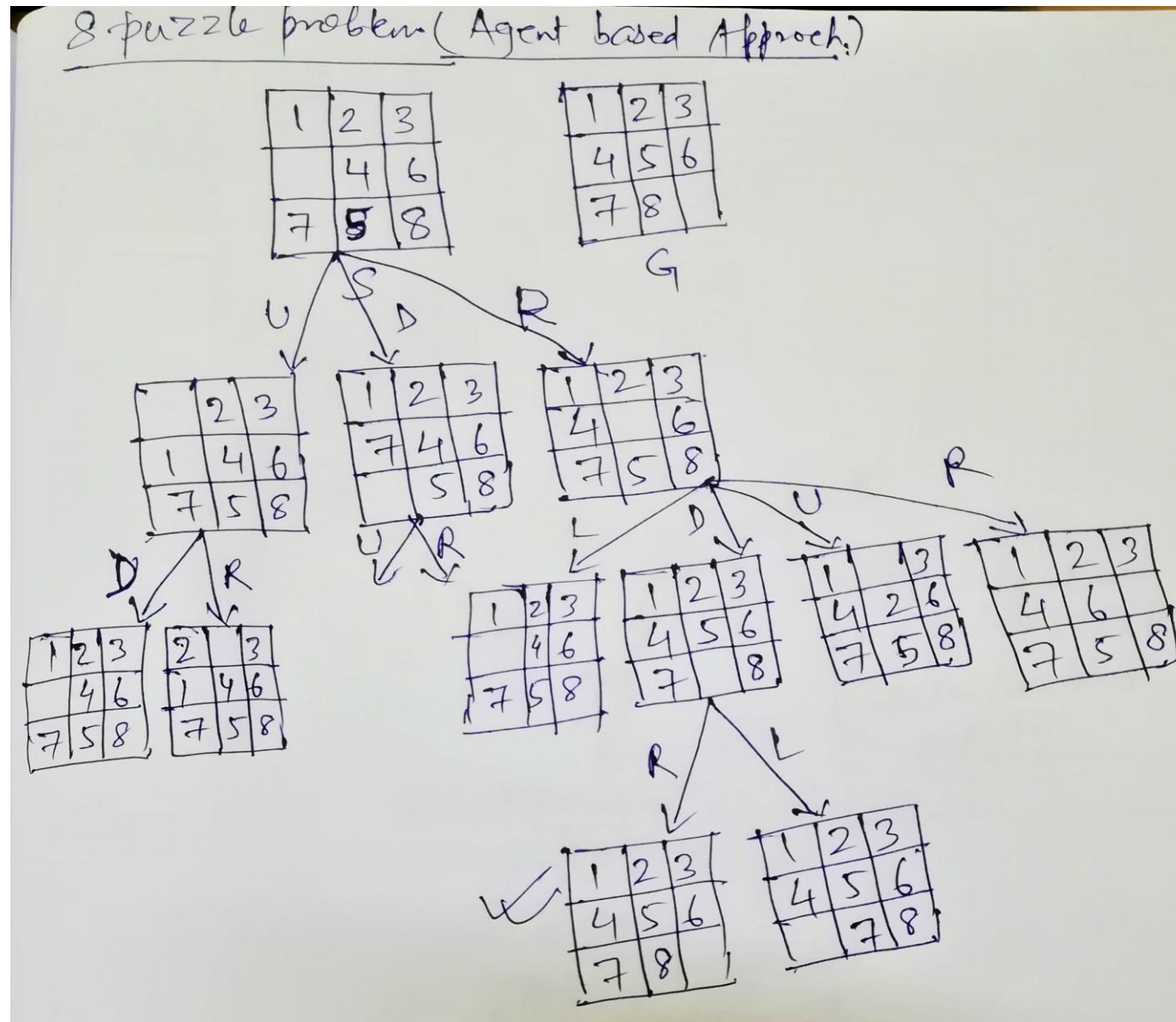


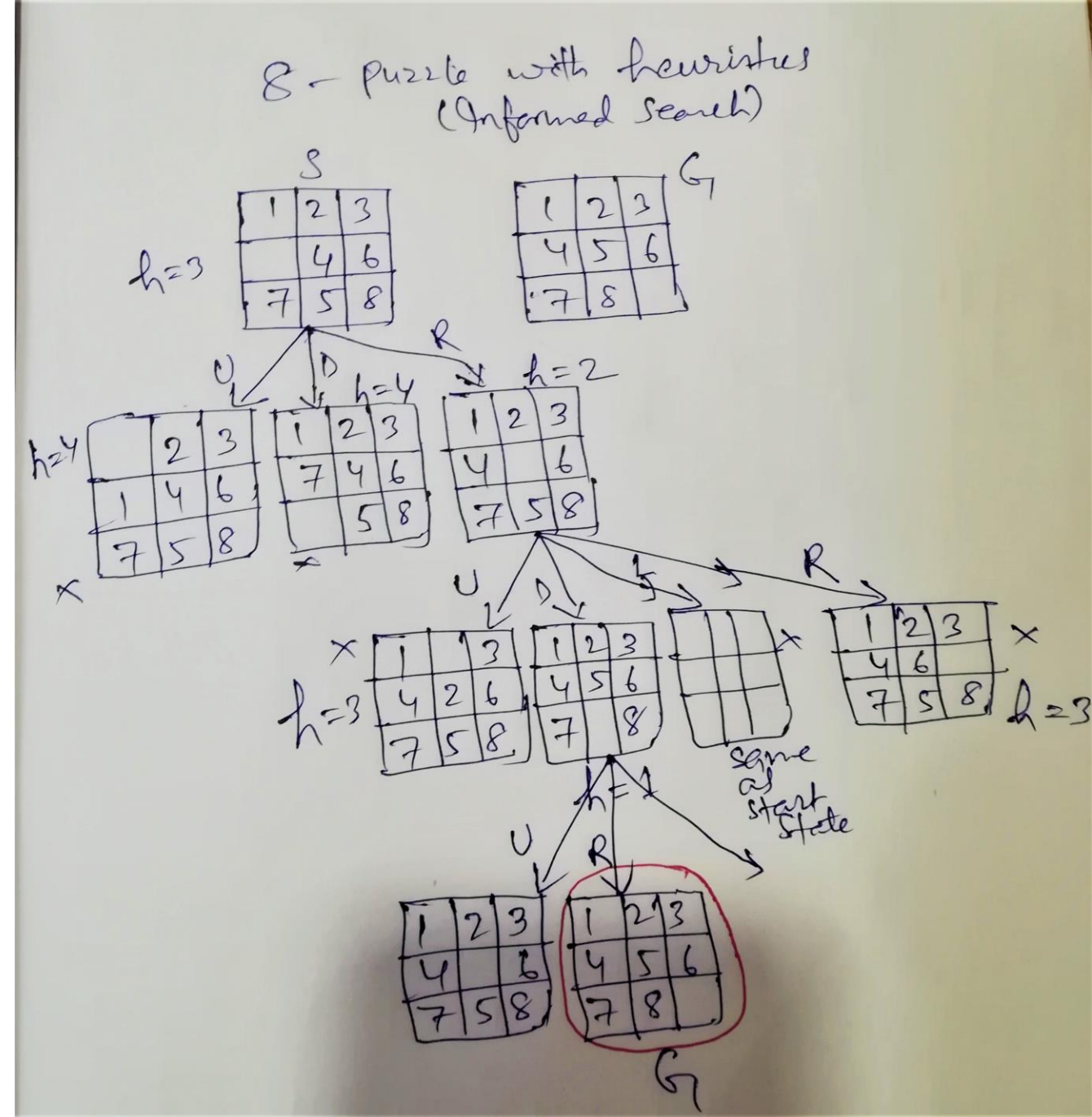
Examples

Uninformed Search: Breadth First Search (BFS) on 8-Puzzle Problem



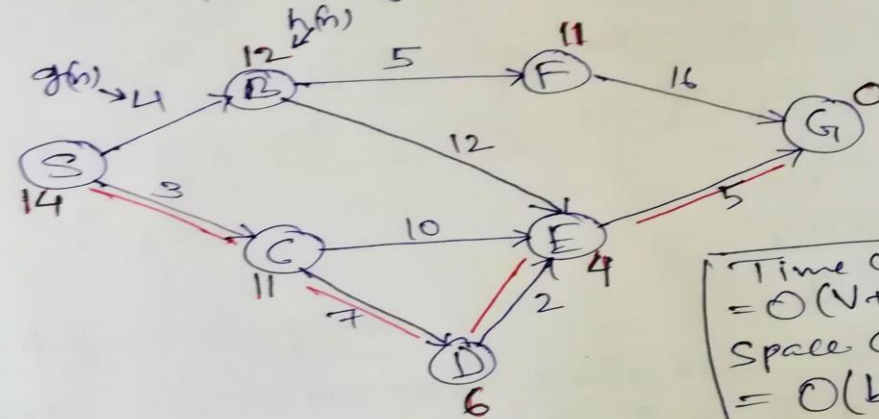
Informed Search: Best First Search on 8-Puzzle problem

Note: Heuristic function (h) is used to take the decision (which state to follow next). The heuristic function (h) is the total number of misplaced tiles with respect to the goal state.



