Astar Algorithm Pseudocode

function A*(start, goal)
    closedset := the empty set  // The set of nodes already evaluated.
    openset := {start}    // The set of tentative nodes to be evaluated, initially containing the start node
    came_from := the empty map    // The map of navigated nodes.
    g_score[start] := 0    // Cost from start along best known path.
    // Estimated total cost from start to goal through y.
    f_score[start] := g_score[start] + heuristic_cost_estimate(start, goal)

    while openset is not empty
        current := the node in openset having the lowest f_score[] value
        if current = goal
            return reconstruct_path(came_from, goal)
        remove current from openset
        add current to closedset
        for each neighbor in neighbor_nodes(current)
            if neighbor in closedset
                continue
            tentative_g_score := g_score[current] + dist_between(current, neighbor)
            if neighbor not in openset or tentative_g_score < g_score[neighbor]
                came_from[neighbor] := current
                g_score[neighbor] := tentative_g_score
                f_score[neighbor] := g_score[neighbor] + heuristic_cost_estimate(neighbor, goal)
                if neighbor not in openset
                    add neighbor to openset
        return failure

    function reconstruct_path(came_from, current)
        total_path := [current]
        while current in came_from:
            current := came_from[current]
            total_path.append(current)
        return total_path