

Final Project Report

During this final sprint Tony, Maria, Brian, and Armaan worked together to accomplish our new and improved Snake Game, now known as Gyarados Game which implements a Pokemon theme.

We separated the audio using the strategy pattern. We have a SoundManager class that stores all of the possible sounds the game can make which are a total of six. Additionally, we implemented the Builder pattern to create different “Pokemon” types with different properties and effects on the pokemon which is our new “Apple”. As well as implemented the decorator pattern for the snake to apply power ups. With this, the snake can either grow, move faster, slow down or lose points depending on what kind of apple it has encountered. These game enhancements made the game more enjoyable and challenging for the player.

Techniques and Implementations

We went from having 9 java files to 14 java files. SharpedoPowerUp, QwilfishDebuff, PowerUpDecoder, PowerUps, SoundManager, and SlowPokeDebuff were added. For PowerUps.java, this interface defines a blueprint for different types of apples in the game. It specifies a method called applyPowerUps(SnakeGame sg), which is responsible for applying a specific effect to the snake when the apple is consumed. By using an interface, we ensure that any class representing an apple type must implement this method, ensuring consistency in how different apples interact with the snake.

For SharpedoPowerUp.java, QwilfishDebuff, and SlowPokeDebuff .java these are concrete implementations of the PowerUps interface. Each class represents a different type of Pokemon with a unique effect on the snake. For example, the SlowPokeDebuff .java slows down the snake when consumed, while the SharpedoPowerUp.java class increases the speed of the snake. These classes encapsulate the logic for each type of pokemon effect, making it easier to manage and extend the game's functionality. PowerUpDecoder is a class that is responsible for creating instances of different pokemon types. If we want to add more kinds of pokemon to the game, we can just tweak the PowerUpDecoder without messing up other parts of the game. We have also added SoundManager.java to create different and unique sounds for each power, including in-game background music.

We changed the background of the game to fit our theme of Pokemon. Our icons for the power-ups are also Pokemon themed and were carefully selected to properly represent their effects. We decided to have the power-ups pop up on screen as you play, giving the player a chance to pick which effect they would like to aim for. It was also appealing visually as you can see all the different pokemon, or powerups, on the screen. There were better thematic options for the game, but they were too overwhelming when playing the game long term during testing.

Challenges

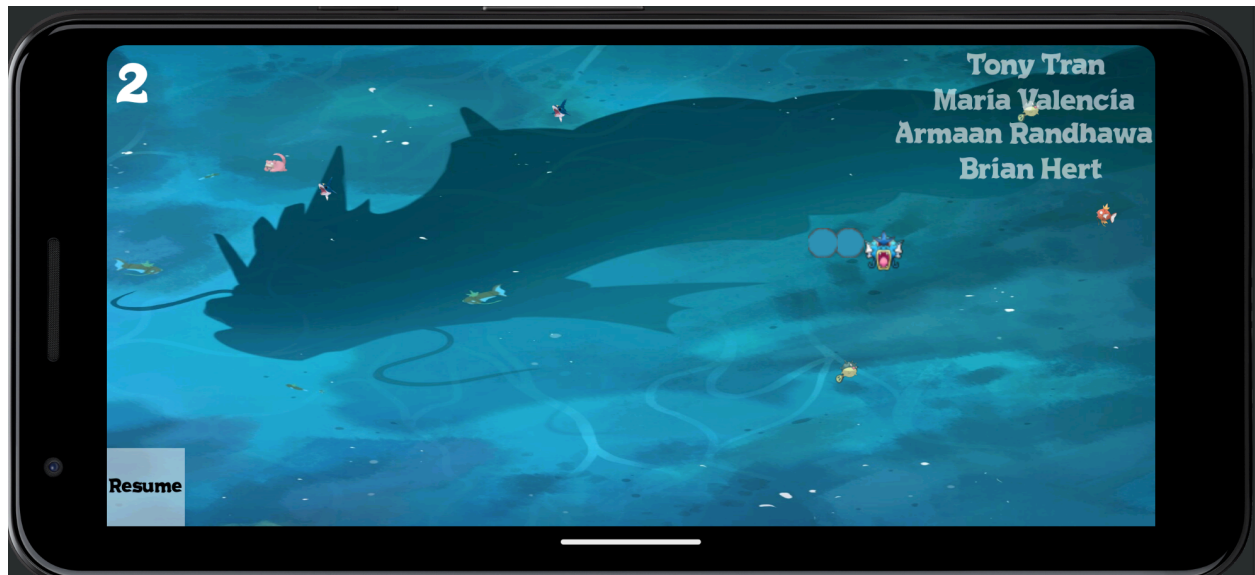
Some challenges we faced creating this game was definitely the design aspect. Figuring out what we wanted to do to change up the game. We actually pivoted from a previous idea because it didn't work with us during testing. Another challenge was actually getting the builder design pattern working. We tried implementing it many ways, but found difficulty adding onto the already previously large SnakeGame code. In the end we agreed on the Pokemon theme and

made progress simplifying our design from our previously grandiose ideas. Implementing functions for a game is very difficult because you have to think of ease of use, functionality, and aesthetics. Implementing sound and images for every little thing you decide to add or change in a game is a huge task, and most of these tasks get lost when implementation because there's so much to do. Something we wanted to do was add text on the screen for the power-ups you've eaten, but that got lost in the development cycle.

