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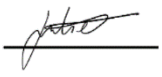
Signed: 

Date: 23/04/2021

# Retrospective Project Plan

## Introduction

*Saga* will be a game with turn-based combat based on a D6 roll-to-hit mechanic which encapsulates the excitement of chance-based mechanics. The player will combat enemies inspired by Norse legends within a game system which is engaging and simple to understand. The primary desired outcome is a game which will showcase complex and interesting chance-based mechanics and communicate these using clear feedback. This game should be entertaining and uncomplicated, so that it is accessible to many people and not overly difficult to understand. It will be created using the iterative design framework. Production will start on the 18th of March and will end on the 22nd of April.

## Feature List

**Data design features**:

- Turn-based combat system.
- Roll-to-hit mechanic (a number must be rolled which is higher than the opponent's defence value before damage).
- A general attack, powerful fireball attack, heal ability and defence ability.

**Communication design features**:

- Feedback highlighting the roll-to-hit mechanic and resulting dynamics.
- Feedback to make the turn-based system clearer such as buttons turning off when it is not the player's turn.
- Communication to clarify when a player has missed their roll.
- Communication showing numerically how much damage has been done to both the player and enemy.
- UI component clarifying what each ability does when the mouse hovers over it.
- Screen shake when an attack is performed.
- UI communicating when health has been deducted from the player or enemy.
- UI communicating when defence or health values on the card have been changed by abilities.

**Level design features**:

- Three enemies to represent levels.
- Increasing difficulty of enemies (in health and attack and defence values) to facilitate sense of progression.
- Different mechanics afforded to the player each level to facilitate learning.
    - The first level will showcase the melee, heal and defence mechanic.
    - The second level will include melee (general attack) and fireball mechanic (powerful attack).
    - The third level will include all four of these abilities.

**Feedback loop features**:

- Negative feedback loop on fireball mechanic – If used less it will be more effective.
- Negative feedback loop on heal mechanic – The chance of the enemy attacking the player is increased up to a point every time it is used.

Task Breakdown

**Needs:**

- Turn-based combat system.
- Four or more mechanics/attack options (normal attack, powerful attack, heal and defence).
- D6 roll-to-hit mechanic.
- Communication dealing with turn-based system, the roll-to-hit mechanic and when damage is being done.

**Wants:**

- Feedback loops to assist in balancing mechanics.
- An appropriately scaled levelling system with multiple enemies.
- Communication showing damage numerically and UI explaining abilities.

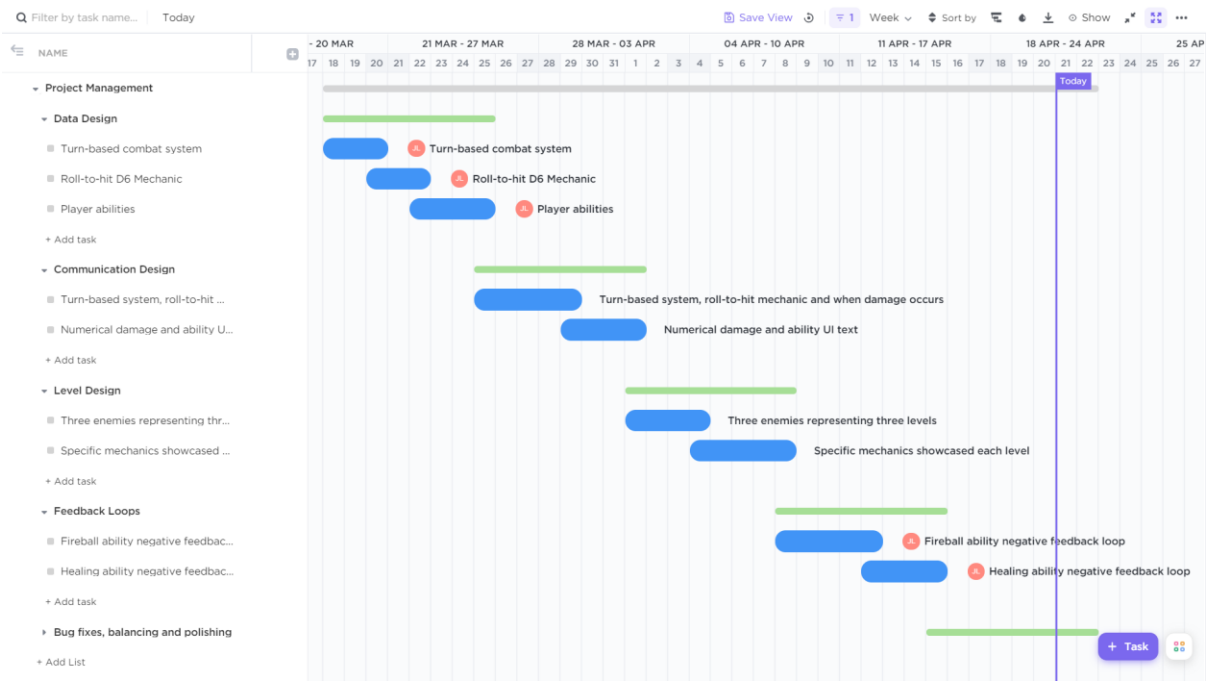
**Dreams:**

- Sound effects for aesthetic purposes.
- Art for aesthetic purposes.
- A soundtrack.

Dependencies:

The mechanics and data design elements must be done first before any of the other components can be implemented. The communication elements of the game should then be implemented so that the prototype is playable and the player can easily understand how the mechanics of the game work. The level design content can then be worked on, as there is now a clear and understandable game loop and mechanics to build upon. Lastly, the feedback loops can be implemented in order to add complexity to the mechanics and to help scale the levels. Thereafter, balancing, bug fixes and aesthetic polishing can be done.

