**Criterion A: Planning**

**Scenario**

Mr. Hoang An Nguyen, the scoutmaster of Boy Scout Troop 904, is the client. Every few months, the Boy Scouts in the troop plan backpacking or hiking trips to the local mountains of Virginia. At each trip, the scouts participating are required to plan and pack their own food. The scouts in Troop 904 are divided into six patrols, each of which consist of one patrol leader and five to seven patrol members. At every outing, the patrol leaders gather and meet with their patrols at least a week in advance to plan for any food or supplies that are needed. For example, if there is an upcoming backpacking trip starting from Saturday morning to Monday afternoon, a food plan is developed and consists of three Saturday meals, three Sunday meals, and two Monday meals with a consideration of a few miles of hiking in between breakfast and dinner. This means that each patrol should plan accordingly to the amount of energy spent hiking for several miles with backpacks of at least 20 pounds. Each individual scout is also expected to bring a personal bag of snacks in case they get hungry. The client thought it would be convenient to have a program that can figure out how much fat, carbohydrates, protein, and overall calorie intake each scout has to consume in order to have enough energy to last the whole backpacking trip.

**Consultation (via phone call; 10/20/2017; 10:23PM)**

1. **What inputs are needed?**

Age, weight, height, total distance of the trail, total elevation of the trail, time period of the backpacking/hiking trip. Temperature, and possibly weather could be another factor that affects energy usage, but it will be hard to include them in the calculations.

1. **Are there any problems to the current method of each patrol planning their own food?**

Some scouts don’t really look at all the nutrition facts when buying their food. Also, some patrols, particularly the young ones, may plan for an insufficient amount of food and water. This means that the older scouts must be prepared to share food or water with the younger scouts since they need the energy more.

1. **What format would you like to be presented with? A database of scouts with their information or a backpacking/hiking food and calorie intake calculator?**

An individual calculator that calculates the calorie intake and carbs, protein, and fat ratio for one scout.

1. **What is your expected outcome?**

The results will display the total calories needs for that backpacking trip along with the percentage carbs, protein, and fat. The three percentages can vary depending whether it is breakfast, lunch, or dinner.

**Proposed Product**

The final product will be a calculator that takes the inputs of a scout’s age, weight, and height, and the location’s total distance, elevation, and time period to end up with a calculated result of total calorie intake along with percentages of fat, protein, and carbohydrates. Additionally, different percentages of fat, protein, and carbohydrates are applied to different mealtimes such as breakfast, lunch, and dinner. This is because during a backpacking trip, breakfast is consumed to store energy for the day, lunch consumed to replenish and store more energy for the rest of the day, and dinner is consumed to compensate for the energy lost hiking since lunchtime, and prepare for the next day through sleep. Therefore, this program will make it easier for the scouts of Mr. Nguyen to plan for food, because the percentages of fats, proteins, and carbohydrates will let them know how much of each type food to bring for each meal. Each scout will use the program to find out the recommended food intake, and the patrol leaders of each patrol will average out the results to make an optimized food plan for a specific backpacking or hiking trip. By using this method, patrol food planning will be more precise, more efficient, and less generalized. This will ensure that every scout will have enough energy to hike for the full duration of the backpacking or hiking trip.

Word Count: 465

**Success Criteria**

* The user can save and edit a data entry based on the location of the outing.
* The user can save and edit their inputs of age, weight and height.
* The user can delete a data entry based on the location of the outing.
* The program accurately computes the recommended total calorie intake and percentages of fats, proteins, and carbohydrates.
* A list of locations along with the associated calculations is displayed to the user.
* Scouts of Mr. Nguyen will be able to see past backpacking/hiking trips and may use the same calculations or update them if they ever revisit the location.