Fruits & Vegetables Concentration Game

Software Project Management Plan

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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*.

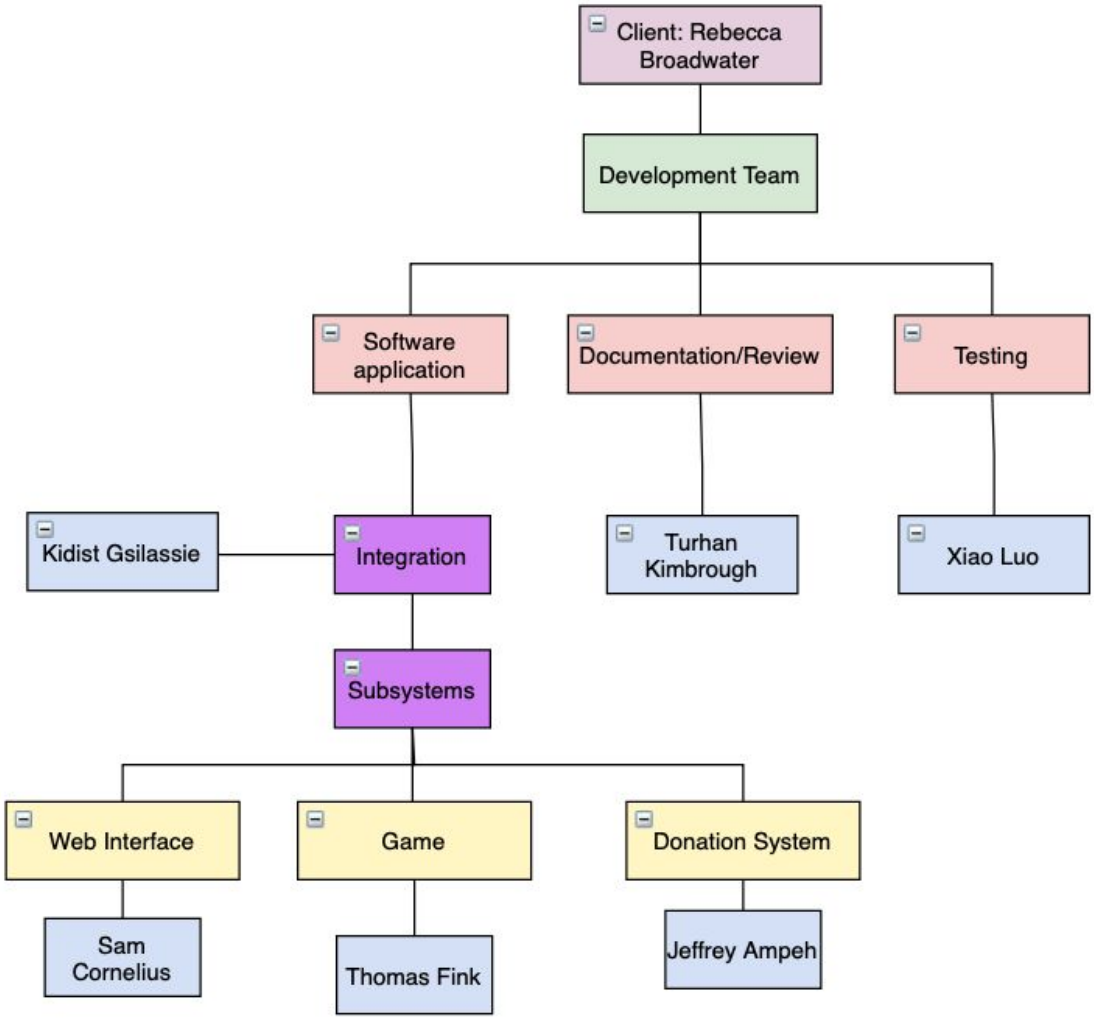
- ➔ Pending weekly deliverables (starting the week of 9/13 to 12/6)
- ➔ GitHub repository link (9/18 on Blackboard)
- ➔ Use Cases (9/18 on Blackboard)
- ➔ Requirements (9/18 on Blackboard)
- ➔ Software Project Management Plan (9/22 on Blackboard)
- ➔ Working prototype of game (11/17 on Blackboard)
-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

Project Organization

Process Model:

The process model we will be using is Agile software development. With Agile, we will focus on deploying software in iterations and getting feedback from the client along the way. This model allows us to be flexible with regards to goals and requirements.

Organizational Structure:



Organizational Interfaces:
The application will consist of several components hooking into a content management system. The content management system will integrate the web interface, game, and donation system. Once integrated, the system will be hosted on the internet through a hosting platform. System administrators will access the application through the content management system and end-users will access the application through a web address.

