

Project Summary: Water Wars #19

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The game was coded in Python in a Street Fighter style based off one of the most popular Operation Catapult activities—water wars. Water Wars is a two player game where the opponents throw water balloons at each other and take damage when hit. The first player to run out of health loses the game. To make gameplay more difficult, the map consists of various platforms that players can jump on to avoid the balloons.

Factors that posed challenges during the coding process mostly involved making the characters interact correctly with their environment. The primary challenge was to make it so players would land on the platforms below them and fall directly to the ground when stepping off a platform as opposed to stopping at the height of another platform. We also spent time making the physics of our game reflect real world physics. This included making the characters arc after jumping instead of falling straight down which meant implementing velocity vectors and gravity into the code.

In order to make the game more difficult, the team decided to add a three second delay between each fire of the balloon. The implementation of the delay required a second image for each player in which they were not holding their balloon and additional code to coordinate the sprite and ability to fire. The aforementioned coding proved to be quite technically challenging, because the code had to be structured in a way that didn't interfere with the functions already built into the game.

With over two hundred fifty lines of code in the final version, staying organized became a major challenge. The large number of classes and functions made revisions and troubleshooting significantly more difficult. To keep the program organized and clear to read, the team incorporated explanatory comments throughout the code.

Working on this project drastically improved the team's understanding of the fundamental concepts and skills of computer science. It also provided a working knowledge of the Python language. The Water Warriors learned to effectively work together and created a product to be proud of.