Software Project Management Plan

Group 6

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Part 1 - Introduction

1.1 Project Overview:

- Executive summary
    - The end goal of this project is to have a fully working website that is for a health and nutrition based subscription service for students to use, learn about healthy diets and exercise in a fun environment, and for coaches to track the progress of students in the game and what they are learning about.
    - Students will be signed up by adults who can purchase a subscription for their children. The subscription gives students access to the game and other resources for them to learn. Students can also learn about fitness facilities near them by inputting their address to see which facilities are closest to them. Users can also connect their social media to their account and post about the progress the students are making.
    - Coaches can assign students to their team in order to track multiple students' accounts, unlike the parents who would only be able to track the activity of their children. Coaches will be able to see what games students are playing and the information they are looking at on the website.

1.2 Project Deliverables (w/ delivery dates and location):

- **All the written portions will be uploaded to the repository. Not all delivery dates are clear and defined yet**
- The game
    - Written plan for what it will be and how it will be created (date: unknown)
        - Programming language, IDE's, repositories, etc.
        - Purpose and features of the game
    - The timeline for each part of the game (date: after the written plan)
- Social media connected
    - Written plan for the social media portion of the project (date: unknown)
        - Determination of which platforms are relevant
- Charts for the internal working of the project (date: unknown)
    - Greater elaboration of the HLA document with all its features
- Billing System
    - Written plan for the billing system (date: unknown)
        - Complete elaboration of all parties involved in billing
        - Plan for the billing portals
        - Elaboration of the connection between the billing parties and the billing portals

- Databases
    - Client database (date: unknown)
        - Written plan for the client database and how the data will be stored, deleted, and accessed
    - Internal website database (date: unknown)
        - Written plan connecting and explaining how each of the following will be relevant to the internal website database
            - Subscription management
            - Linking account types
            - nutritional/exercise games
            - Profile creation
            - Progress tracking
            - Linking social media accounts
- Search feature for local fitness facilities
    - Written plan for this feature (date: unknown)
        - GPS services for accurate location tracking
        - Criteria filtering methods and result delivery process

1.3 Evolution of the SPMP (anticipated and unanticipated changes):

- Anticipated:
    - Acquire group approval for changes and notify everyone regarding changes
- Unanticipated changes:
    - Notify and deliberate with all group members as quickly as possible through the Discord

1.4 Reference Materials (list of all materials referenced)

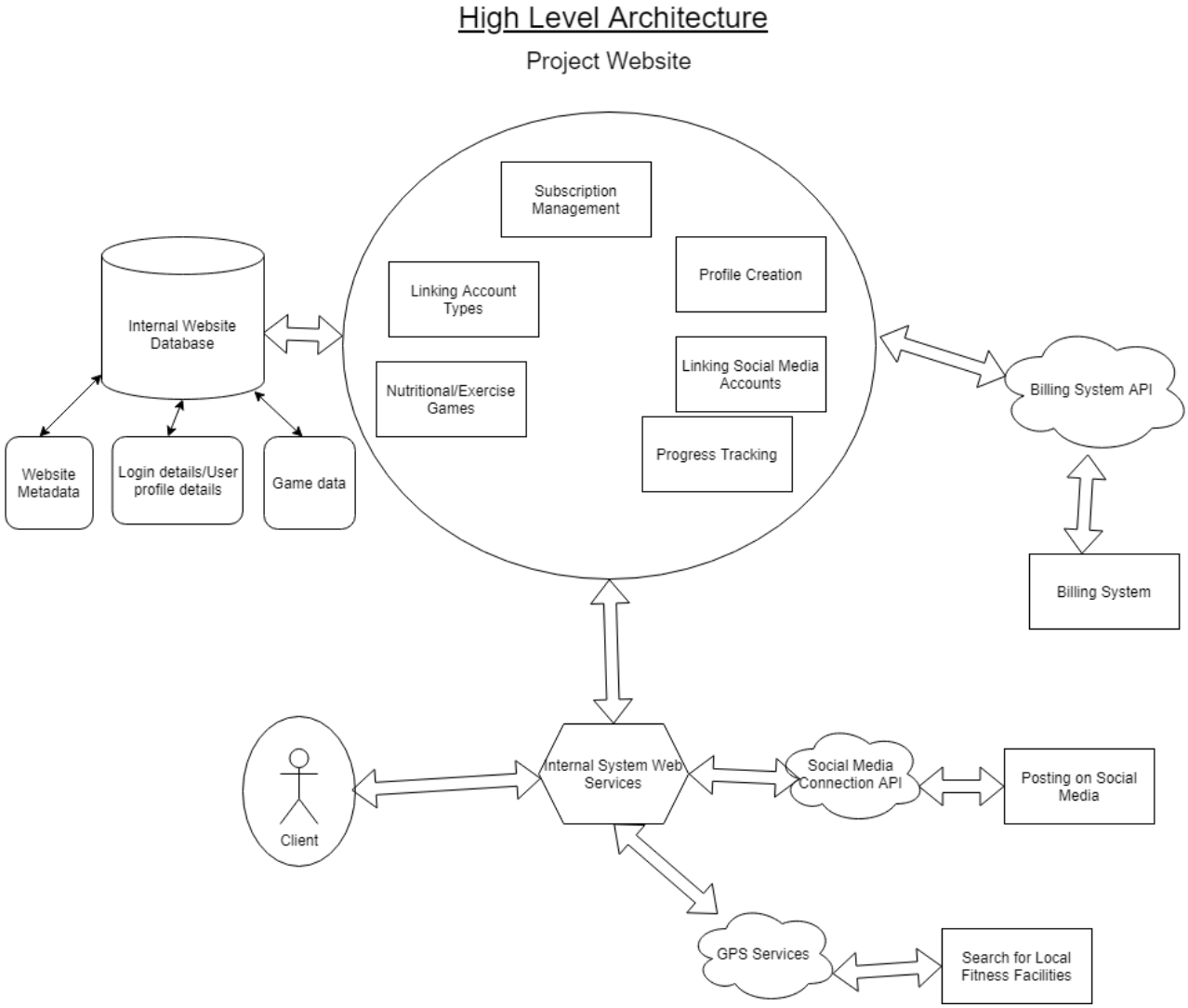
- Powerpoints on Blackboard from the professor
- Documentation for Wordpress and its plugins, provided by their respective developers
- Customer support for hPanel and Wordpress
- Previous web projects completed by team members

