

Software Project Management Plan

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Part 1 Introduction

This project is being designed and created solely by Christopher Regan for the individual project requirement in COSC 412

1.1 Project Overview

This project aims to bring a level of precision to an athlete's diet that matches that of a licensed dietician by performing tedious portion calculations intuitively. At high levels of performance having a precise measurement on the quantity and type of calories being consumed is critical to success. Calories are broken into three macronutrient categories: Carbohydrates, Proteins and Fats. Depending on what a user's fitness goals are they will want to consume different macronutrient profiles. For example an athlete trying to gain weight will want to be high in carbs and protein (50% carbs, 35% protein, 15% fat), while someone trying to lose weight will want to cut carbs (30% carbs, 45% protein, 25% fat). Every food has a different macronutrient makeup. A comprehensive diet plan is one that properly balances the equation of the nutritional information in all the food being eaten in once day with the caloric goal and macronutrient profile. This is entirely possible to do by hand but requires a level of effort that discourages athletes by creating a significant barrier to entry. Every time the macro profile changes, or a new food is introduced, the math must be redone. There is a niche demand for a simple web app that can accomplish this redundant calculation to enable more people to take control of their diets with out having to hire a dietician or do algebra.

1.2 Project Deliverables

Topic Proposal - 6/7/20

SPMP - 7/14/20

Use Cases – 7/14/20

Tool Selection – 7/14/20

System Test Plan – 7/21/20

1.3 Evolution of the SPMP

As the project is being developed, it is possible that difficulties that will hinder progress, or discoveries that enable more efficient implementation will be discovered. If such occurrences appear in the project this document will be amended to reflect the new methods as they appear.

1.4 Reference Materials

“Macronutrients: A Simple Guide to Macros | Avita Health System.” *Avita Health System*, 5

Sept. 2019, avitahealth.org/health-library/macronutrients-a-simple-guide-to-macros/.

Accessed 14 July 2020.

“What Are Macros And Why Should I Be Counting Them?” *Sclhealth.Org*, 2018,

www.sclhealth.org/blog/2018/10/what-are-macros-and-why-should-i-be-counting-them/.

Accessed 14 July 2020.

“What Is User Interface Design?” *The Interaction Design Foundation*, UX courses, 2018,

www.interaction-design.org/literature/topics/ui-design. Accessed 14 July 2020.

“What Is A Gantt Chart? | Definition & Examples | APM.” *Apm.Org.Uk*, 2020,

www.apm.org.uk/resources/find-a-resource/gantt-chart/. Accessed 14 July 2020.

1.5 Definitions and Acronyms

Macro - Macros are macronutrients. Your body needs these nutrients in larger amounts in order to function properly as macro means large. In addition, all of these nutrients provide your body with energy measured in the form of calories or kcals. There are three types of macronutrients: carbohydrates, proteins, and fats.

- Carbohydrates contain 4 kcal per gram
- Proteins contain 4 kcal per gram
- Fats contain 9 kcal per gram (Avita Health System)

UI - User interface (UI) design is the process designers use to build interfaces in software or computerized devices, focusing on looks or style. Designers aim to create interfaces which users find easy to use and pleasurable. UI design refers to graphical user interfaces and other forms—e.g., voice-controlled interfaces. (Interaction Design Foundation)

