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EXPERIMENT NO. 4

Aim: Implement Greedy Best First Search / A* Search algorithm in Python.

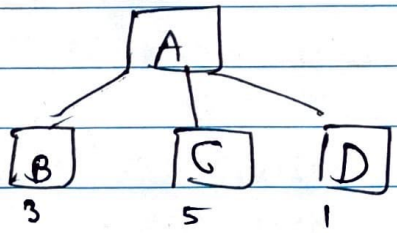
Theory:

Greedy Best-First search algorithm by using a heuristic function to determine which path is the most promising. The heuristic function takes into account the cost of the current path of + the estimated cost of the remaining paths. If the cost of the current path is lower than the estimated cost of the remaining paths, then the current path is chosen the process is repeated until the goal is reached.

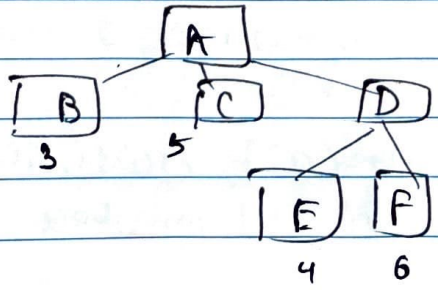
Example

1.

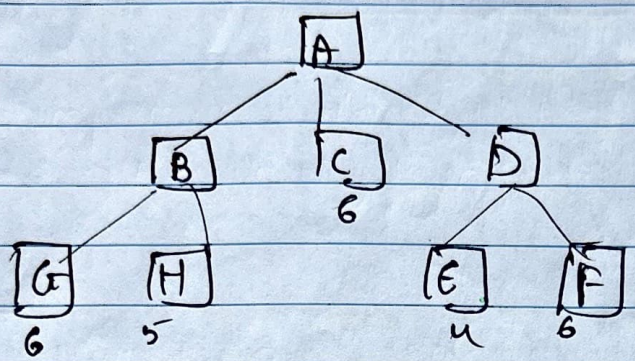
2.



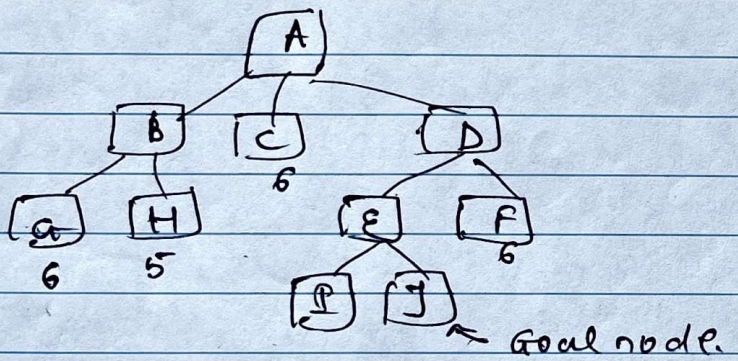
3.



4.



5.



Time & space complexity: $O(b^d)$, worst-O(nlogn

Step 1: Place the starting node into open list
Step 2: If the open list is empty Stop & return
Step 3: Remove the node with lowest value & place it in closed list
Step 4: Expand the node & generate the successor
Step 5: check successor & find if it is goal or not
Step 6: function f(n) checks if node is open/closed
Step 7: Return to step 2.