

For this problem, I used the skeleton code that we were given and then filled in the missing functions. I first figured out what order to do it in and I came up with the following order – swap, all move functions, heuristic function (Manhattan distance), update_fgh, expand, filter, and finally I finished the merge_to_open functions. I chose my heuristic function as the Manhattan distance formula which I used when I would update the f, g, and h values of each state. For this function, I had to make sure to handle an edge case which is if it is given the starting node in which case I would have to check if it has a parent or not and rather than incrementing by one, I would set it equal to 1.