AI Project Phase-1

Description

Team Name: Dcrawler
Ajay Pal | Rohan Gujarathi | Kushal Samir Mehta | Rishabh Sachdeva

The following are the functions that the agent performs on each step.

1. It increases the 'explored count' of the location that the agent has been in by 1 if the agent is at the current location.
   Explored is a map of the location as a tuple and count as an integer.
   For example, if the agent is at location 1, 2, then the explored map will look like this **{(1, 2): 1}**
2. From the current location, the agent gets all the directions that a legal move can be made in with the following steps:
    a. It checks if the locations relative to the current location in each of the directions (NORTH, SOUTH, EAST and WEST) are within the boundary of the map and if it is not a wall.
    b. If the above condition is passed then it calculates a score for the tile in each of these relative locations using the rules specified below and adds it to a direction to score map.
        i. If there is an object present at the relative location then it will calculate the score of the tile in that location with respect to the strength that can be gained or lost by the object at that location
            1. If there is a powerup, the tile cost of the location is subtracted from the delta value and this is the score for a tile with a powerup.
            2. If there is a static monster and if the agent has more than 50% chance of winning then the score of that tile will be the strength of the monster minus the tile cost (Agent likely to fight, slightly higer score on that tile). Otherwise the tile cost will be the delta of the monster minus the tile cost (Agent unlikely to fight, very low score on that tile).
        ii. If there is no object present at the tile then the score of the tile is nothing but the negative of the tile cost.
    c. Once the tiles that can be moved on to with a score for each are returned, the agent now makes a decision on which move to make using the following rules:
        i. It checks which of the movable tiles are least explored from the explored map that we define in step 1.
        ii. After this it chooses the direction that points to a tile that has a higher score from the set of lesser explored tiles.
    d. The direction is returned from the agent class.