1.5 Definitions and Acronyms

- HLA - High Level Architecture
- SPMP - Software Project Management Plan
- WBS - Work Breakdown Structure
- GPS - Global Positioning System
- IDE - Integrated Development Environment
- WP - Wordpress

Part 2 - Project Organization

2.1 Process Model: We have already created some charts to help in the early planning of the organization of the project.



2.2 Organization Structure:

- The group split off to work individually or in small subgroups to maximize efficiency. This was done by splitting the project up into major topics and each member choosing one:
    - Website Backbone
    - Database Management
    - Social Media Implementation
    - UI and Design
    - Game Design
    - Payment

- Naturally some members worked together on topics while others worked in a more detached manner. Larger topics such as the website backbone and database had several people (Drew and Michael) working on them full time, while other students (Nathan and Dominic) joined them at times to help. Planning and documentation was always done as a group, with every member contributing almost equally.

2.3 Organizational Interfaces:

- GPS Service: Google Maps
- Payment:WooCommerce Payments
- Social Media: Facebook and Twitter
- Website Customization: Wordpress and Elementor (WP plug-in)
- Web Hosting Control Panel Software: cPanel
- Website and Database Hosting: hPanel
- Group Communication: Discord
- Collaborative Documentation: Google Docs and Slides

2.4 Project Responsibilities: In the early development of the project,

- Michael and Drew want to create the data management aspect of the project with handling account information and account creation. They will also handle the website implementation.
- Nathan plans on creating the connection to social media connection and posting as well as payment processing.
- Dominic plans on creating the GPS and looking for fitness centers based on inputted or given areas.
- Daniel wants to work on the game design and implementation.
- Jalen will focus on documentation and game design.

Part 3 - Managerial Process

3.1 Management Objectives and Priorities:

- Management Philosophy:
    - We will be using the Agile development strategy for this project.

- Requirement priorities in descending order

    - Functionality (does everything work?)
    - Security (are users safe from malicious attacks?)
    - Technical efficiency (does everything load quickly?)
    - Ergonomic design (is it easy and intuitive to use?)
    - Engagement and retention (is it fun to use? Do users like the experience?)
    - Aesthetic efficiency (does everything look attractive to the user?)

- Schedule:
    - Our project development made use of the agile technique. The milestones for our development aligned with the professor's due dates.

- Budget:
    - Due to our status as students, we have a limited budget. It was decided early on that a compromise would need to be made between price and functionality.
        - Ultimately, we spent a total of $13.17 on hosting and the domain name

3.2 Assumptions, Dependencies, and Constraints:

- We are working on the assumption that the group will remain together and we won't face any permanent losses along the way.
- Our project will depend on how well our organizational structure holds up.
- The time constraint will be the biggest one but another prominent one could likely be money.

