Retrospective Project Plan

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1. Overview

This project aims to produce a well-rounded game iteration. The required outcome is to have a turn-based combat game with a proficient implantation of features, including: Data design, Communication design and accessibility, a level system and structure, and feedback loops. The game prototype, titled *Life's Hand*, is a 2 person (player vs AI) digital card-based game. The mechanics of the game involve drawing cards from a communal deck and playing said cards to reduce your opponent's HP to zero. Each player also has an attack modifier (ATK mod) and defence modifier (DEF mod), these modifier values change the way you deal and take damage (HP) respectively. There will be 4 different card types, each with its own nature, namely:

- Healer – increase users HP and/or DEF mod value.
- Brawler – do high damage to enemy and moderate damage to player.
- Soldier – while being held in a player's hand, it increases ATK/DEF mod values.
- Caster – reduce enemies ATK and/or DEF mod values.

The game will be built using the Unity 2D engine. *Life's Hand* will be built to exclusively operate on PC's running Windows OS. The Project will run from the 18th of March until the 22nd of April (roughly 1 month).

To ensure success for this short-term project, efficient use of time and scheduling is important. Research and design are essential steps in creating a successful project. In each stage of development, I will factor in time to conduct extra research and change designs dynamically to 'follow the fun' as well as overcome any obstacles I may have not expected. An important part of successful management is to understand the capabilities of the team, as I am relatively inexperienced, I will allocate extra time to deal with any obstacles I did not have the foresight to see.

2. Feature List and Milestones

The project has certain requirements to be successful. The features that must be added are as follows:

a. Turn-Based Combat
b. Card mechanics
c. Sufficient implementation of data design
d. Communication design and Accessibility
e. Level system and structure
f. Sufficient implementation of feedback loop systems

These features will be dissected and broken down into tasks in section '4. Task Breakdown and Stages of Development'. For a project of this size all completion of features (a, b, c, d, e, and f) are milestones. The expected date of each milestones' completion is indicated in the schedule in section '5. Scheduling'.

3. Tool Use and Management

Unity2D will be the game engine used to design *Life's Hand*, as this software is more than capable of producing this project and the designer has a good understanding of this software.

GitHub [1] will be used for version and source control. It is important to set conversions when using *GitHub*. For this project, the convention will be to push to origin once at the end of the day if work is done on the project, as well as to push after the completion of a task/group of tasks.

All artworks will be created using *Pixleart* [2], this has been chosen as it can quickly produce sufficient art for this projects' needs and has a very quick learning time.

Ich.io [3] will be used to distribute the game for play testing.

4. Task Breakdown and Stages of Development

The below list is of features that have each been broken down into tasks. The list is structured in the order of operations that the project must be conducted in. The order has been chosen as each step is dependent on the previous step. Subsection 'a. Research' indicates the start of the project and the bulk of the research that will be done, however time for extra research and extra planning will be considered at each stage of development.

Before planning and implementing any features it is important to do research into other projects that are similar to yours. For this project research must be conducted into other popular turn-based card games, for example: *Yu-Gi-Oh!*, *KeyForge*, *Hearthstone*, and *Exploding Kittens*. It is important to find common conventions among these card games as well as gather information as to what makes these games good. It is also good to get an understanding of the lingo players and developers use, to develop the correct vocabulary when discussing this project.

The bulk of the planning should be done after research has been conducted. There should be a well-developed idea of how the tasks will be implemented. Most of the design decisions should also be made here. Nothing is set in stone, but there should be a coherent idea of what the project might look like in the end.

Testing should be conducted throughout the stages of development. At the end of each stage of implementation the features should be tested for its worth as part of a game and for bugs. There will also be a main testing stage at the end of development.

The following notation is used to denote Needs(N), Wants(W) and Dreams(D) of the project, for each feature.

a. Research
b. Planning
c. Turn-Based Combat:
    i. N: State Machine
    ii. N: Win/Lose outcome
d. Card mechanics:
    i. N: Create card class(object)
    ii. N: Shuffling of deck
    iii. N: Drawing of cards
    iv. N: Playing cards
    v. N: Card has effect on player/enemy
e. Sufficient implementation of data design:
    i. N: Balancing card values
    ii. N: Balancing amount of each card type

iii. N: Implement ATK and DEF mod multiplier in damage calculation

f. Communication design and Accessibility:

i. N: Design card fronts
ii. N: Display cards for interval after being played
iii. N: Design playing field and in-game screen layout
iv. N: Select a colour palate that is appropriate
v. W: Design card backs
vi. W: sound effects
vii. D: Detailed artwork and defined art style
viii. D: Add music

g. Level system and structure:

i. N: Multiple levels
ii. N: Different AI for each opponent (scene for each level)
iii. W: Start menu and credit screen
iv. D: Level selector screen
v. D: Loading screen sequence between levels

h. Sufficient implementation of feedback loop system:

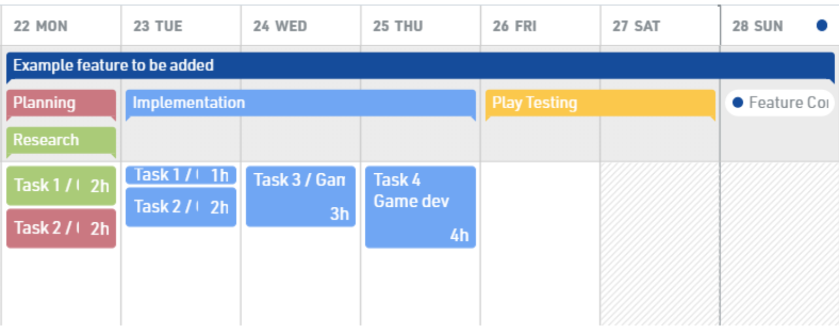
i. N: Reduce granularity of card values
ii. N: Change the distribution of each card type if needed
iii. N: Player who goes second gets +1 ATK/DEF mod
iv. N: Implement second tier deck for when players HP is below certain value

i. Testing:

i. N: Change game if lacking fun component
ii. N: Squash bugs
iii. N: Get rid of exploits

5. Scheduling

Each feature will be given a week to implement and test, except for the first week where Research, planning, Turn-Based Combat, card mechanics and sufficient implementation of data design must be done. The weekly structure will be as shown in the figure below:



For the full schedule refer to Appendix sub-section ‘A. The Schedule’. The schedule was made using Float [4].

6. Risks

The 2 main risks are power outages and internet failures. A power failure can set me back by 2 hours per outage. No work has been scheduled for Sunday and if needed this day can be used for catching up.

7. References

[1] "GitHub." *GitHub*, 2018, www.github.com/

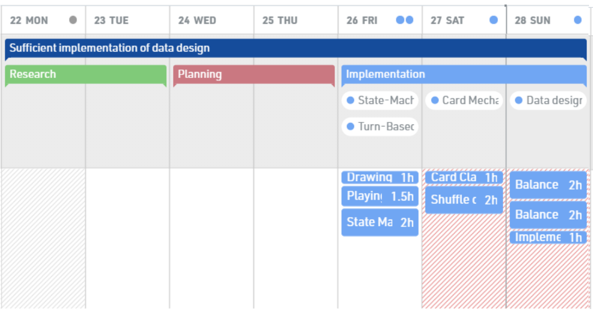
[2] Ware, Bryan. "Draw Online Together in Real Time - Pixilart." *Www.pixilart.com*, www.pixilart.com/draw#.

[3] Itch.io. "Download the Latest Indie Games." *Itch.io*, 2018, itch.io/.

[4] "Float - Resource Scheduling App - Employee Team Management Software - Staff Planning Calendar." *Float.com*, 2012, www.float.com/.