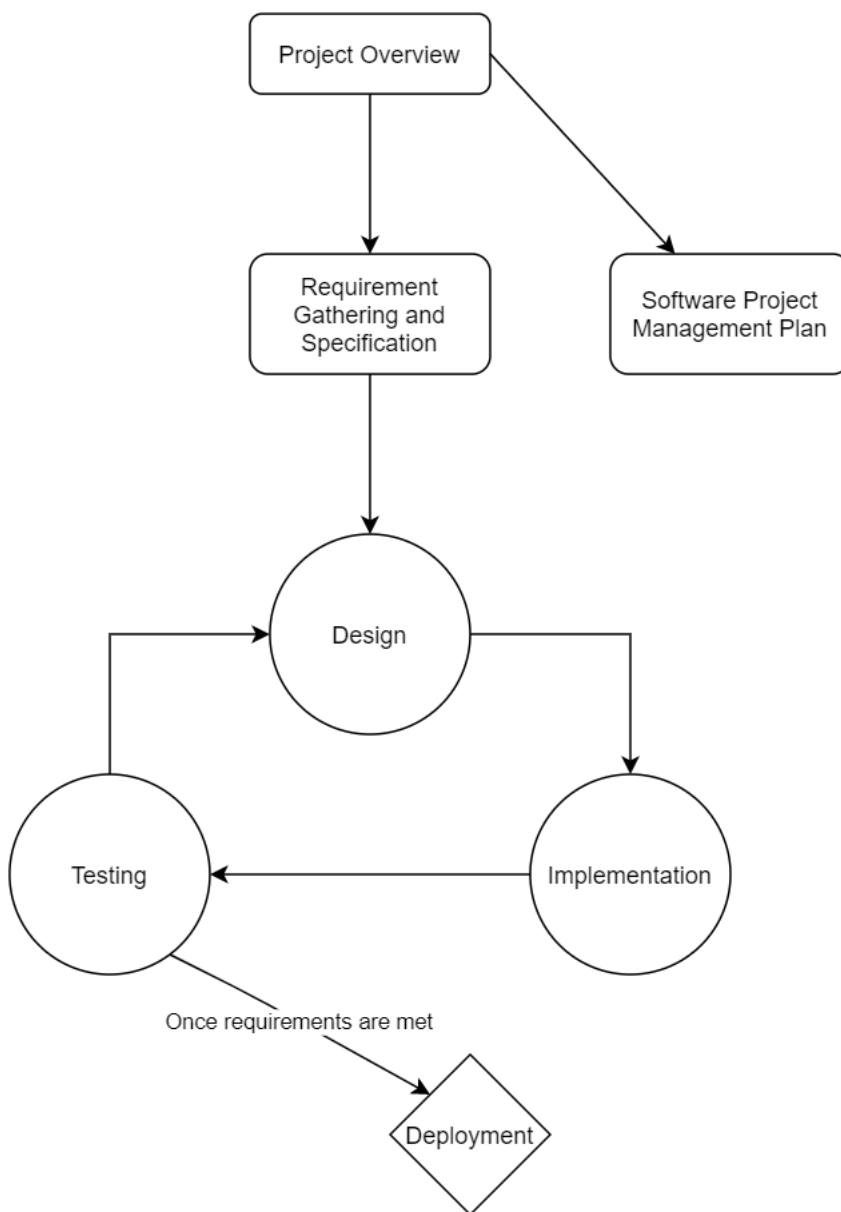
Gantt Chart - a project management tool assisting in the planning and scheduling of projects of all sizes, although they are particularly useful for simplifying complex projects. Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner.

Part 2 Project Organization

2.1 Process Model

The first step of the project will be to create a project overview that will be the foundation of the SPMP as well as form a lens from which the requirements are viewed from. Once the requirements are satisfied in terms of the project summary, the design-implementation-testing loop begins. This will be the core of the project development. Once a functional product is produced from this loop the project is deployed.

