Assignment No-2 Title:Breadth-First Search(BFS)

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***Abstract*—This paper introduced for Breadth-First Search(BFS) problem solved using C++ language.**

***Index Terms*—Here I mostly used in My report C++ language and Code-block code editor.**

I. Introduction

Breadth-first search starts at a given vertex s, which is at level 0.

In the first stage, we visit all the vertices that are at the distance of one edge away. When we visit there, we paint as "visited," the vertices adjacent to the start vertex s - these vertices are placed into level 1.

In the second stage, we visit all the new vertices we can reach at the distance of two edges away from the source vertex s. These new vertices, which are adjacent to level 1 vertices and not previously assigned to a level, are placed into level 2, and so on.

The BFS traversal terminates when every vertex has been visited.

II. Literature Review

BFS and its application in finding connected components of graphs were invented in 1945 by Konrad Zuse, in his (rejected) Ph.D. thesis on the Plankalkül programming language, but this was not published until 1972. It was reinvented in 1959 by Edward F. Moore, who used it to find the shortest path out of a maze,[5][6] and later developed by C. Y. Lee into a wire routing algorithm (published 1961). In 2012 Farhad S. et. al. [4] proposed new resolution for solving N-queens by using combination of DFS (Depth First Search) and BFS (Breadth First Search) techniques.

III. Proposed Methodology

Here i Discuss BFS Algorithm:

1. for each u in V s
2. do color[u] ← WHITE
3. d[u] ← infinity
4. [u] ← NIL
5. color[s] ← GRAY
6. d[s] ← 0
7. [s] ← NIL
8. Q ←
9. ENQUEUE(Q, s)
10 while Q is non-empty
11. do u ← DEQUEUE(Q)
12. for each v adjacent to u
13. do if color[v] ← WHITE
14. then color[v] ← GRAY
15. d[v] ← d[u] + 1
16. [v] ← u
17. ENQUEUE(Q, v)
18. DEQUEUE(Q)
19. color[u] ← BLACK

IV. Solving Method

Here Is initial State:

V. Step-2

VI. Code Output

Acknowledgment

I would like to thank my honourable**Khan Md. Hasib Sir** for his time, generosity and critical insights into this project.

References

[1] Borges, Paulo HR, et al. "Carbonation of CH and C–S–H in composite cement pastes containing high amounts of BFS." Cement and concrete research 40.2 (2010): 284-292.

[2] Borges, P. H., Costa, J. O., Milestone, N. B., Lynsdale, C. J., Streatfield, R. E. (2010). Carbonation of CH and C–S–H in composite cement pastes containing high amounts of BFS. Cement and concrete research, 40(2), 284-292.

[3] Borges, Paulo HR, Juliana O. Costa, Neil B. Milestone, Cyril J. Lynsdale, and Roger E. Streatfield. "Carbonation of CH and C–S–H in composite cement pastes containing high amounts of BFS." Cement and concrete research 40, no. 2 (2010): 284-292.

[4] Borges, P.H., Costa, J.O., Milestone, N.B., Lynsdale, C.J. and Streatfield, R.E., 2010. Carbonation of CH and C–S–H in composite cement pastes containing high amounts of BFS. Cement and concrete research, 40(2), pp.284-292.

[5] Borges PH, Costa JO, Milestone NB, Lynsdale CJ, Streatfield RE. Carbonation of CH and C–S–H in composite cement pastes containing high amounts of BFS. Cement and concrete research. 2010 Feb 1;40(2):284-92.

