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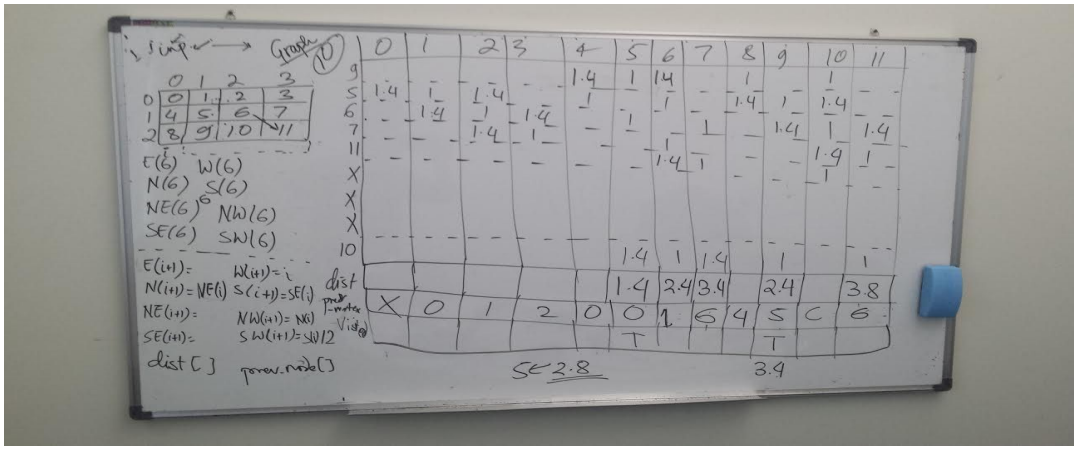
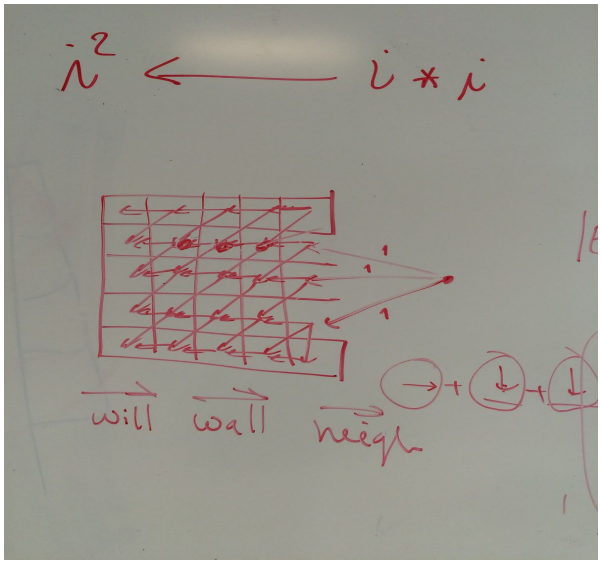
Phase 2 Report

For the next phase of our project, we have decided to revisit and optimize some of the algorithms we are using. The Dijkstra algorithm will be used to determine how an agent will leave the building. Every pixel will have eight directions: northwest, north, northeast, east, southeast, south, southwest, and west. Thus, instead of having n^2 elements, we can have 8n elements in an array. Each pixel will also be given a single vertex number, rather than an x,y coordinate. The number will start from 0 and end in n, going from left to right. To find the vertex number, the equation is vertex = row number * width + column. We will generate a node for 8 directions for each vertex, e.g. WEST_IS_VALID, NORTHWEST_IS_VALID to determine if the vertex lies within the graph. If it is inside the graph, the value will be either 1 or 1.414 (for the diagonals).

Our next step is to code the Dijkstra algorithm. Although we understand the algorithm and have a firm grasp on how to program the idea, we have yet to figure out a way to implement it without runtime errors.

Our code is provided in https://github.com/prasantadh/csp.




N^2
$i * i$
1
1
1
will
wall
neigh