Time complexity of bfs and dfs

0

It is just that i am unable to understand how complexity(time) of bfs/dfs are O(v+e). why not O(v*e)???since most of the times i have seen we just multiply inner loop and outer loop iterations and compute complexity so what is the difference we are having here.

P.S: I have already seen link: http://stackoverflow.com/questions/6850357/explanation-of-runtimes-of-bfs-and-dfs and CLRS but didn't get it.

1

bfs complexity dfs proof

edited 30 Jun '13, 10:57

asked 30 Jun '13, 10:56
fiery
190●9●11●17
accept rate: 0%

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2

I think u didn't go through the link contain correct explaination why the time complexity of dfs and bfs is O(v+e) hope this help :)

DFS(analysis):

*Setting/getting a vertex/edge label takes O(1) time

*Each vertex is labeled twice

->once as UNEXPLORED

->once as VISITED

*Each edge is labeled twice

->once as UNEXPLORED

->once as DISCOVERY or BACK

*Method incidentEdges is called once for each vertex

*DFS runs in O(n + m) time provided the graph is represented by the adjacency list structure

*Recall that Σv deg(v) = 2m

BFS(analysis):

*Setting/getting a vertex/edge label takes O(1) time

*Each vertex is labeled twice

-->once as UNEXPLORED

-->once as VISITED

*Each edge is labeled twice

-->once as UNEXPLORED

-->once as DISCOVERY or CROSS

*Each vertex is inserted once into a sequence Li

*Method incidentEdges is called once for each vertex

*BFS runs in O(n + m) time provided the graph is represented by the adjacency list structure

*Recall that Σv deg(v) = 2m

link

answered 30 Jun '13, 11:03
chandan11111
3.6k●13●35●55
accept rate: 10%

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have u gone through this link...i think it is explained properly!!!

1 u can see this link also...it explains the algorithms with their complexities...hope it helps..:)

link edited 30 Jun '13, 12:12 answered 30 Jun '13, 12:07

kunal361
5.9k●13●32●72
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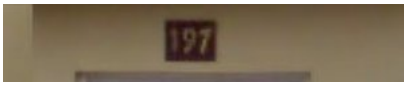

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