Notes for AI Assignment

Neighbouring

For each node, go through all 8 possible locations for a neighbour by checking the x and y of the potential neighbour. If the x and y values are valid, add a neighbour and try the next position. Once all possible neighbours are added for a node, go to the next node until all nodes have their respective neighbours with positions from 1 to 8.

Algorithm

Check each nodes’ neighbours by cycling through 1 to 8 and check that neighbours’ potential for being the next step in the path for the node.

Setting Node Image

The node needs to know what type it is (tile, player, or enemy) by using its position in the grid. The players’ start position will be set upon initialisation and can then be adjusted when the user inputs a key press. To find out where the player/enemy is on the map, this must be done after all the nodes are created. The x and y positions will be compared and if they match, the node that it is supposed to be on will be changed to a closed type and the players node information will be updated/copied from the node.

Initialisation

The vector of nodes needs to be created and the player/enemy positions set before the loop starts. The loop must only contain drawing information and updating information.

Breadth First Search

The loop won’t break out because the open vector never empties. It needs to be empty when the end node is found.

Wandering State

This is implemented by only allowing the enemies to move when the player moves (superhot game as a reference). When the player moves, the enemies will move in a random direction by one tile. This state will change when the enemies come into a set vicinity of the player.

Chasing State

This state will utilise the BFS algorithm. When the player comes within a set vicinity of the enemies, the search will automatically happen. When the search is executed, the path to the player will be shown and the enemy will automatically start to follow the path. The path will be recalculated every time the player moves, and once the first path is made, the player cannot be lost, so the aim is to survive for as long as possible.