
Business Requirements Specification

For

Personal Food Log App

Version 1.0

Prepared by Group 6: Longxuan Zhao 301385113
Junchen Li 301385486
Jianan Xu 301368689
Weilong Xu 301385645
Zikun Zhang 301386607

March 20, 2022

Contents

1 Introduction

1.1 Business purpose.....	(3)
1.2 Business scope.....	(3)
1.3 Business overview.....	(3)
1.3 Definitions.....	(3)
1.4 Major stakeholders.....	(4)

2 References (4)

3 Business management requirements

3.1 Business environment	(4)
3.2 Mission, goals, and objects.....	(4)
3.3 Business model.....	(5)
3.4 Information environment.....	(5)

4 Business operational requirements

4.1 Business processes.....	(6)
4.2 Business operational policies and rules.....	(8)
4.3 Business operational constraints.....	(9)
4.4 Business operational modes.....	(9)
4.5 Business operational quality	(10)
4.6 Business structure.....	(10)

5 Preliminary operational concept of proposed system

5.1 Preliminary operational concept.....	(10)
5.2 Preliminary operational scenarios.....	(11)

6 Other preliminary life-cycle concepts

6.1 Preliminary acquisition concept.....	(11)
6.2 Preliminary deployment concept.....	(11)
6.3 Preliminary support concept.....	(11)
6.4 Preliminary retirement concept.....	(11)

7 Project Constraints..... (11)

8 Appendix

8.1 Acronyms and abbreviations.....	(12)
-------------------------------------	------

1 Introduction

1.1 Business purpose

This BRS document aims to show the business information of the Personal Food Log App and how it is important to relate to the business nowadays. And in this document, it explains why people need this app, it states Business Management Requirements, Business Operational Requirements, this is to better demonstrate the management and operation of this app in business. Meanwhile, the Preliminary Operational Concept of the proposed system is presented to explain how users should use the software. In addition, this document will explain Other preliminary life-cycle concepts to show different concepts, including acquisition, deployment, support and retirement. Finally, the constraints for this project are also indicated.

1.2 Business scope

This app runs the common platforms on mobile platforms, Android and IOS. This means that the commercial scope of the app is very wide. As for the Personal Food Log App, it is a healthy type of software dedicated to helping track users' daily nutrition intake at all three meals. With the improvement of human's living standards, health has been paid more and more attention. The position of health in business can also be reflected. It is mainly based on the user's personal Setting, including height, weight, age, gender, whether there is a certain disease, etc., and uses AI to calculate the intake of each nutrient at each meal every day, including a series of nutrients required by the body, such as carbon, vitamin group and dietary fiber. Based on the user's photos, the nutrient intake is analyzed to check if it meets the criteria. In short, this app is a software developed for people's health. It is widely used in business. Men, women, children and patients can use this app to track and adjust their diet.

1.3 Business overview

The core of this app is to visualize the calories of each meal. It will analyze the type and nutrition of each food, and then provide the data to users with pictures, texts and data. Internal divisions are those who want to track their daily meals for energy and nutrition intake. External entities are healthcare providers, diet and health clinics, athletes and individuals who are overweight or just want to stay healthy. Data on food intake is collected from the user, and the energy income and expenditure system it generates can be sold to external entities.

1.4 Definitions

(a) big data:

Sets of information that are too large or too complex to handle, analyze or use with standard methods.

(b) Database:

Allocated storage for required data assets.

(c) dietitian:

A person whose job is to advise people on what kind of food they should eat to keep healthy.

(d) Server:

A computer or computer program which manages access to a centralized resource or service in a network.

(e) Machine Learning:

The use and development of computer systems that are able to learn and adapt by using algorithms and statistical models to analyze and draw inferences from patterns in data.

(f) AI:

This new technology uses AI to recognize character features in the same way a human brain does.

- (g) Algorithm:
A process or set of rules that is followed in calculations or other problem-solving operations, especially by a computer.
- (h) Stakeholder:
A person with an interest or concern in the project.
- (i) User:
A person who uses or operates the application.
- (j) Nutrition:
The process by which living things receive the food necessary for them to grow and be healthy.
- (k) Calorie:
A unit for measuring how much energy food will produce.

1.5 Major stakeholders

- Digital Health Inc.: As a direct beneficiary of Party A's company, the obtained data will be sold to a third-party cooperative organization such as Health Clinic.
- Clients (Users): Larger number of users can have more influence on the Personal Food Log app.
- Third Party: Amazon that can influence how information is stored and processed by Amazon Web Services (AWS).
- Developers: The developer team has a direct impact on the usability of the application and the user experience.

