Criterion A: Planning

Defining the Problem

Over the past years Mary Ellen Henderson Middle School, despite having a very strong computer science and math curriculum, has not offered any educational opportunities teaching artificial intelligence (AI). This is simply because available AI is often deemed as a topic that is too complex to teach to middle school students. I met with computer science teacher, Mr.Erick, who illustrated his frustration on the problem. "There are limited available resources to teach young students the basics of artificial intelligence" he said. "I have tried in the past to use some of the online resources to teach neural networks, but they are too complex for my students to understand. I'm looking for a straightforward game that students can download on to their iOS devices that incorporates basic artificial intelligence concepts. Ideally, it would allow them to understand the fundamental concepts of artificial intelligence by incorporating it into the game. I believe that this would be the best way for students to learn about artificial intelligence since it would be simple, easily accessible, and fun to use."

Rationale for Proposed Solution

I decided to make an iOS game for this solution, as it is the most fitting for this specific problem. The game will have only two options: train a new network and choose an existing network. This simple, intuitive user interface will allow the solution to be fun to use, simple, and portable. I will use Apple's Swift programming language and Xcode IDE to make this game because Swift is the programming language I am most familiar with and because most Mary Ellen Henderson students have iPhones. This app will have a simple to use GUI and will feature big text in order to have maximum efficiency and ease of use. The game will be colorful, animated, and relatively easy in order to easily train neural networks.

Overall, the simple interface, combined with the intuitive training platform for neural networks, allows for the best possible solution to help teach middle school students about artificial intelligence.

Criteria for Success

1. Will allow students to train their own neural networks
2. Will allow students to save neural networks
3. Will allow students choose different neural networks to see how they work
4. Character sprite will be animated
5. Enemy sprite will be animated
6. Will have a game main menu, allowing students to choose between training a new neural network and using an existing neural network

Word Count: 338