able to search for foods based on a range of criteria, including protein, carbohydrates, fat, and more. The foods highest in such desired nutrients would then be displayed first.

Data: (Public data set we will be using and the link to the public data set) or (Schema of randomly generated data - i.e. what are the different columns in our dataset and the respective datatypes) [0.25 point]

We will use the [United States Department of Agriculture's Food Composition Database](#), sourced from the U.S. Department of Agriculture's 2019/20 data . This dataset contains detailed information about the nutritional content of a wide range of foods, including macronutrients, micronutrients, and other relevant information.

Tools: Programming languages or any tools/frameworks we will be using [0.25 point]

- C++
- SFML

Visuals: Wireframes/Sketches of the interface or the menu-driven program [0.25 points]

Merge Sort

Shell Sort

Search

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Vitamin A

Vitamin B6

Vitamin C

Vitamin K

Vitamin E

Zinc

Vitamin A Content per gram

Carrots	60 mg
Ground Turkey	50 mg
Ground Beef	40 mg
Oranges	35 mg
Apples	30 mg
Red Beans	25 mg
Doritos	15 mg
Chicken Breast	15 mg

Strategy: Preliminary algorithms or data structures you may want to implement and how would you represent the data [0.25 points]

We will implement a singly-linked list to store the data for the nutrition content of food, then compare a merge-sort algorithm to a shell sort algorithm to find foods high in specific nutrient content that the user selected, for example, the user selects vitamin A from a dropdown menu and then can choose between using a merge-sort or shell sort algorithm to find foods that are highest in vitamin A.

Distribution of Responsibility and Roles: Who is responsible for what? [0.25 points]

Visualization/GUI: Robert, Jared, Alen
 Creating Array with data: Robert
 Merge-Sort algorithm: Jared
 Shell Sort: Alen

References

<https://think.cs.vt.edu/corgis/csv/food/>
[FNDDS DOWNLOAD DATABASES : USDA ARS](#)