Puzzle Fighter Design Document

Winter, Ryan Siehl, Kyle Greer, Max

1 Game Overview

The game we decided to make is a clone of the game Puzzle Fighter. The gameplay of Puzzle Fighter is like Tetris with some major differences. Like Tetris Puzzle Fighter is a game where the player is given one block at a time which can be rotated and moved left or right before reaching its resting place. Puzzle Fighter only has one block shape which is just two square shaped gems connected to each other. The two gems can be one of three things. First the gems can be one of four colored (red, blue, yellow, green) regular gems. The second thing the gem can be is called a crash gem which is also one of the four previously mentioned colors. The last thing the gem can be is a diamond which is its own unique color. These gems are covered more in depth in the sections below.

1.1 How the Game is Played

The game is played between either two players, or a player and an AI. Like Tetris, the game gives the player control of one block at a time that the player can rotate and move left or right or down. If the player only rotates and moves the block left and right the block will move down at a constant speed. Each of the two gems will continue to fall until they are either on the bottom of the players board or resting on another gem. When a crash gem reaches its resting point if it is in contact with any gems of the same color it will destroy those gems and any gems connected to those gems through a path of similarly colored gems. The diamond gem at rest will destroy all the gems that have the same color as the gem directly beneath it. When gems are destroyed by either a crash gem or a diamond gem a new type of block will be added to the opponents play area. The new block is called a timer block, like the regular block the timer block is one of the four colors. The timer blocks will not be destroyed by crash gems directly until the timer has run down and the block becomes a regular gem block. However any timer gem that has a gem destroyed next to it will be destroyed as well. When gems are destroyed any gems that are now floating will fall until they come to a resting location. This falling from destroyed gems can cause crash gems to come into contact with gems that they can destroy. This chain effect is known as a combo and it increases the amount of timer blocks that are put on the opponents screen. Players will continue to placed the supplied gems until either the players or the opponents screen is overrun with gems.

1.2 Types of Interaction

Regular Gem and Regular Gem If a gem comes into contact with different colored no real interaction happens.

If gems of similar color come into contact with each other then the gems will coalesce into larger gems if they are in a square or rectangular pattern larger than a single gem. These larger gems will cause more timer gems to be put on opponents screen.

Regular Gem and Crash Gem If the crash gem comes to rest touching any gem of the same color including other crash gems it will destroy all gems connected to it by a path of similarly colored gems.

If the crash gem comes to rest and is not in contact with any similarly colored gems than it acts like a regular colored gem until it comes into contact with a similarly colored gem.

Regular Gem and Diamond Gem When a diamond gem comes to rest on a regular gem all gems that have the same color as the regular gem are destroyed as well as the diamond gem.

Crash Gem and Diamond Gem When a diamond gem comes to rest on a crash gem the effect is the same as a diamond coming to rest on a regular gem. All gems of the same color as the crash gem are destroyed as well as the diamond.

Diamond Gem and Bottom of Play Area If the diamond gem comes to rest at the bottom of a play area than the diamond gem will simply be destroyed.

Falling Gem and Bottom of Play Area The gem will stop falling and come to a resting position; the player loses the ability to control the gem.

Falling Gem and Resting Gem The gem will stop falling and come to a resting position on top of the gem; the player loses the ability to control the gem.

1.3 Visual Entities

Gems Each of the gem types and colors

Score A score panel for each player that shows their current score

Preview Block This will be a preview area that shows the player the next block that is being provided to them.

Round This will show players how many rounds they or their opponents have won out of the current set.s

Caution Section Flashes “caution” or “warning” and shows the number of timer blocks that will be dropped after the currently controlled block is at rest.

1.4 What the Player Does

The player will control the one block provided to them. They will rotate the block and move it left or right until it is in the desired location. The player can also force the block to move down the screen at a faster rate to get the next block faster.

1.5 Fun Factor

The thing that makes this game extremely fun is the competition aspect of the game. When a player gets a large combo or a breaks a large number of gems he/she can see the effect of that both on their own screen and the screen of their opponents. The ability to place blocks where the player wants them and possibly set up large combos also adds a level of fun.

2 Development Strategy

2.1 Milestones

2.1.1 Single-player

As a first step, we must implement the basic mechanics of the game. This means we need falling blocks that can be positioned and rotated, merging of blocks of the same color into power gems, and crash gems that break all contiguous blocks of the same color. We will also need to have a sort of gravity that pulls down blocks when their support is destroyed, and recognition of combos that the player should achieve. At this stage of development, we will basically have a Tetris clone with Puzzle Fighter-esque mechanics, where the goal is simply to collect a high score.

2.1.2 Local multi-player (alpha)

Once the basic game mechanics are down, the next stage of development is the multi-player, initially in the form of local multi-player. We'll need to be able to run two games simultaneously, and pass garbage blocks between them when a player pulls off a big combo. At this point, we should also be thinking about how to use graphics to convey the damage a player is doing to his enemy. This is the stage where the game actually becomes fun to play.

2.1.3 Networked multi-player and AI

Finally, with all the mechanics required for a playable game complete, we will move on to the parts that make the game technically interesting. Included here is networked multiplayer and a single form of AI (both of which have the effect of making it easier to find games to play).

3 Technical Showpieces

3.1 Networking

For networking we plan on allowing both players to see what the other players screen currently looks like. This would be implemented the same way a local two player game would be with the two player screens side by side. This means we will need to send information about what moves are made. We will also need to pass the information about timer blocks that need to be put on enemies screen.

3.2 AI

Our AI will need to be foward thinking in that it needs to take into account which block is in the preview screen and how that will effect its current move. The AI should also attempt to make combos and keep like colored gems together. Along with keeping like gems together the AI will need to try and maximize the amount of gems destroyed by crash gems. The AI will also need to understand the effects of timer blocks and will need to adjust its choice of block placement based on that.

4 High Bar

The high bar for the game would include multiple different characters the player could choose from and differing AIs for each of the charcters in single player. Another high bar element would include the characters “fighting” on screen giving another way of representing the damage a player is doing to their opponent. Allowing for more than two players to play against eachother is another idea we have for the high bar of the game. For more than two players we could implement a way to choose who you want to ”attack” and the game would send the timer blocks to that player