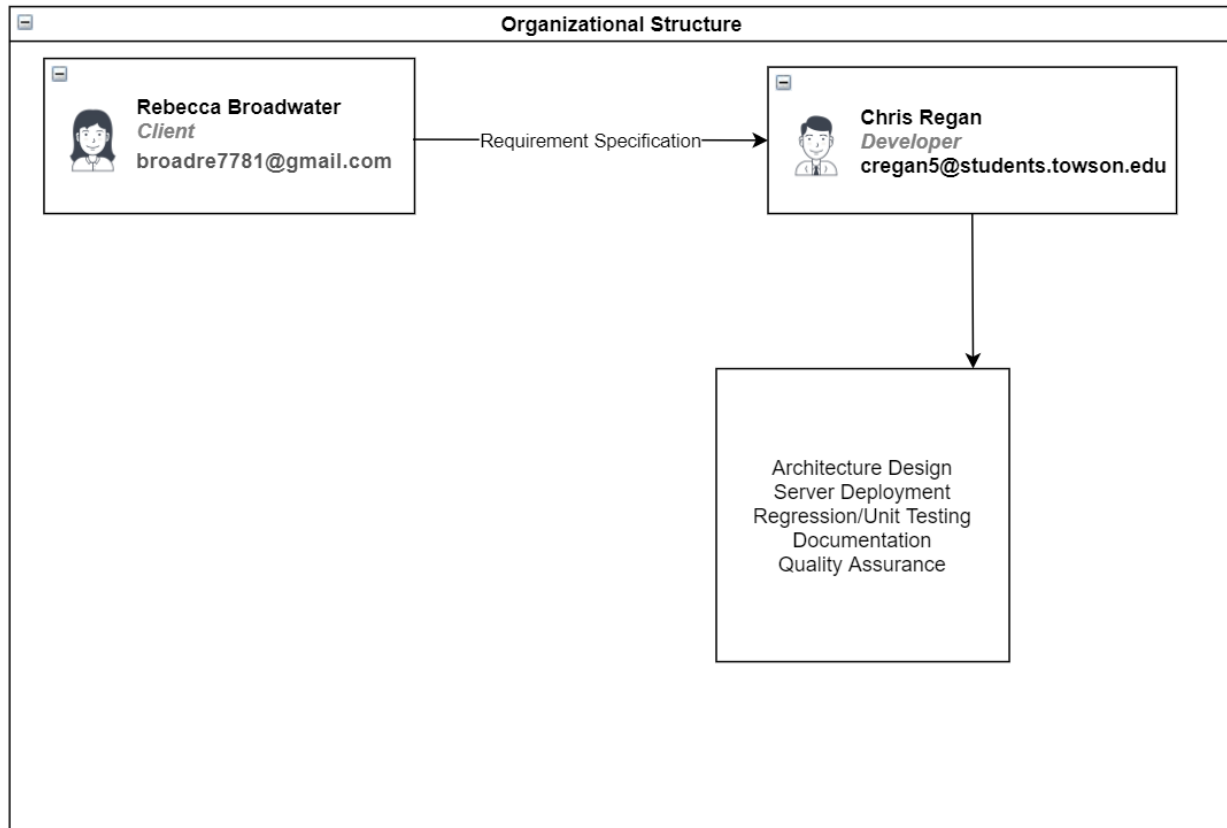
Figure 1: Process Model



2.2 Organizational Structure

The roles and interactions of the developer and the client are described succinctly by stating the client provides the requirements and refines them to be specific to the project description. The developer creates the development plan and enacts the design-implement- test loop until a deliverable product is produced.

Figure 2: Organizational Structure



2.3 Organizational Interfaces

The only interaction between the developer and outside commercial identities will be the implementation of AWS S3. This will be a very cost effective way to run a simple web page that will be scalable to large number of people.

2.4 Project Responsibilities

As this is an individual project all responsibilities and will be undertaken by the sole developer. This will include: topic research, requirement specification elicitation, deliverable document

production, completion of the design-implement-test loop, and finally delivering a functional product.

Part 3 Managerial Process

3.1 Management Objectives and Priorities

The central philosophy of this project will be to create better access to a healthy lifestyle for as many users as possible while also minimizing the production cost and time. This means that the aesthetic appearance of the web app will be secondary to the performance and ease of use the product has. With a limited development team, it is critical that the function of the app fulfills its purpose as a benefit to public health before it looks pleasing to the eye. Because UI tweaking can often take just as much time as back end functionality, the project schedule will reflect the management priorities by only assigning 5 days at the end of the project development cycle to UI refinement, with the rest of the effort being spent on server integration and testing.

3.2 Assumptions, Dependencies, and Constraints

- The project must be completed before the end of the summer 2020 semester
- The project will be an externally hosted web app
- Some older browsers may not support the project
- The opportunity for UI enhancement will be available at a later time

3.3 Risk Management

Inherent risks exist in this development process that will have to be mitigated.

Risk: server deployment does not support backend code base

Probability: Low

Impact: High

Mitigation: Before design process begins a careful selection of tools and programming languages should ensure the cooperative functionality of all systems before they are built.

Risk: Missed deadlines

Probability: Medium

Impact: High

Mitigation: Completing critical components of the project ahead of time will allow time for issues to be fixed without missing a deadline.

Risk: Requirements are not met

Probability: Low

Impact: High

Mitigation: Clear communication with client at critical stages of development to ensure project is moving in the direction of correct requirement completion.