2 References

1. IEEE 29148-2018 Requirements Engineering. (2018, November).
2. *Oxford Learner's dictionaries: Find definitions, translations, and grammar explanations at Oxford Learner's dictionaries.* Oxford Learner's Dictionaries | Find definitions, translations, and grammar explanations at Oxford Learner's Dictionaries. (n.d.). Retrieved March 26, 2022, from <https://www.oxfordlearnersdictionaries.com/us/>

3 Business management requirements

3.1 Business environment

Health care:

A good and reasonably healthy diet is an important aspect of health care, which enables the body to grow and develop healthily; Bad eating habits will lead to normal physiological disorders of the human body and infection of diseases. On the contrary, the right diet can play a therapeutic role in disease and help the body to recover. Today, it has become a very hot topic. Because with the improvement of human living standards, more and more attention is paid to the intake of energy and nutrients in each meal. The profession of dietetics does not appear out of thin air. People need to plan their diet reasonably every day and even every meal in their daily life, which forms a business environment for Food Log and makes people a link to health.

Life support:

As technology advances, more and more devices and software are developed to assist human health. In an era of big data information development, people's self-discipline inevitably needs auxiliary equipment to support their living standards. Personal Food Log can help health institutions, hospitals, athletes, and people who need to maintain a healthy diet to control their daily dietary energy and nutrient intake, which also forms a business environment.

3.2 Mission, goals, and objects

Mission:

Help people measure up to nutritional and energy standards with high accuracy. Build a bridge between clients(users) and health.

Goals:

Provide users with visual analysis of heat and nutrients with high accuracy.

Provide usability that satisfies users.

Provide users with faster and more convenient operation mode

Help users record and track daily caloric and nutrient intake

Objects:

Personal Food log app to remind users of nutrition.

Help document.

3.3 Business model

First of all, in order to provide more scientific data, the extraction of calories and nutrients in daily meal collocation will be developed, which will involve the professional knowledge of dietitians. Specifically, to collect the user's age, weight, height, gender, and presence of certain medical conditions to analyze the metrics for each meal. Based on this index, you can have a more detailed plan of eating and drinking.

Secondly, it is necessary to promote the application so that more users can use it, which involves advertising and sales of the software to attract users to use the software.

Users will then use the app to customize their personal characteristics. Every meal of the user will be photographed and scanned, and the data will be visualized for the user to view. In the process of the user's view, whether the calories and nutrition are in the standard will be explained. The program will also give suggestions and tips to remind and help users how to match their diet. Users can also feedback the analyzed data, so that the VBM system can learn more accurately and effectively.

Finally, with the user's permission, the data will be fed back to Digital Health Inc., Health organizations and food companies. To accomplish their own interests.

3.4 Information environment

(a) Project Portfolio

- (1) All users are able to access their own non-local data with the highest priority - such as any secure databases that host such data. This may be constrained by the uptime of AWS (Amazon Web Services) and any other additional data hosts used.
- (2) All application support systems must have accessibility >99% of the time. This may be constrained by the availability of support staff during high support times.

(b) Long Term System Plan

AWS has been designed as the cloud server for storing and managing user data. AWS will reduce some of the project's start-up capital, including labor costs. Considering the potential instability of AWS, this long-term plan may be constrained by temporary connectivity issues. So, a robust redundancy system is urgently needed, but may take months to build.

(c) Database Configuration

The main database will be hosted on the AWS platform, with the following preliminary database schema:

Relations:

User [user_ID, name, dob, phone, email, height, gender]

DailyReport [user_ID, date, calories]

CaloriesLog [log_ID, user_ID, date, image, calories, protein, fat]

FoodComponent [log_ID, component_ID, calories]

WeightHistory [user_ID, date, weight]