3.3 Risk Management:

- Complexity - the project complexity may be too great for the context of this class and semester. In any case, the group will carry out research on any topics it doesn't grasp.
- Time constraints - the group may run out of time in the semester.
- Staff - getting ill or going missing for many days.

3.4 Monitoring and Controlling Mechanisms:

- Weekly meetings
- Deadlines from Blackboard and the client

3.5 Staffing Plan:

- The entire group was selected from members of the class.

Part 4 - Technical Process

4.1 Methods, Tools, and Techniques

- Methods/Techniques
    - Agile Development Philosophy
    - Weekly meetings to share progress and work together
    - A group Discord server to continue communication between the team while not in class
- Tools
    - Github repository
    - Google Drive
    - Discord

4.2 Software Documentation

- SPMP
- HLA
- Use Cases
- Interface Diagram
- Project Requirements
- Object Identification
- Case Diagrams
- Sequence Diagram
- Test Skeleton
- Project Review (Parts 1-3)

All documentation may be found in the GitHub repository at:

https://github.com/TheGamingArcher/SoftwareEngineeringGroupProject.git

4.3 Project Support Functions

- Use Discord for team communication
- Use Github for most project documentation and sharing of all programming portions
- Use shared Google Drive files for collaborative documentation/blueprint building and updating
- Use Trello to keep track of project schedule

4.4 Website Design Process

Establishing the website

- Started with a hosting service that did not actually offer very convenient functionality so we went searching for a different one.
- Found Hostinger and created the needed accounts with them.

Registering the website

- Purchased a temporary domain name
- Learned and researched the Wordpress platform
- Purchased our permanent domain name and made the needed changes

Getting started

- The design of the website itself began with initial testing on Elementor
- The group members familiarized themselves with wordpress and editing each page. Initially every member made some changes to the homepage as an introduction.
- Eventually each member got to their own task. Daniel split off to work on the game and integrate its javascript code into its webpage, Dominic made the Gym Locator page, Drew worked on the visual design and layout of the homepage and others. Meanwhile, Michael and other members began integration between cpanel, GitHub, and the site database.

Adding pages

- Our first attempt at adding pages was unsuccessful due to our lack of experience
- The second attempt was successful at first, but further edits led to the website navigation links breaking.
- Once we fixed the links, we began customizing our site header to include links to different pages, some encapsulated within dropdown menus
- Afterwards, we began adding content restrictions to hide content according to account roles

Integration with database

- Profile building allowed us to start collecting information on users and allow them certain privileges based on account type.

Integration with 3rd parties

- Social Media Implementation with Twitter and Facebook buttons on homepage
- Google Maps API for fitness center locations seen by our fitness tracker page on the website.
- Payment with WooCommerce is implemented with parent accounts who are able to buy subscriptions for their connected student's account.

4.5 Game Design Process

- Step 1: Research and Brainstorming

  During research for making the game, we found multiple ways that we could make the game i.e. Unity, GameMaker Studio, and Unreal Engine. We did not know how to make games on these platforms. Daniel gave Unity a shot by trying to learn how to make a game on Unity but due to time constraints, we decided not to make the game on Unity. Daniel already knew how to make games using Javascript and HTML so we decided to make use of that because it would make our game design process more efficient. We finally decided to create a simple 2D game using JavaScript.

- Step 2: Planning and Design

  The plan is to make a game that the user will enjoy and also learn about nutrition in the process. The Design is a 2D interactive game and the user will use their mouse to maneuver through the obstacles in the game. The game has 2 main objectives: avoid unhealthy foods and collect healthy foods. At the end of each game, the user will be forwarded to a nutrition page that has information about the game and more information on third-party sites. The game page has to be attractive.

