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7-3 project 2

**Design Defense**

As a human we learn by trial and error usually. So, this tells me that a human would try to solve the problem they would concentrate on the middle and look and see what the possible outputs could be. After thinking about the output, a human will execute the path they think is correct. This is like looking at a map to figure out where you are going without directions you observe multiple different paths to figure out the most efficient or the correct way to get from point a to point b. Usually the human will find the way out, but it will take many attempts and fails them all but once.

Now for the steps an intelligent agent would take to solve this problem and what makes them different. The agent will use random paths to discover the solution. The agent will not know the correct path so just like the human there will be many attempts. The steps for the agents will look something like this. First the agent will get the data for the problem from the start ,target and many other points the agent will make. The second step of where the agent will run through the problem many times until the algorithm finds the optimal path for solving the problem. Step three is where the agent will match an output for the most efficient path to the problem.

There are quite a bit similarity and some differences between an agent and a human when it comes to problem solving. They both know what the problem is by the input and providing correct solution. The human uses their eyes to analyze the problem while the agent uses multiple numbers from the input. Humans wont care what the most efficient way is, and the agent will. Therefore, there a significant difference in time for human compared to the agent. The agent will calculate the most efficient way with the maximum number of rewards and penalties with each step throughout the maze. Humans again will not, and this can cause them toe repeat the same section of course many of times. The agent will learn from their mistake much quicker and have less mistakes than a human would.

When it comes down to exploitation and exploration are that exploitation involves searching the whole amount of sample inputs and testing everything outcome. Exploration involves pursuing potential solutions by searching, testing, finding, and improving every output. The correct amount of exploration and exploitation for the pathfinder problem is that the agent will learn through exploitation, but the agent can choice to explore and discover of exploration for the pathfinding problem. When it comes to reinforcement learning it helps determine the path to the goal using trial and error and the agents can only discover the most efficient path when using a testing method to solve this much like a human.

When it comes to implementing deep Q learning when using a neural network for the game does something like this. The first steps include importing libraries and then step 2 include creating training environments. Step 3 create a reward system and then step 4 includes creating learning agents. Step 5 use enhance algorithms and step 6 is to evaluate agents within the environment. This allows the neural network to help find the best possible sequence and the best output when you implement these steps into deep Q learning.

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