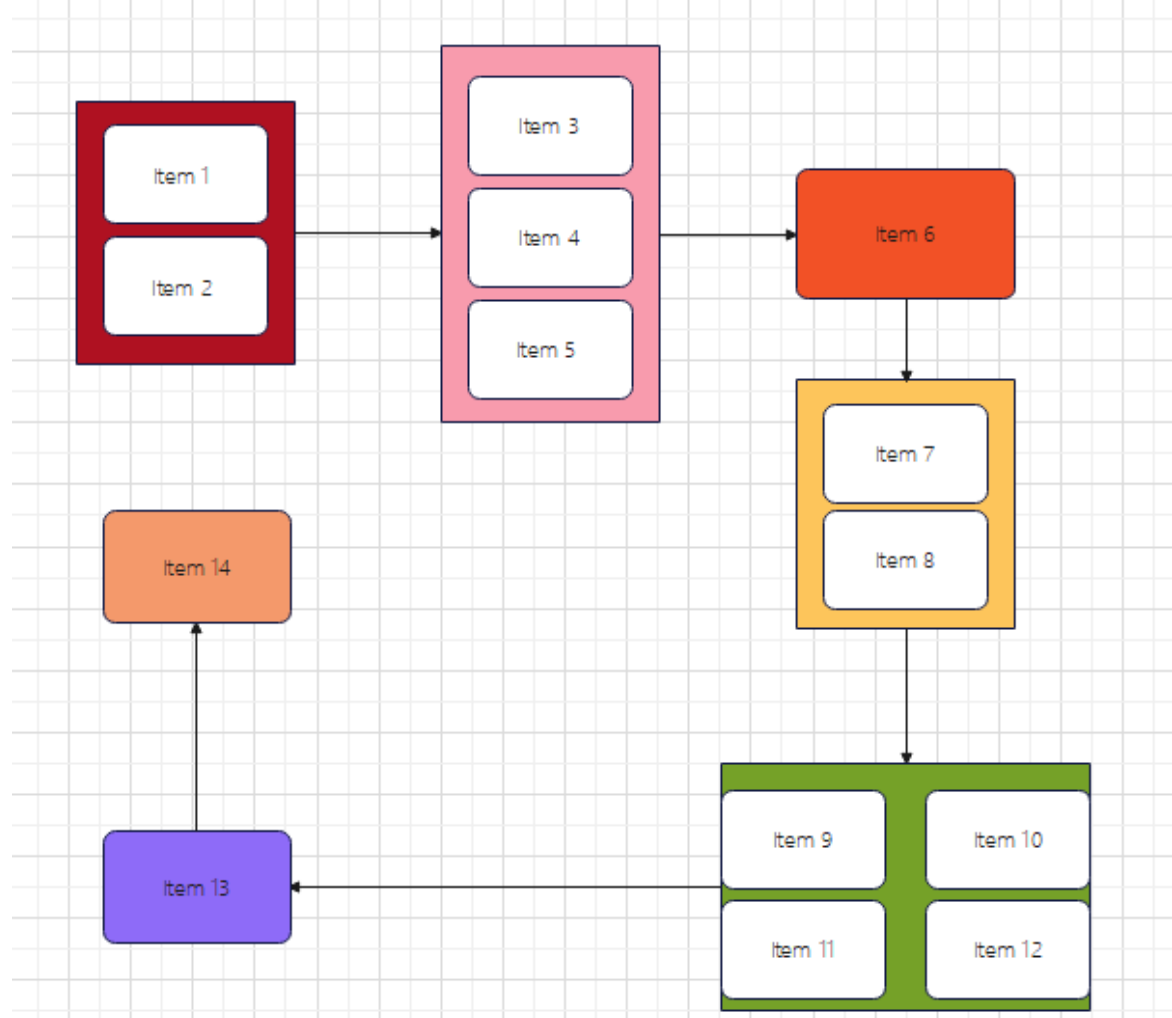
Other unlisted data will be stored locally on the user's phone. The database availability and accessibility will be constrained by any issues and outages AWS encounters, however due to the built-in redundancies this should be a more fool-proof solution than local hosting.

4 Business operational requirements

4.1 Business processes

Item No.	Business process	Impact area
1	Negotiate agreement with bidding company, here is Digital Health Inc.	Preliminary Meeting
2	Discussion infrastructure and connections.	Preliminary Meeting
3	Coordinate with Amazon company as the third part company for the Amazon Web Services.	Product dependencies
4	Coordinate with A legal organization of dietitians to provide a standard amount of calories and nutrition per meal according to individual characteristics.	Product dependencies
5	The system for publishing applications, here is IOS and Android.	Product dependencies
6	Release Personal Food Log app	Release to public
7	Consult and refer to the law regarding user privacy.	Privacy
8	Collect and analyze information in accordance	Privacy

	with privacy rules.	
9	Develop market research list for the food log	Marketing
10	Conduct market research to collect questions about whether people eat regularly and have the habit of properly combining nutrients, and whether they have considered eating healthily.	Marketing
11	Conduct market forecasts to predict people's expectations for healthy eating and future demand.	Marketing
12	Work with advertisers to promote app, and attract more users	Marketing
13	Collect and analyze the market research	Research analysis
14	Improve the app the update and release new version	Updating upon the analysis