A* algo example

$$f(n) = g(n) + h(n)$$



Time Complexity
 $= O(V+E) = O(b^d)$
 Space Complexity
 $= O(b^d)$

$$g(n) + h(n) = f(n)$$

$$S \rightarrow B ; 4 + 12 = 16$$

$$S \rightarrow C ; 3 + 11 = 14$$

$$SC \rightarrow E ; (3 + 10) + 4 = 17$$

$$SC \rightarrow D ; (3 + 7) + 6 = 16$$

$$SB \rightarrow F ; (4 + 5) + 11 = 20$$

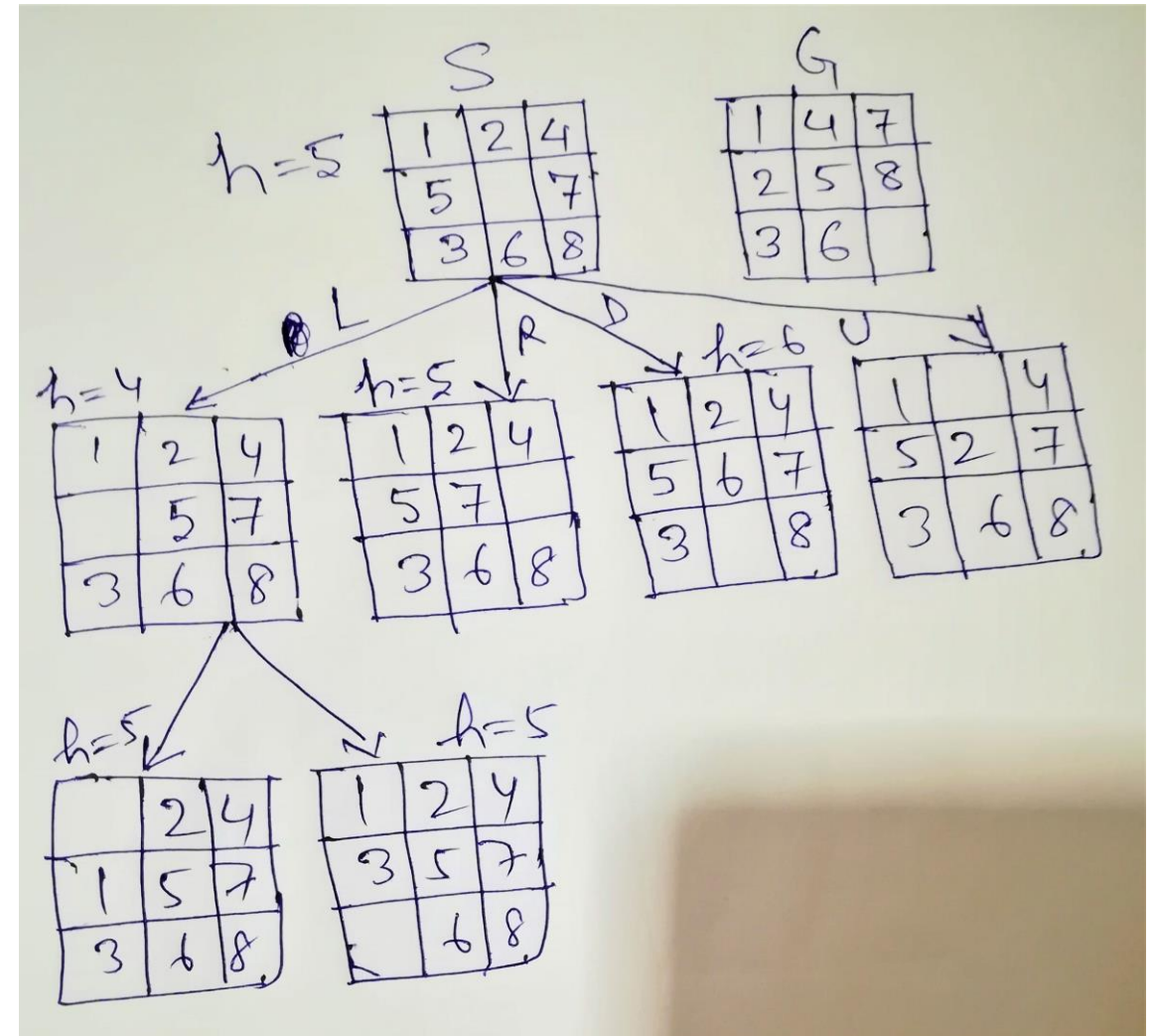
$$SB \rightarrow E ; (4 + 12) + 4 = 20$$

$$SCD \rightarrow E ; (3 + 7 + 2) + 4 = 16$$

$$SCDE \rightarrow G ; (3 + 7 + 2 + 5) + 0 = 17$$

Example of Hill Climbing Algorithm getting stuck to local maxima

Note: Heuristic function (h) is used to take the decision (which state to follow next). The heuristic function (h) is the total number of misplaced tiles with respect to the goal state.



Depth first search on 8-Puzzle problem