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

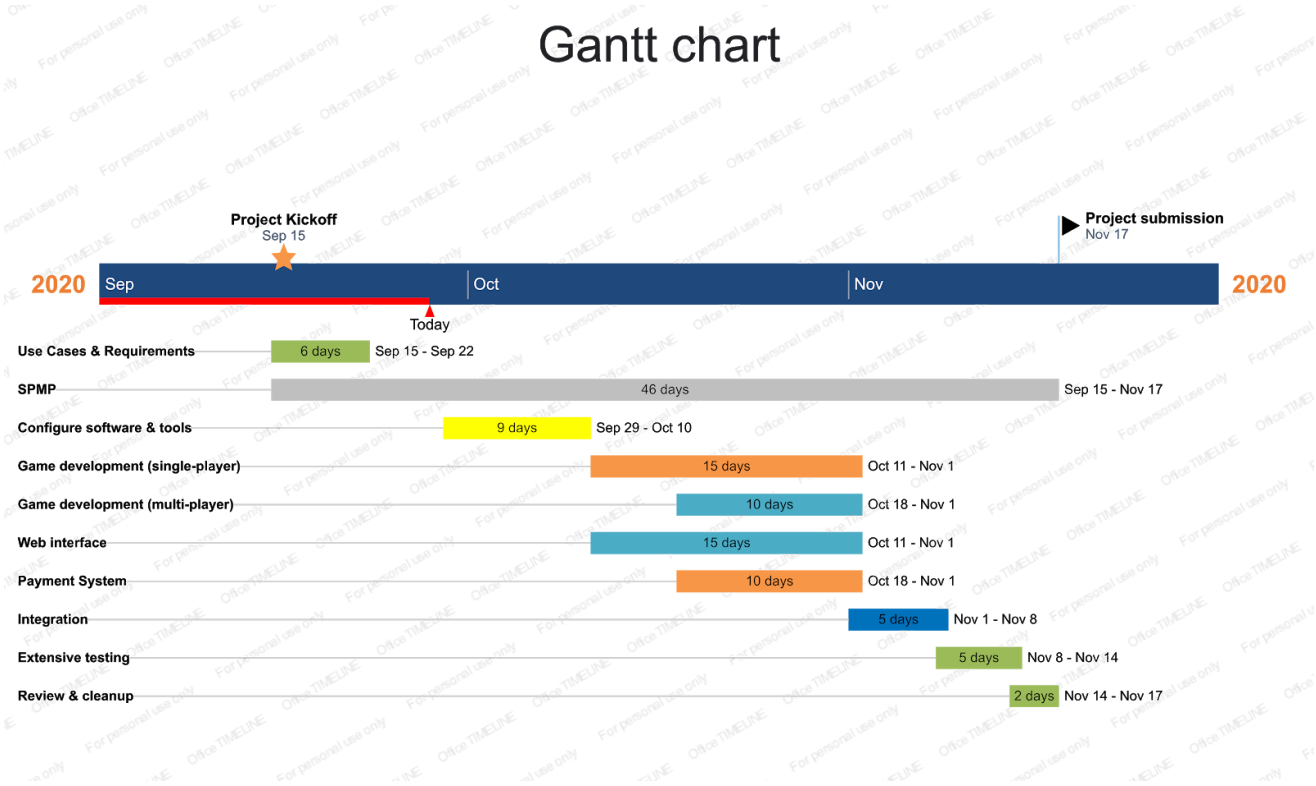
Managerial Process

Objectives:
Using principles from Agile software development, we will incorporate continuous integration and delivery to the client.

Regarding the project, we will prioritize the implementation of core features and functionality. First we would sandbox the development of the game itself and focus on implementing the single-player option. Next, we would incorporate elements to enable multiplayer mode for the game. The payment and donation system would be the next priority, with subsystem integration being the final goal.

- ➔ Develop game in isolation and work on single-player options before multiplayer
- ➔ Develop the web interface in isolation and determine application structure
- ➔ Develop the payment system in isolation
- ➔ Integrate all components into the web application

Tentative Schedule:



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:

Methodology:

The application will incorporate a subsystem architecture where several system components are developed in isolation and later integrated. The subsystems will consist of a web interface, game, and donation system. A content management system will serve as the foundation for each subsystem. All content on the website will be delivered as web pages.

Tools:

- ➔ Godot game engine
- ➔ wordpress.org
- ➔ GitHub
- ➔ GitHub Student Developer Pack

Documentation Plan:

Modifications/revisions to our project plan will be reflected in the Software Project Management Plan. 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:

- ➔ Keep old copies of documentation and version each revision
- ➔ Maintain separation of stable software from unstable software
- ➔ Name major software deployments according to their new features
- ➔ Note all updates made to tools being used

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