SOFTWARE REQUIREMENTS SPECIFICATION for BLACK BEAR CALORIE COUNTER

Version 1.0 DRAFT

TEAM SEGMENTATION FAULT, GROUP 2,
COS 420

Contents

Revision History

Name	Date	Reason For Changes	Version
Chris Vogel	28/02/2021	Initial version	1.0

Preface

The document is part of Deliverable 1 for COS 420 at the University of Maine. Many thanks go to Jordan Whitefield <https://jwhitefield.co.uk/> for his SRS-LaTeX template found at <https://github.com/lordqwerty/SRS-LaTeX/>.

Structure of Specification

This Software Requirements Specification begins with a general overview of the Black Bear Calorie Counter applications and then delves into specific features.

Chapter 1

Introduction

1.1 Purpose

This document outlines the Software Requirements Specification (SRS) for Black Bear Calorie Counter, version 1.0.

1.2 Document Conventions

Higher-level requirements are assumed to be inherited by more detailed requirements. Standard typographical conventions are followed; fonts and highlighting do not have special significance.

1.3 Intended Audience and Reading Suggestions

The intended audience for these Software Specification Requirements are developers, project managers, legal and marketing staff, documentation writers, and users. Interested readers should begin with this introduction, read the overall description, and navigate to features they are interested in in the table of contents.

1.4 Project Scope

Black Bear Calorie Counter is a calorie- and macro-counting application for Android smartphones. The scope of this project is to allow users to easily input the food that they eat and easily view how many calories and macronutrients are consumed.

1.5 References

- **Material Design Guidelines:** <https://material.io/design/guidelines-overview>

- **USDA FoodData Central:** <https://fdc.nal.usda.gov/>

Chapter 2

Overall Description

2.1 Product Perspective

Black Bear Calorie Counter is a new product that aims to replace advertisement-laden applications centered on weight loss such as MyFitnessPal and MyPlate.

2.2 Product Functions

- Track calories and macronutrients consumed throughout the day and over time.
- Query the United States Department of Agriculture's (USDA) Food-Data Central for nutritional information based on a barcode or search string.
- Normalize the portion values from FoodData Central to grams or ounces to allow for easy use of a food scale.
- Warn the user if they have not met a daily caloric or macro-intake goal.

2.3 User Classes and Characteristics

1) **Food scale users:** Food-scale users demand per-gram and per-ounce nutritional information. Users with food scales are also more likely to want detailed statistics on their food intake.

2) **Users looking to gain weight:** Those looking to gain weight want an application that does not assume weight *loss*, as so many competing applications do. They are also more likely to be involved in weightlifting and will therefore wish to track protein consumption more closely. Not meeting a calorie goal should result in a warning to this group of users.

3) **Users looking to lose weight:** Those looking to lose weight will require warnings when they have exceeded a caloric goal.

2.4 Operating Environment

Black Bear Calorie Counter has not determined a baseline of software environment and hardware that will be supported. However, it must run on the Android mobile operating system and peacefully coexist with all existing applications.

2.5 Design and Implementation Constraints

Black Bear Calorie Counter will not give health advice due to a lack of medical expertise. Additionally, we will not maintain a server-side infrastructure for users to keep and share their data in "the cloud."

2.6 User Documentation

User documentation components have not been determined.

2.7 Assumptions and Dependencies

Black Bear Calorie Counter relies on the USDA's FoodData Central database to acquire nutritional information.

Chapter 3

External Interface Requirements

3.1 User Interfaces

All user interfaces within Black Bear Calorie Counter will follow Google's Material Design guidelines to ensure usability and uniformity. User interfaces within Black Bear Calorie Counter include:

- An interface to enter food
- An interface to review previously eaten food
- An interface to review daily caloric and macronutrient intake

3.2 Hardware Interfaces

Hardware interfaces have not been determined.

3.3 Software Interfaces

Food intake and aggregate nutritional information will be stored locally in an SQLite database. A library to read bar codes will be required but is currently undetermined.

3.4 Communications Interfaces

Black Bear Calorie Counter will use HTTPS to communicate with FoodData Central's REST API for nutritional information. The API is rate-limited to 3600 requests per hour per IP address; we do not anticipate this limit to be an issue.

Chapter 4

System Features

4.1 Search for Foods

4.1.1 Description and Priority

Users should be able to enter food into Black Bear Calorie Counter by searching for brand names or keywords, e.g., "bananas" or "Pepsi." This is a **high** priority.