8. Appendix

A. Full Schedule Breakdown



22 MON ● | 23 TUE | 24 WED | 25 THU | 26 FRI ●● | 27 SAT ● | 28 SUN ●

Sufficient implementation of data design

Research

Planning

Implementation

● State-Mach

● Turn-Basec

● Card Mecha

● Data desigr

Drawing 1h

Playin 1.5h

State Ma 2h

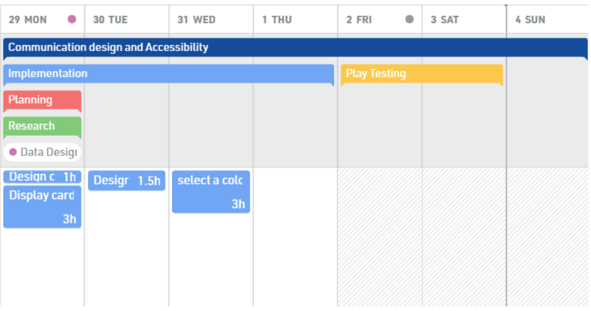
Card Cla 1h

Shuffle c 2h

Balance 2h

Balance 2h

Impleme 1h



29 MON ● | 30 TUE | 31 WED | 1 THU | 2 FRI ● | 3 SAT | 4 SUN

Communication design and Accessibility

Implementation

Play Testing

Planning

Research

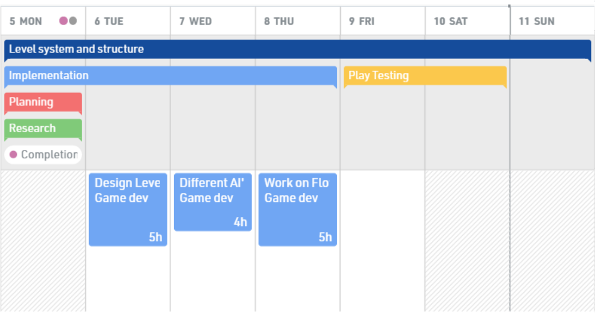
● Data Desig

Design c 1h

Display card 3h

Desigr 1.5h

select a colc 3h



5 MON ●● | 6 TUE | 7 WED | 8 THU | 9 FRI | 10 SAT | 11 SUN

Level system and structure

Implementation

Play Testing

Planning

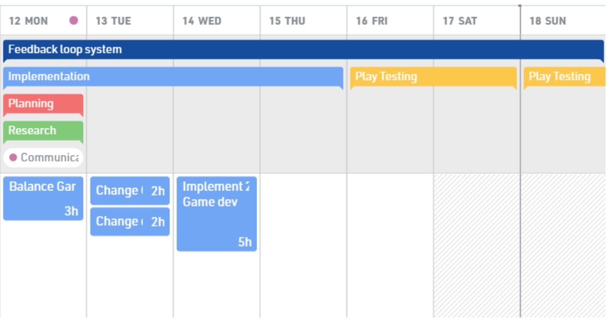
Research

● Completior

Design Leve Game dev 5h

Different AI' Game dev 4h

Work on Flo Game dev 5h



12 MON ● | 13 TUE | 14 WED | 15 THU | 16 FRI | 17 SAT | 18 SUN

Feedback loop system

Implementation

Play Testing

Play Testing

Planning

Research

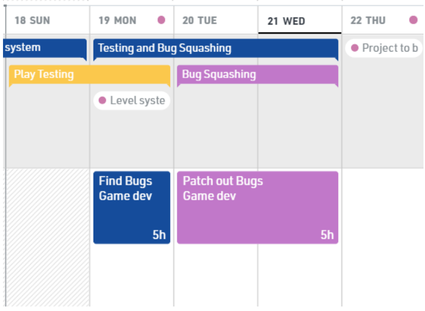
● Communic

Balance Gar 3h

Change 2h

Change 2h

Implement Game dev 5h



18 SUN | 19 MON ● | 20 TUE | 21 WED | 22 THU ●

system

Testing and Bug Squashing

● Project to b

Play Testing

Bug Squashing

● Level syste

Find Bugs Game dev 5h

Patch out Bugs Game dev 5h

B. Final Game Analysis

Intent

For the final build iteration of this project the intent was to use feedback loops to tie the game together. The feedback loops should promote play as well as help balance the game out to provide a more enjoyable experience for the player. The aim of the feedback loops should clean up any balancing issues and adjust the flow of the difficulty of the game. As this was the final iteration multiple aspects of the game were also changed to help balance and bring the game together.

Process

Card games are exceptionally hard to balance without good data design and rigorous play testing. The use of feedback loops can help give a sense of balance to the game. By controlling positive feedback loops and introducing negative feedback loops the game will feel more coherent and will cause less frustration and anxiety.

I attempted to make the game overall have more negative feedback loops, however this proved hard to implement and therefore along with negative feedback loops I aimed to control the pre-existing positive feedback loops.

Negative feedback loops:

The player who draws first has an advantage in the game. I added a rule that allows the player who draws second (The enemy) to choose a buff of +1 for either their ATK or DEF mod in the beginning.

I also introduced a new tier system to the deck. This tier system is 'hidden' to the players, there is two separate decks. If a players HP is 20 or below, their next draw is from the 2nd tier deck. This deck has Brawler and Healer cards only at a ratio of 1:2, respectively. These cards are stronger than the normal cards in the tier 1(standard) deck.

Positive controlled feedback loops:

To control the intensity of the effect of positive feedback loops, steps were taken to help balance the game.

The variation in values that each card type has were tightened up, i.e., the granularity and range was reduced. The ration of each card type in the deck was also changed, i.e., the distribution of cards was changed.

The Mechanics of the Soldier type card was also changed. Soldier cards will only affect the player who draws it while it is being held in the player's hand. While holding the soldier card any changes on the card for the players ATK or DEF mod values will take effect. Once played, the effect reverts.

Reflection

The choice to make the games' overall feedback loop more negative is done to increase the sense of fairness and help the game feel balanced. As card games are very hard to balance it is important that the game works to ensure no one card is too powerful, this is done through negative feedback loops and controlled positive feedback loops.

The use of the negative feedback loops helps extend the game and reduces the penalty of bad moves. This allows the player to continue even if they make a bad play. The use of the buff for the player that draws second ensures you cannot be defeated in the beginning if the player draws strong cards. The deck tier system gives a second wind to players who are struggling. An interesting dynamic could arise that it could be an advantage to have low health just to draw from the 2nd tier deck. This would be a risky play. Allowing struggling players the opportunity to bounce back, keeps them in the game and promotes play.

The intent to control the positive feedback loops is to help the game feel more balanced and fairer. Reducing the granularity of card values ensures no one card is overpowered and can change the state of the game too drastically. Changing the distribution of card types also adds to this balanced feeling.

The new Soldier card mechanic helps reduce how strong the effect of the soldiers is. While holding the card it reduces your hand size and therefore reduces your available options to play. This also adds to the sense of agency that the player has.