4.2 Business operational policies and rules

Item No.	Policies/Rules	Reference No. (Business Processes)
1	Party A and B shall cooperate with each other to fulfill their respective obligations and achieve their goals.	1,2
2	Fulfill the basic service principles of the Party and cooperate with three parties. Reach a consensus and perform the cooperation as stipulated in the contract.	3,4,5
3	Release the product to the public according to the specified time.	6
4	Protect the privacy of users, especially when data is collected and analyzed with the consent of users.	7,8
5	Conduct market research according to departmental regulations and agreed standards.	9,10,11,12
6	The feedback collected will be reasonably classified and analyzed, and inappropriate remarks with political and colors discriminatory should be filtered.	13
7	Update and release new versions of the app in accordance with the agreed standards.	14

4.3 Business operational constraints

- (a) Aside from users' network capability, the servers must be able to analyze the uploaded images and return the analysis results to the users within 30 seconds.
- (b) When AWS is shutted down by an expected issue, the robust redundancy system must start up within 5 minutes.
- (c) When a user submits a password-change request, the server needs to send a password modification link immediately to the user's email.
- (d) When a user submits a register request, the server needs to send a confirm link immediately to the user's email.
- (e) If the user did not agree to the data privacy terms, no further operations should be allowed.

- (f) The marketing team should allow at least 10 days to conduct and research the current market.
- (g) Marketing teams should launch marketing strategies and advertising CGs well in advance of the product launch date.
- (h) Software feedback should be continuously collected and aggregated and analyzed accordingly within one week of the release cycle.
- (i) After the first version is launched, the operation and maintenance team should continuously monitor the system and report sudden errors in a timely manner.

