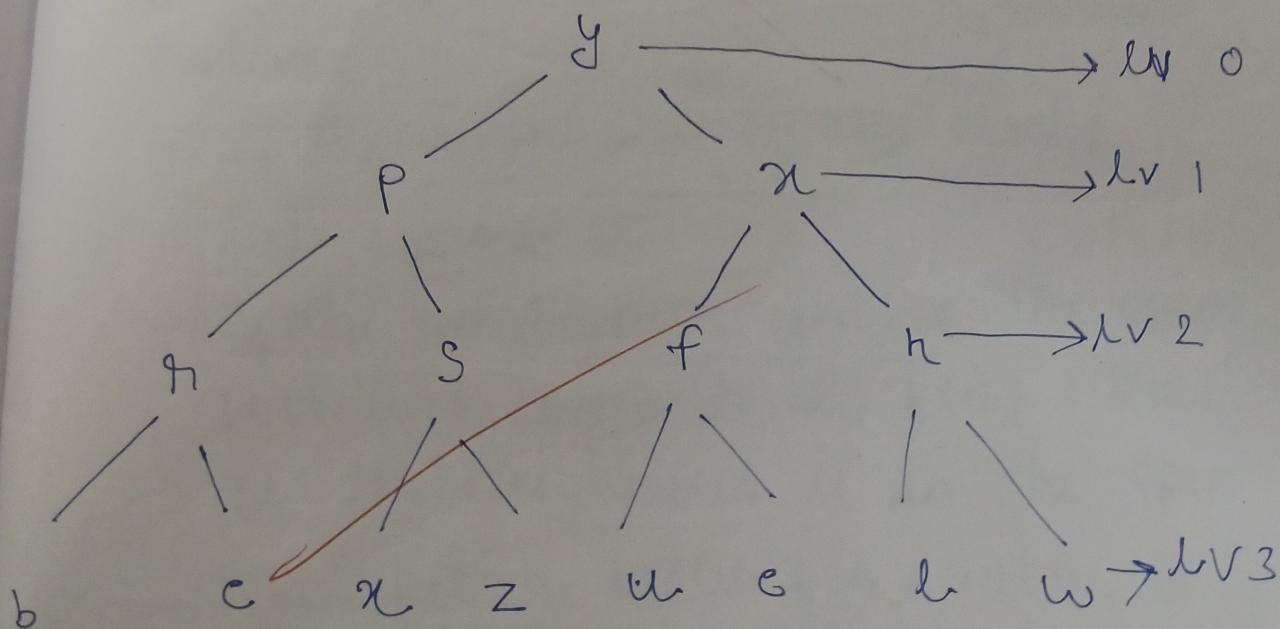


5/10/21

Lab - 4

- ① Implement the following algorithms
 - . Iterative deepening search Algorithm.
- ② Initialize with depth limit = 0
- ③ perform DFS algorithm upto the current depth limit.
- ④ If a solution is found, return it
- ⑤ If no solution is found, increment the limit and repeat the DFS from the start
- ⑥ Continue until a solution is found or all depths are explored



A* Algo

① Initialize all the set

② while qd

→ select val

→ If +

the else

→ for nw

→

level 0:

(y)

level 1:

(y)

(p)

(a)

level 2:

(y)

(p)

(d)

(s)

(s)

(b)

(h)

found

B

→

→

A* Algorithm

① Initialize the open list : the set of all nodes to be evaluated with the start node and, closed list: set of already nodes

② while (open list != empty) &
fd

→ select the node with the lowest value from the open value

→ If the selected node is goal, reconstruct the path return.

→ else, move it to the closed list.

→ for every neighbour of the current node:

→ If the neighbour is in the closed list ignore it.

→ If the neighbour isn't in the open list add compute its $f(n)$ score.

→ If the neighbour is in the open list but a better $f(n)$ value is found, update score as point

