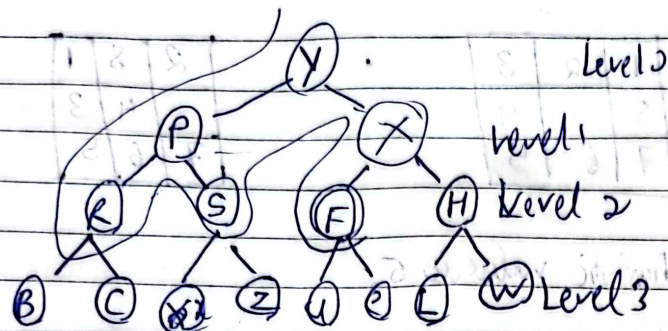


8/22/20 using A* search

IDF



Level 0 is Y

Then we move deeper to level 1 we get YPX

Then moving to level 2 we get ~~YPS~~ ~~YPR~~ ~~YPSXF~~

and as we reached the goal / final state we stop there.

YPR ~~D~~ S P Y X F

adj-mat = []

visited = []

```

def dfs (root depth, cur depth):
    if (cur depth > depth):
        return
    elif (root == target):
        return root
  
```

```

    else:
        for i in adj_mat[root]:
            if adj_mat[i] and not visited[i]:
                visited[i] = 1
            return dfs (i, depth, cur depth + 1)
  
```

8-puzzle

Initial State

1	2	3
8		4
7	6	5

Goal State

2	8	1
	4	3
7	6	5

The heuristic value is 5.

1 2 3

8 4

7 6 5

→ move right

1 2 3

8 4

7 6 5

adj. matrix

8	1	0
2	4	3
7	6	5

8 0 1

2 4 3

7 6 5

(3+1=4)

8 1 3

2 4 0

7 6 5

(5+1=6)

0 8 1

2 4 3

7 6 5

(2+2=4)

8 1 0

2 4 3

7 6 5

(4+2=6)

8 4 1

2 0 3

7 6 5

2 8 1

0 4 3

7 6 5

Final

IDF Output

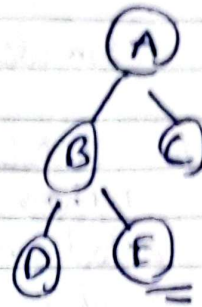
Iteration 1

$A \rightarrow B \rightarrow C \rightarrow$

Iteration 2

$A \rightarrow B \rightarrow D \rightarrow C \rightarrow E$

Target node E



A* Output

8	1	0
2	4	3
7	6	5

8	0	1
2	4	3
7	6	5

0	8	1
2	4	3
7	6	5

2	8	1
0	4	3
7	6	5