Fruits & Vegetables Concentration Game

Software Project Management Plan

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Version: 1.0

Preface

The basis of this project stems from our interests in spreading the awareness of proper nutrition and exercise to the general public. Due to an increasing reliance on technology, more people have adapted a sedentary lifestyle, a common cause for many health issues across the United States.

In our effort to give guidance on healthy living, our development team would like to create an interactive game website. The purpose of this website is to provide a fun way to learn about healthy foods, while maintaining a level of simplicity suitable for almost any age.

Titled the "*Fruits and Vegetables Concentration Game"*, the game is based on the classic memorization game titled *"Concentration"*, where players take turns finding matching pairs among a grid of face-down cards. When a pair of cards are guessed correctly, a set of facts will be provided for the food item.

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Introduction

Project Description:
The project will take the form of an interactive game website where players can participate in a card-based memorization game. Players take turns finding matching pairs of fruits and vegetables from a grid of face-down cards. The player with the most matching pairs will win. If the game is played alone, the goal is to find all matching pairs in as little turns as possible. The game will have an educational aspect, where players can read descriptions of the fruits and vegetable pairs they have found.

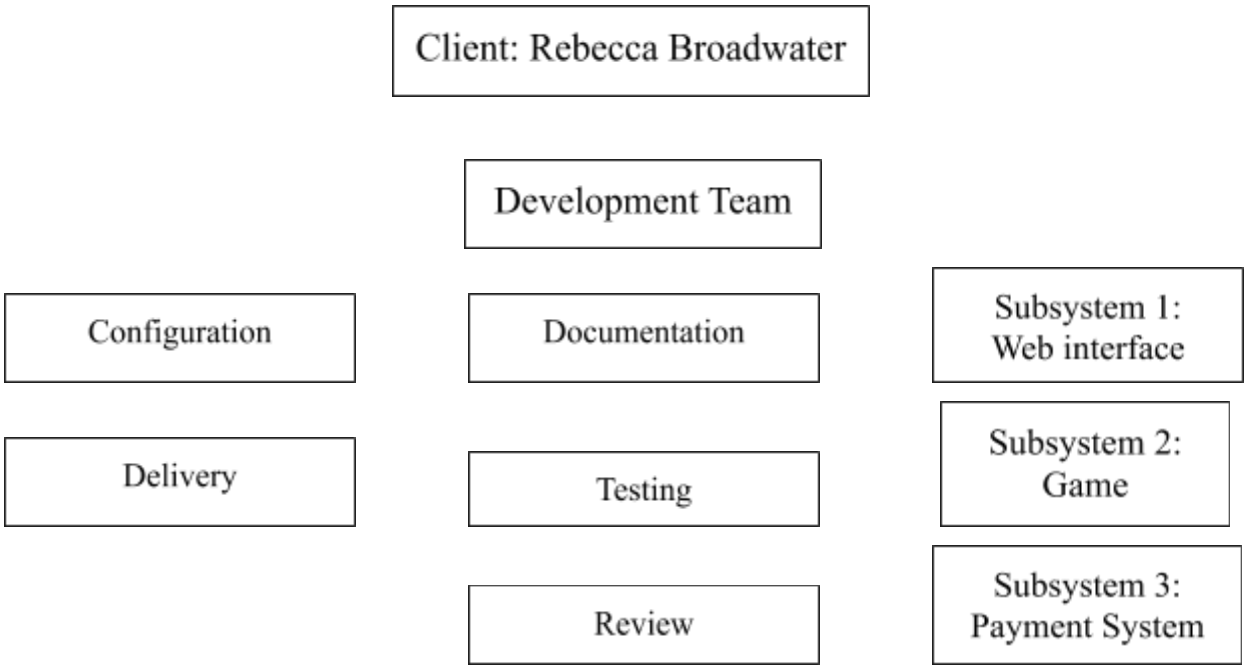
Project Deliverables:
The development of a website which will host the *Fruits & Vegetables Concentration Game*.

- ➔ Pending weekly deliverables (starting the week of 9/13 to 12/6)
- ➔ GitHub repository link (9/18 on Blackboard)
- ➔ Use Cases (9/18 on Blackboard)
- ➔ Requirements (9/18 on Blackboard)
- ➔ Software Project Management Plan (9/22 on Blackboard)
- ➔ Working prototype of game (11/17 on Blackboard)
- ➔ Project presentation (12/8 on Discord)

Project Organization

Process Model:
Users will have the ability to play in single player or multiplayer. In single player mode, the goal is to pick out all matching pairs of cards in as little turns as possible. In multiplayer mode, each team will compete to pick the most matching pairs of cards. Multiplayer mode will also support a game lobby for other players to join. Players will also have the ability to donate to the website as well.