Tutorial

The directions to play the game are fairly simple. For the home screen overview, to begin playing, tap the 'Tap To Play' button located at the center of the screen. For the snake movement, you must control the snake using your keyboard to swipe in the direction you want the snake to move. Different types of apples appear randomly on the screen. Each type has a unique color and icon that corresponds to the power-up it provides. The different types of power ups are the `SlowPokeDebuff.java` class which is supposed to slow the snake when consumed, the `SharpedoPowerUp.java` class which is supposed to increase the speed of the snake and the `QwilfishDebuff` loses you a point and acts as an obstacle. You can even pause the game in the middle of it and pick up where you left off. You will also hear engaging/victory sounds once the snake hits the Pokemon unless it is the debuff where the sound represents a bad power up, and a harsh sound once the snake hits the wall indicating that the game is over, our `SoundManager.java` file holds all these different implementations of all the sounds. At the end of the game your high score will also be shown and displayed.

Screenshot of the Game



Git Logs

Commits on May 12, 2024	
Merge pull request #6 from TonyTCS/Final_Project_PokemonDesign	3887455
TonyTCS committed 17 hours ago	
Revert "fix the names from going off screen"	d457848
TonyTCS committed 17 hours ago	
Revert "add a new background"	6d128a0
TonyTCS committed 17 hours ago	
Changed image for magikarp, qwilfish, sharpedo	1787ab0
TonyTCS committed 17 hours ago	
Changed death sound effect. Added in game sound. Changed code logic for in game sound.	05a49ea
TonyTCS committed 18 hours ago	
Changed Wailmer to Slowpoke. Removed Grow size to just slow.	9648fcd
TonyTCS committed 20 hours ago	
Rename Files, Added Minus 1 Point Debuff, Refactored Code.	2060cf8
TonyTCS committed yesterday	
Commits on May 11, 2024	
Rename Files and Added Unique Sound Effects through Sound Manager	c8d13e8
TonyTCS committed yesterday	
owilfish (minus 1 debuff pic)	9158278
valenciarmars committed yesterday	
Fixed the pixels on the head	68fa389
TonyTCS committed yesterday	
Merge remote-tracking branch 'origin/New_Builder_Pattern' into New_Builder_Pattern	cb8caa5
TonyTCS committed yesterday	
Changed the head	124bc24
TonyTCS committed yesterday	
deleted pics we werent using	5add16a
valenciarmars committed yesterday	
added pic for speeding up and enlarging	30b4550
valenciarmars committed yesterday	
Changed the body to blue	bddc3bd
TonyTCS committed yesterday	
edited the magickarp and got rid of its black background	53eff2c
valenciarmars committed yesterday	
edited the magickarp and got rid of its black background	f74986e
valenciarmars committed yesterday	
Added a pokemon background	b4f0d8f
TonyTCS committed yesterday	
added magickarp icon which is our new normal apple	f4c05cc
valenciarmars committed yesterday	
Typeface added	1d449c8
TonyTCS committed yesterday	
add a new background	68b169d
BrianHert committed yesterday	
Commits on May 10, 2024	
fix the names from going off screen	c15c282
BrianHert committed 3 days ago	

Merge branch 'master' of https://github.com/TonyTCS/SnakeySnake into testing	d74c526		
akr090 committed yesterday			
add a new background	68b169d		
BrianHert committed yesterday			
added mApple.applyEffect(mSnake); // Apply effect of the apple	7cbbcf d		
akr090 committed yesterday			
adjusted name font size to include all names	042eb97		
akr090 committed yesterday			
Merge branch 'Final-Project' of https://github.com/TonyTCS/SnakeySnake into testing	e051941		
akr090 committed yesterday			
fixed code so that the game runs after eating one apple	2de6571		
valenciarmars committed yesterday			
Added interface AppleType.java, added NormalApple.java, added SpeedApple.java. Refactored and modified GameObject.java, Apple.java, Snake.java, SnakeGame.java. All to add and inoorporate powers in ...	53a1e0a		
akr090 committed 2 days ago			
Added interface AppleType.java, added NormalApple.java, added SpeedApple.java. Refactored and modified GameObject.java, Apple.java, Snake.java, SnakeGame.java. All to add and inoorporate powers in ...	f24e5aa		
akr090 committed 2 days ago			
Commits on May 10, 2024			
fix the names from going off screen	c15c282		
BrianHert committed 3 days ago			
Commits on Apr 10, 2024			
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