3.4 Staffing Plan

This project will be completed by the sole developer with only high level input from the client.

3.5 Monitoring and Controlling Mechanisms

The project design schedule will be dictated by a Gantt Chart that will indicate the given stage the project should be at any given time. Every week during this development process a design schedule audit will be conducted to ensure that the schedule is being followed. If the project is lagging the estimated project stages, then more time and resources will be dedicated towards development until a point in which the production stage matches the schedule again.

Part 4 Technical Process

4.1 Methods, Tools, and Techniques

Due to the project being a web based application, the programming languages that will be used will be HTML, JavaScript, and CSS for the UI with a Java backend to crunch the numbers. The code will be written with the eclipse IDE and deployed to AWS servers.

4.2 Software Documentation

Through the development process different versions will be serialized. Each functional version of the project will be given a title and a README.txt file that will denote the functions of the program as well as its bugs. The successive iteration of the project will reiterate the changes that have been made including big fixes and feature additions.

4.3 Project Support Functions

Quality assurance of a functional user experience will be the upmost priority. Since the function will not require user accounts, an individualized ticketing system will not be necessary. Instead, a thorough inspection and test of the software for bugs will be routinely performed in order to assure proper functionality. The testing done by a sole developer can only be so extensive, therefore a support email will be displayed on the application so that any user who experiences a bug can report the error so it can be fixed for future users.

Part 5 Work Breakdown Structure

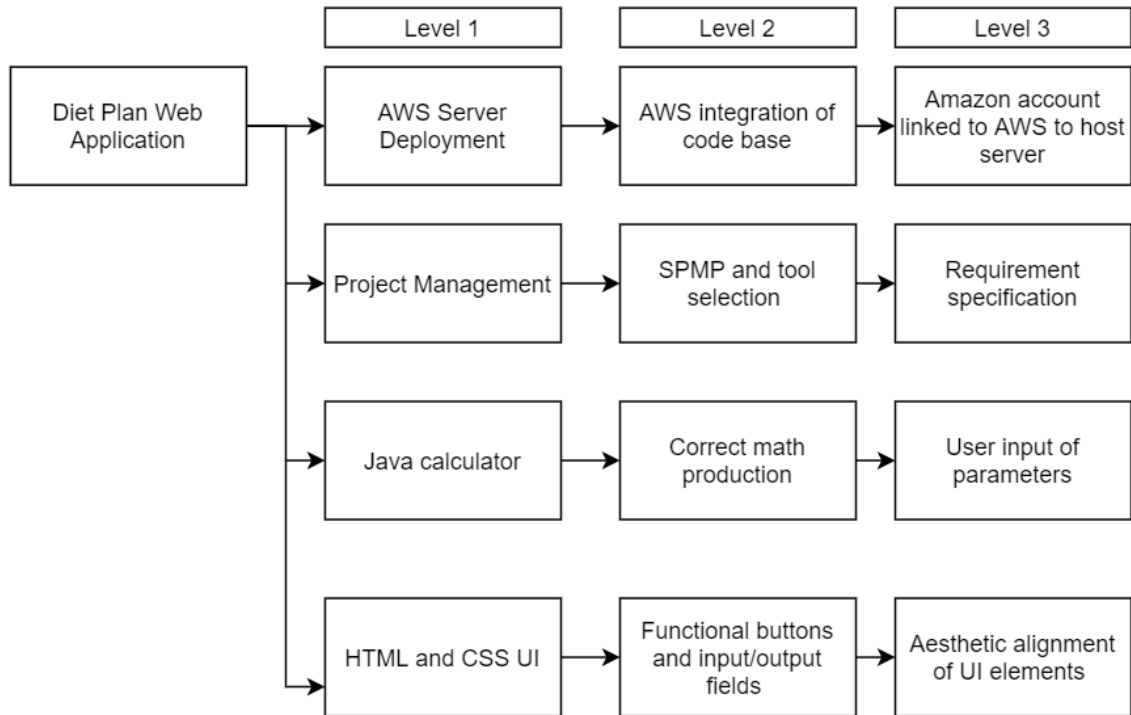


Figure 3: Work Breakdown Structure

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