③ Return 'failure' if open list is empty and no solⁿ is found

goal state

1	2	3
4		5
6	7	8

start state

3		5
1	2	6
7	8	4

$$f(n) = 1 + md$$

	3	5
1	2	6
7	8	4

$$X \quad \begin{matrix} md \\ 1 + f(n) \end{matrix}$$

1	3	5
2		6
7	8	4

$$f(m) = 1 + md$$

3	5	1
7	8	4

$$X \quad \begin{matrix} 1 + md \end{matrix}$$

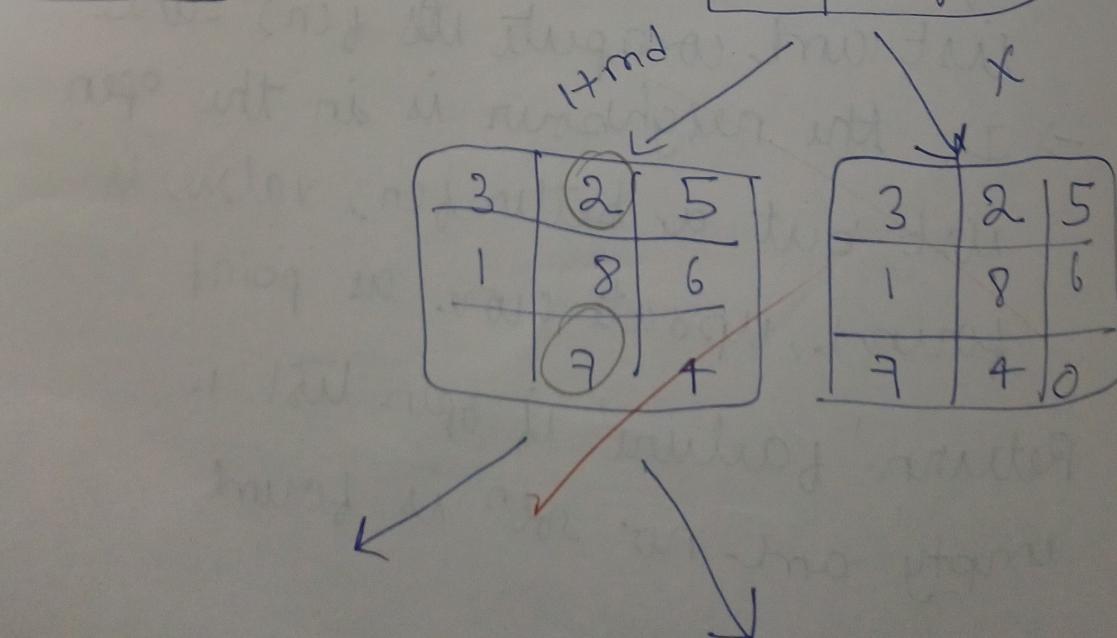
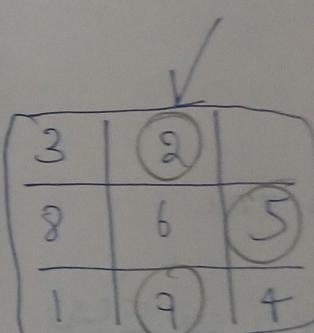
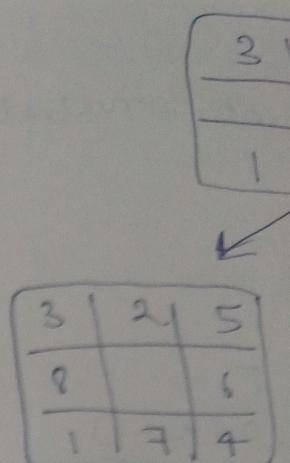
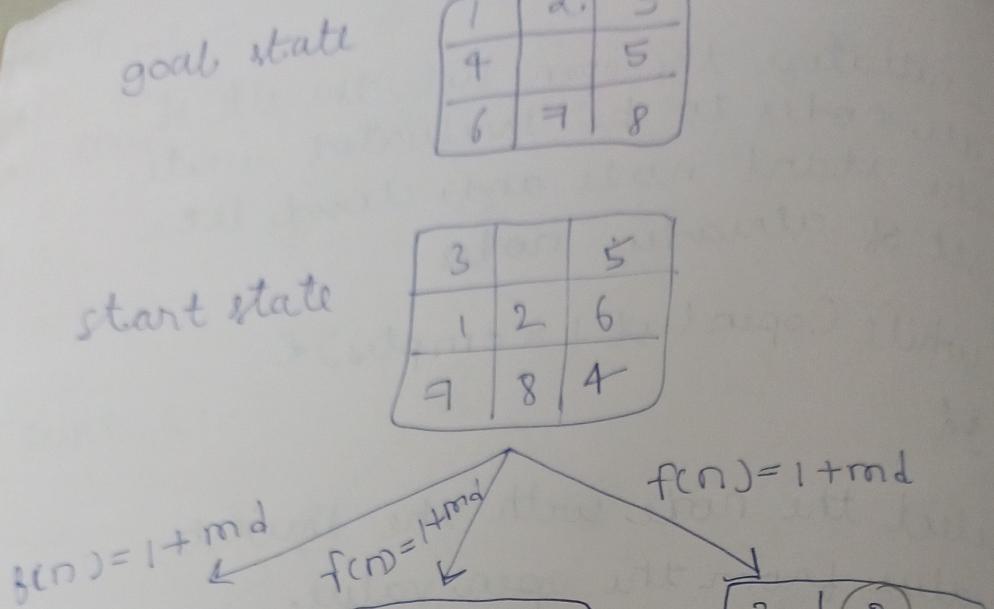
3	5	1
7	8	4

$$f(n) = 1 + md$$

3	2	5
1		6
7	8	4

$$\downarrow$$

3	2	5
1	8	6
7		4



2	2	5
	8	6
1	7	4

3	2	5
8		6
1	7	4

3	2	5
3	8	6
1	7	4

3	2	5
8	6	
1	7	4

3	2	5
8	6	5
1	9	4

3	2	5
8	6	4
1	7	

~~15/10~~

2	5
8	6
4	0