UCSC Silicon Valley Extension

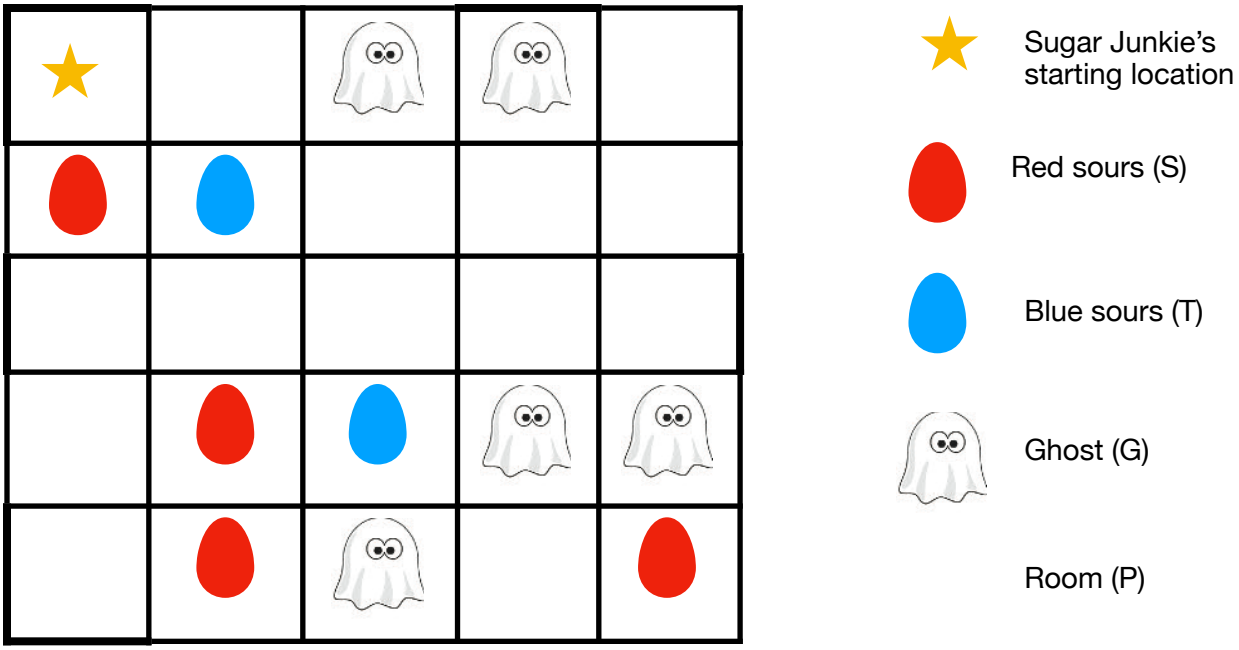
C Programming, Advanced

Discussion 2
Instructor : Radhika Grover

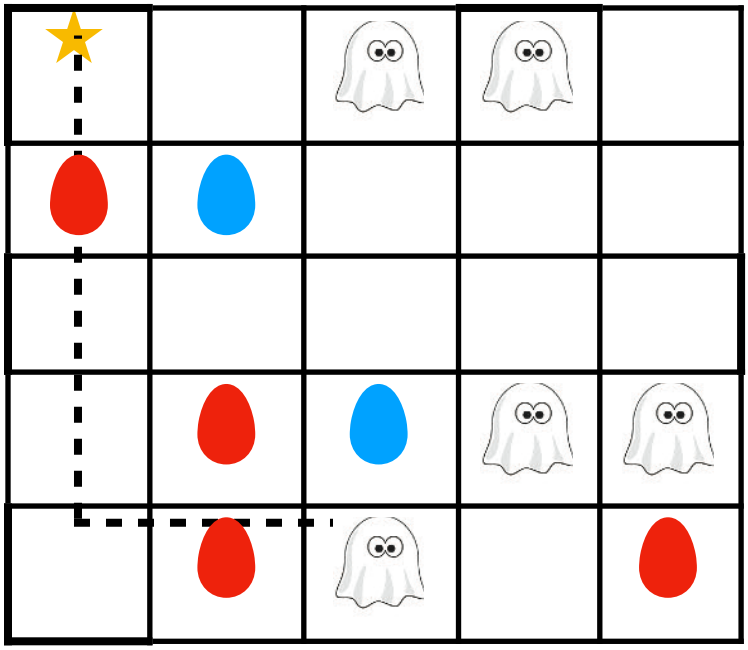
Halloween Candy Binge

Discuss an algorithm to solve this problem or analyze the time/space or code efficiency of another post or describe a data structure that could be used to solve this problem. You can use recursion or an algorithm that considers time efficiency, space efficiency or code brevity.

6. Help Sugar Junkie eat candy to score the maximum number of points! Each room is shown with a square in the grid. A room may contain a packet of red or blue sour candy, and Sugar Junkie gets 2 points on eating a packet of red sours and 3 points on eating a packet of blue sours. Moves are in the N, S, E, and W directions along adjacent rooms called a path. Some rooms contain ghosts and Sugar Junkie freezes upon reaching a room with a ghost. Note that Sugar Junkie cannot visit any room more than once on a given path. Given a starting location, determine the maximum number of points on any path collected until a room with a ghost is reached.



For example, see two possible paths in the next two figures. Sugar Junkie is initially at (0,0) The dashed path goes through two rooms with red sours before a ghost is reached, so the total points collected are 4.



The dotted path below goes through 3 red and 2 blue sours, so the total points are this path are 12. This is the maximum number of points that can be collected through any path from the given start point, and is displayed as the solution. Sugar Junkie cannot revisit any of the rooms on this path. So, the path (0,0), (1,0), (2,0), (1,0) is invalid because (1,0) is revisited.