4.1.2 Stimulus/Response Sequences

User Actions	System Response
1. Choose "+" button.	2. Food selection dialog appears
3. Enter keywords	4. Suggest dialog appears
5. Pick match	5. Suggest dialog disappears
	6. Portion dialog appears
7. Selects portion	8. Portion dialog disappears

4.1.3 Functional Requirements

1) The suggestion dialog shall contain US food products matching the keywords 95% of the time when those keywords are spelled correctly. **(REQ-1)**

2) The suggestion dialog shall never pick a suggestion for the user when input is done by keywords. **(REQ-2)**

4.2 Track Calories and Macronutrients for the Day

4.2.1 Description and Priority

Users should be able to view the calories and macronutrients that they have consumed for the day. This is a **high** priority.

4.2.2 Stimulus/Response Sequences

User Actions	System Response
1. Choose hamburger menu	2. Sidebar appears
3. Choose “Overview”	4. Sidebar disappears
	5. Overview dialog appears

4.2.3 Functional Requirements

1) The overview dialog shall contain all foods entered that day. **(REQ-1)**

2) The overview dialog shall display total calories consumed that day at the top of the dialog. **(REQ-2)**

3) The overview dialog shall display a pie graph of macronutrients consumed as a percentage of total caloric intake. **(REQ-3)**

4) The overview dialog shall display foods in the chronological order that they were consumed. **(REQ-4)**

5) The overview dialog shall color the calorie intake red if a calorie goal has not been met. **(REQ-5)**

6) The overview dialog shall color the calorie intake green if a calorie goal has been met. **(REQ-6)**

7) The overview dialog shall display a caloric value of each item displayed. **(REQ-7)**

4.3 Enter Food by Bar code

4.3.1 Description and Priority

Users should be able to enter food into Black Bear Calorie Counter by scanning the product’s Universal Product Code (UPC) with the phone’s camera. This is a **medium** priority.

4.3.2 Stimulus/Response Sequences

User Actions	System Response
1. Choose “+” button.	2. Food selection dialog appears
3. Scan bar code	4. Suggest dialog appears
5. Pick match	6. Suggest dialog disappears
	7. Portion dialog appears
8. Select portion	9. Portion dialog disappears

4.3.3 Functional Requirements

1) The bar code scanner shall recognize US food bar codes 95% of the time. **(REQ-1)**

2) The bar code scanner shall prompt for camera permissions only on the first attempt to scan a bar code. **(REQ-2)**

3) The bar code scanner shall select a suggestion automatically if it is the only suggested food from a bar code scan. **(REQ-2)**

4.4 Allow Per-Unit Food Measurements

4.4.1 Description and Priority

Users should be able to select portion sizes in units of one gram or one ounce to facilitate use of a food scale. This is a **medium** priority.

4.4.2 Stimulus/Response Sequences

User Actions	System Response
1. Select food to add	2. Portion dialog appears
3. Select “g” or “oz” from portion-size drop down menu	4. Textbox appears
5. Enters amount of food in grams or ounces	
6. Select “Add”	7. Portion dialog disappears

4.4.3 Functional Requirements

1) The portion dialog shall calculate per-gram servings from USDA Food-Data Central 95% of the time. **(REQ-1)**

2) The portion dialog shall calculate per-ounce servings from per-gram servings if the user selects “oz” as a unit. **(REQ-2)**

4.5 View Historical Intake

4.5.1 Description and Priority

Users should be able to see historical caloric and macronutrient intake. This is a **low** priority.

4.5.2 Stimulus/Response Sequences

User Actions	System Response
1. Choose hamburger menu	2. Sidebar appears
3. Choose “Overview”	4. Sidebar disappears
	5. Overview dialog appears
6. Choose “<” or “>” to go back or forward a day	7. Overview dialog changes to that day

4.5.3 Functional Requirements

1) The historical overview shall preserve food intake data for at least one month. **(REQ-1)**

2) The historical overview shall preserve caloric and macronutrient goals for at least one month. **(REQ-2)**

Chapter 5

Other Nonfunctional Requirements

5.1 Performance Requirements

Performance requirements have not been determined at this time.

5.2 Safety Requirements

- Black Bear Calorie Counter will not give medical advice.

5.3 Security Requirements

- All queries to USDA FoodData Central must be encrypted with HTTPS.

5.4 Software Quality Attributes

- All calorie information must remain accurate compared to what is stored in USDA FoodData Central.

5.5 Business Rules

We do not currently having any business rules.

Chapter 6

Other Requirements

6.1 Appendix A: Glossary

Calorie Used in the nutritional sense to mean one kilocalorie, or the energy needed to raise the temperature of one kilogram of water through one degree Celsius.

Macronutrient Proteins, fats, or carbohydrates.