- Step 3: Implementation and Coding

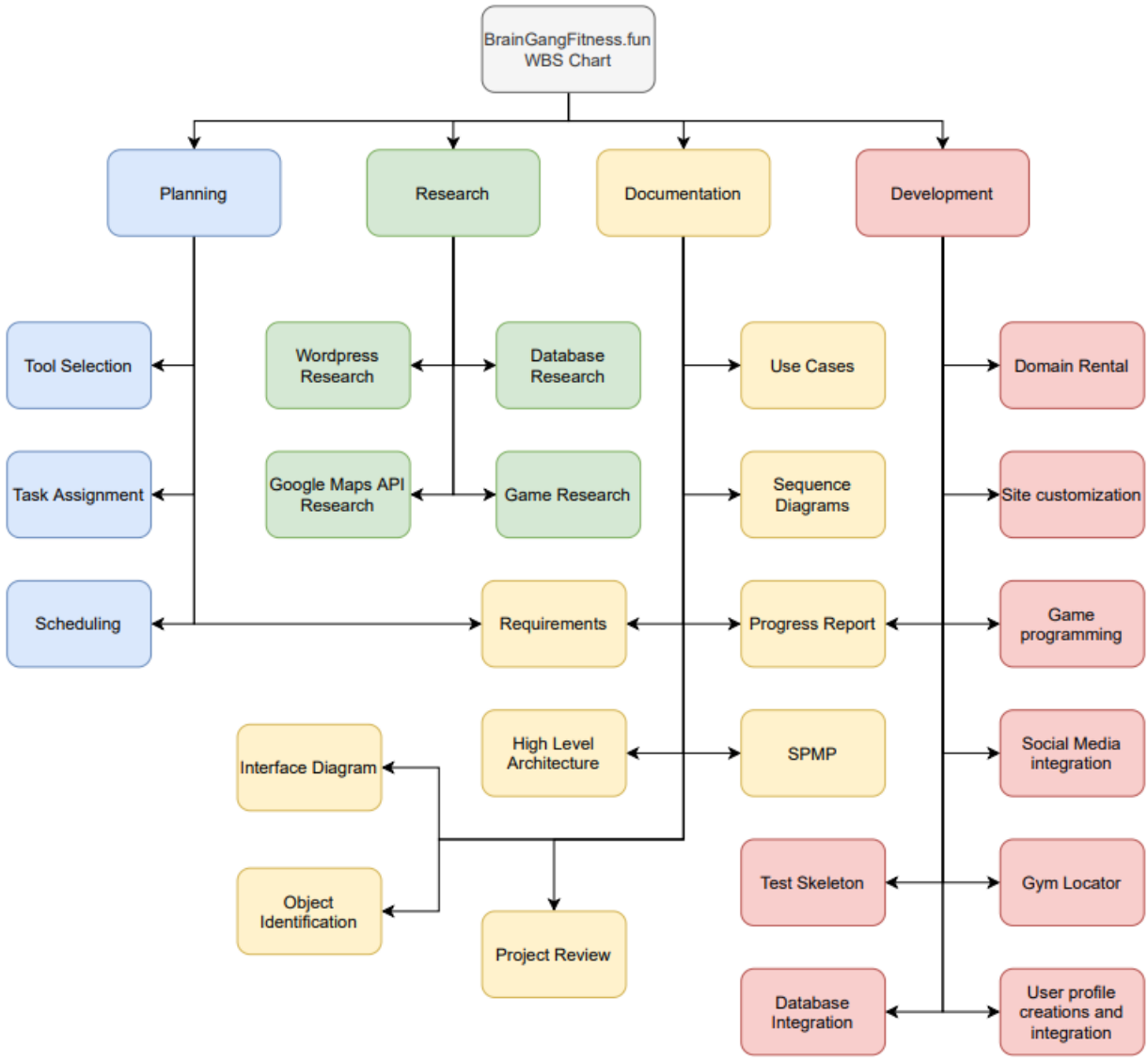
  Using a canvas on HTML and CTX methods in JavaScript, the game's main screen was created. There is a class for Player, this class has a constructor that focuses on the position of the mouse, the radius of the player, and the frame of the player. The player class has functions for updating the location of the mouse and the angle. There is also a function for drawing the player using CTX methods. We also have a class for the Food and the Bad Food, these classes are practically the same because they behave the same and have the same functions. The classes have 'update' and 'draw' functions. Another function handles the two food classes. Finally, there is a start game function and an end game function. The start game function starts the game and the end game function sends the user to the nutrition page because we want to focus on the user learning about healthy foods as much as possible. The main HTML page has the canvas and the buttons that control the page and it is connected to the homepage of the site and the nutrition page.

- Step 4: Debugging

  The debugging process was very simple because we used the console to find all errors such as missing files or functions. The game page was connected to other pages so we needed to make sure that all the links and buttons work. The nutrition page has many links and pictures, we needed to optimize the page to make sure that it would load as fast as possible. This meant that pictures needed to be smaller to load faster.
- Step 5: Deploymentation Process and Integration.

  After the game was created the files needed to be uploaded to the WP files manager. The files need to be integrated with the rest of our WordPress pages since our game files were created separately.

Part 5 - Description of Work Packages



Requirements is documentation which played a chief role in the planning process.
Progress Report is documentation heavily dependent on the development tasks.