Organizational Structure (TODO):



Organizational Interfaces:
The website will be powered by a content management system, WordPress. A payment authentication system will be incorporated into the website via an Application Program Interface provided by PayPal. The game itself will be integrated into the content management system via plugin.

Project Responsibilities:

Team Member	Title	Responsibilities
Jeffrey Ampeh	Software Assurance	vulnerability analysis, architectural hardening, secure payment systems
Sam Cornelius	Interface Designer	website design, manage plugins, maintain platform independence
Thomas Fink	Backend Developer	server-side programming, develop data access mechanisms
Kidist Gsilassie	Systems Integrator	coordinate subsystem architectures, research compatibility, incorporate automation
Turhan Kimbrough	Project Lead/Support	point-of-contact, writing documentation, troubleshooting, general resources and guidance, assisting others
Xiao Luo	Software Tester	design test cases, software review, post-test suggestions, code optimization

Managerial Process

Objectives:
We will prioritize a strong focus on communication, and make sure that each project member feels comfortable with the tasks assigned to them. Roles and responsibilities can change down the line, as project members discover their strengths and weaknesses.

We will prioritize non-functional requirements over functional requirements. This way we will maintain the goals of what our project is expected to do rather than focusing on specific implementation goals.

Tentative Schedule:

Dates	Objectives
08/25/20 - 09/01/20	Class introduction, syllabus review, project introduction
09/08/20	Create project groups, project topic approval
09/15/20	Use cases, requirements, GitHub repository setup
09/22/20 - 09/29/20	Tool selection, platform research, initial prototyping
10/06/20 - 10/13/20	Ensure web interface is stable, begin creating game interface
10/20/20 - 10/27/20	Begin working on payment system
11/03/20 - 11/10/20	Subsystem integration, thorough testing, start documentation
11/17/2020	Group project due: submit website, documents, & clean up repository
12/08/2020	Project presentation

Anticipated Budget:

- ➔ $10/year for website domain
- ➔ $100 extra per year for content management/integration

Project Anticipations:

Assumptions:

- ➔ Participation of all project members
- ➔ Timely submission of deliverables
- ➔ Smoothe software integration

Dependencies:

- ➔ Data processing engine
- ➔ Payment system
- ➔ Website template
- ➔ Game integration

Constraints:

- ➔ Less than 15 weeks time for project submission
- ➔ Pure virtual collaboration
- ➔ Varying experience levels among project members

Risk Management (Problem-solution):

- ➔ *Problem:* What if the project becomes too expensive?
  Solution: Look into alternative technologies and subsystems.
- ➔ *Problem:* What if the project becomes too large in scope?
  Solution: Prioritize certain requirements and focus on getting their implementation right.
- ➔ *Problem:* What if certain members leave the project?
  Solution: We will dynamically take new roles based on available skill sets.
- ➔ *Problem:* What if the client doesn't like the developed prototype?
  Solution: Use flexible software platforms which allow for significant change.

Monitoring Mechanism:

We will be using Git for version control and hosting project materials to GitHub. This platform provides an adequate mechanism for reporting project contribution.

Technical Process

Approach:

Methods:

- ➔ Subsystems development and eventual system integration
- ➔ Branch-style workflow wear new features will be implemented via branches in Git

Tools:

- ➔ Discord
- ➔ www.wordpress.org
- ➔ MySQL database management system
- ➔ GitHub
- ➔ GitHub Student Developer Pack

Techniques:

- ➔ Game development with JavaScript
- ➔ Web design with HTML/CSS, JavaScript, and WordPress
- ➔ Payment system via application program interface (i.e. PayPal library)
- ➔ Subsystem integration via plugins in WordPress

Documentation Plan:

Modifications to our project plan will be reflected in the Software Project Management Plan. Any revisions made will result in a version change to this document. Supporting documents will be available in our GitHub repository.

Project Support Functions:

Quality Assurance:

- ➔ Ensure software is up-to-date
- ➔ Ensure software bugs are caught early
- ➔ Ensure appropriate software testing is in-place
- ➔ Ensure quality software tools are used
- ➔ Ensure proper communication among members of the project

Configuration Management Plan:

- ➔ Ensure adequate knowledge of the content management system
- ➔ Ensure project members have access to the latest changes in the codebase
- ➔ Ensure proper separation of project components

Verification & Validation Plan:

- ➔ Ensure testing begins early
- ➔ Ensure proper tests are made

- ➔ Ensure the passage of tests
- ➔ Ensure each project member reviews the codebase

Work Breakdown Structure