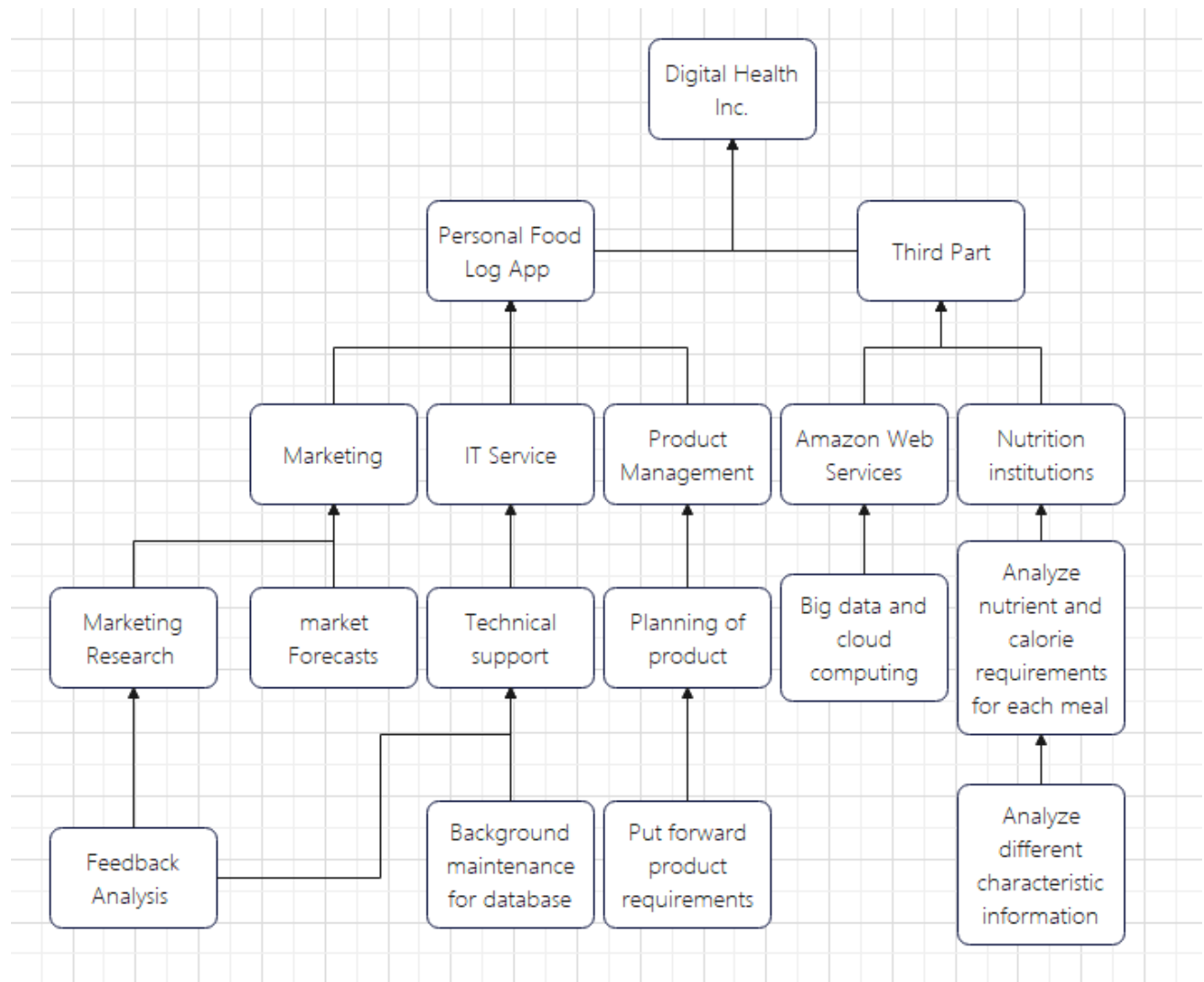
4.4 Business operational modes

- For each release week, short-handed problems may occur in both the development and deployment teams. The project management team should consider postponing the release date further for a stable and reliable release, after coordinating with the marketing team.
- During new laws releasing, the terms for users may be affected. The project management team should coordinate with the deployment team, then make a new list of terms that obey the new laws and release them to users.
- During the arrival of uncontrollable and destructive natural disasters such as fires, floods, and earthquakes, various departments need to actively cooperate and cooperate to ensure that all users' data are properly preserved.
- In the case of network security issues such as data leakage or server attacks, the project management team needs to take immediate measures to minimize server damage and protect users' personal information.

4.5 Business operational quality

The quality level of each business operation should meet what is specified in the business process and adhere to the constraints listed in the Business Operation Constraints section. During business operations, operations with higher priority should be completed first. Prioritization needs to follow the sequential flowchart in the business process section.

4.6 Business structure



5 Preliminary operational concept of proposed system

5.1 Preliminary operational concept

Enter the user's basic information, propose the user to agree to the software's permission to take pictures and take pictures of the food they eat to track the energy intake of each meal. The system integrates existing energy consumption solutions to provide complete energy intake/consumption.

5.2 Preliminary operational scenarios

Scenario ID	Scenario Name	Scenario Description
1	Setting personal information	Open the Personal Food Log app, and start to set the personal information.
2	Taking photo	After setting, the normal app user should be able to take photos of the desired food.
3	Calculating calorie	After taking the photo, the

		system should calculate the calorie based on the photo.
4	Viewing the food log	After calculation by VBM, users could see each food's calorie intake.

6 Other preliminary life-cycle concepts

6.1 Preliminary acquisition concept

The system belongs to Digital Health Inc.

6.2 Preliminary deployment concept

The machine learning model will be deployed to Amazon Cloud, and the application will be deployed to Apple Store and Google Play Store.

6.3 Preliminary support concept

After deployment, support from multiple sources will be required.

- Operating support: Operational experts are required to monitor the system and report problems to maintenance
- Maintenance support: Maintenance support shall monitor any maintenance issues with the system and report any errors found to engineering, and shall ensure that each update and release of the system goes smoothly
- Engineering support: Fix bugs, provide technical support, release changed versions
- Training support: Provide tutorials for App users

6.4 Preliminary retirement concept

All instances of the application will be removed from Amazon Cloud, including database, system, machine learning models, and infrastructures.

7 Project Constraints

1. Cost management results in the need to change the scope of the project schedule or expand the investment.
2. Projects may not be delivered on time as expected.
3. The overall timing inaccuracy of the application can be caused by the current state of machine learning.

8 Appendix

8.1 Acronyms and abbreviations

Acronym/Abbreviation	Definition
Healthy eating plan	A healthy eating plan gives your body the nutrients it needs every day while staying within your daily calorie goal for weight loss. A healthy eating plan also will lower your risk for heart disease and other health conditions.