Task Scheduling:




There is a single person working on this game and this can be seen in the linear nature of this schedule, as only one component will be worked on at a time. Each section will take a week to complete, with smaller components taking three to four days on average. Assigning a week per task was a decision made to accommodate any research which needs to be done, which is needed as a result of coding knowledge limitations. An extra week has been included at the end of the project for bug fixes, balancing and aesthetic polishing. This week will also act as extra time to compensate for any time lost to risks.

Risks:

- Covid 19 and other illness (High risk)
- Power outages (Medium risk)
- Technological issues (Low risk)
- Family emergencies (Low risk)

Milestones:

Due 25th March – Data Design deliverable: Develop a turn-based combat system which includes a roll-to-hit mechanic.

Due 1st April – Communication Design deliverable: Implement unintrusive and effective feedback which clearly communicates the mechanics and the resulting dynamics.

Due 8th April – Level Design deliverable: Appropriately scaled enemies and a showcase of different mechanics each level to facilitate learning.

Due 22nd April – Feedback Loop deliverable: Implement feedback loops which balance mechanics and increase the complexity of the player's interaction with the game.

Intention

The intention of the prototype was to add feedback loops to help balance the mechanics in ways which are thematically logical. Furthermore, these added feedback loops would make the mechanics more interesting to interact with due to the increased complexity created.

Process

There were several feedback loops which were implemented in this micro project. The first was the negative feedback loop which was implemented to correct the overpowered nature of the fireball spell. This ability originally did 4 damage to the enemy guaranteed, with the only downside being that the 2 damage would kill the player if the spell backfired, of which there is a 50% chance. As a result, there was very little incentive for the player to avoid using this spell repeatedly. To rectify this, there is a 3/6 chance that the player will do 4 damage to the enemy, and a 3/6 chance that the player will do 1 damage to the enemy and 3 to themselves. Furthermore, a cooldown was implemented where the chance of the fireball spell backfiring decreases the longer the player waits. At first the backfire chance is 2/6. However, once the player uses this spell, this increases to 4/6, and decreases by 1/6 each turn until it has returned to a 2/6 backfire rate. As this depth is added, this mechanic becomes more engaging. This negative feedback loop rewards the player for not using the ability continuously. Furthermore, this feedback loop is thematically consistent as it connects with the idea of recuperating mana after performing a large spell.

$(2/6 * 1) + (4/6 * 4) = \mathbf{3}$ $(3/6 * 1) + (3/6 * 4) = \mathbf{2.5}$ $(4/6 * 1) + (2/6 * 4) = \mathbf{2}$

These calculations detail the chance that the player will do 1 damage to the enemy (calculated in the first bracket) and the chance the player will do 4 damage to the enemy (calculated in the second bracket) to receive the average damage per turn of this spell. Therefore, this spell, when at a 4/6 backfire rate, does the same average amount of damage as the melee spell. This, along with the increased chance that 3 damage will be done to the player, means that it is safer for the player to choose the melee attack when the backfire rate is 4/6. This discourages the player from using it twice in a row and rewards them for waiting for the backfire rate to return to 2/6.

The second negative feedback loop needed to be balanced. In this feedback loop, the player may return themselves to full health, but this would decrease their defence value by 1 until it was 0. This means that as this defence value decreases, the enemy will be more likely to hit to the player, as the rolled value is compared to the defence of either the player or enemy to

determine if an attack can be performed. On its own, this was problematic as once the player's defence reaches 0, the enemy will be able to attack the player every turn. To enable the player to increase their defence, a defence ability was added. This defence ability increases the player's defence by 1 if used, up to a total of 3. This enables the player to sacrifice their ability to attack during their turn to instead bolster their defence for future turns. This mechanic is also thematically logical as one can imagine a character choosing to take time to defend themselves instead of attacking.

Communication was implemented to show how much damage is done by each ability, and what each ability does. These appear if the player's mouse hovers over question marks to the right of each button. Abilities which have a detrimental effect have this explanation text in red rather than white in order to draw attention to this. For the fireball ability there is text which appears over the "mana bar" which tells the player the chance of the spell backfiring. This enables the player to make well-informed decisions from the beginning of the turn. Furthermore, the mana bar represents the chance that the fireball spell will fire correctly so that the player does not need to hover over the question mark each time to see the percentage. Another element which was changed was that if a player misses their attack, a modifier is added which increases the player's roll by 1 to decrease the chance that they will miss again. Therefore, the chance they will miss again is changed from 2/6, to 1/6. This modifier is removed once the player manages to hit the enemy. This was implemented to reduce the likelihood that the player will miss three or more times in a row, as this can become very frustrating.

Reflection

The implementation of the negative feedback loop to the fireball spell was effective in increasing its complexity and making it more balanced. However, it can still be argued that it is not balanced enough, due 3 damage being done to the player. As the player has the ability to heal themselves, 3 damage does not present as much of a risk as it did previously. 4 damage would increase this risk and would further discourage the player from using the ability too often. The addition of the defence ability was valuable overall as it affords the player more freedom to use the heal ability, as the defence decrease is not permanent. However, investing a turn in using the defence ability is still significant enough that the player will use their heal spell sparingly. Overall, the implementation of the feedback loops did aid in balancing the mechanics, especially the fireball spell. Furthermore, these feedback loops made sense thematically and fit into the narrative idea of the game, as described in the paragraphs above.