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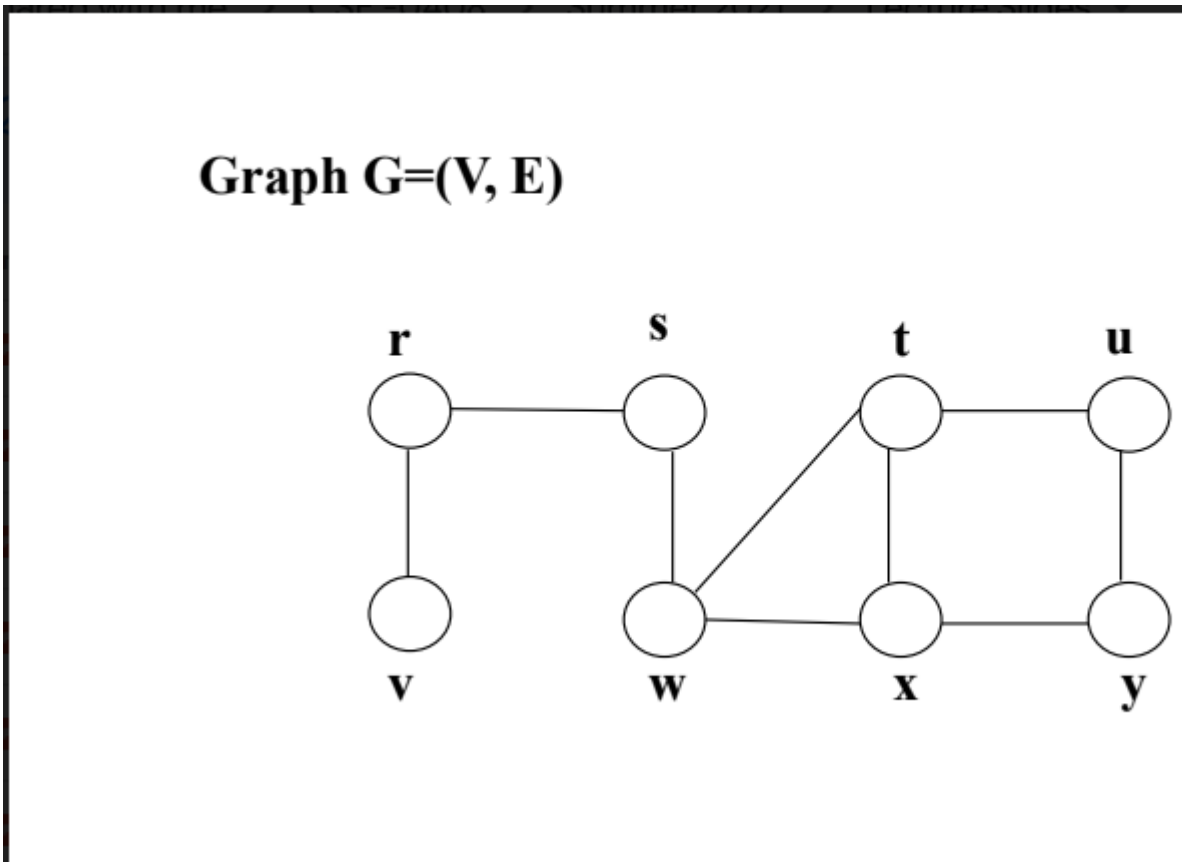

Fig. 1. Solving Method

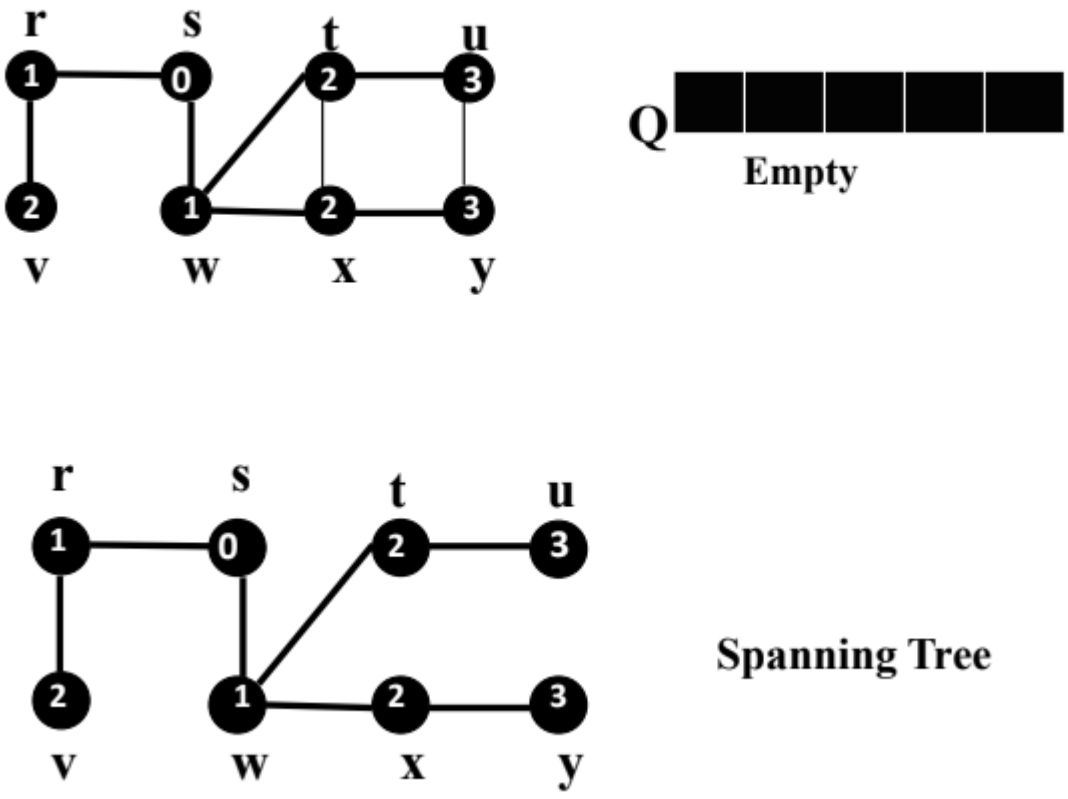

Fig. 2. Solving Method

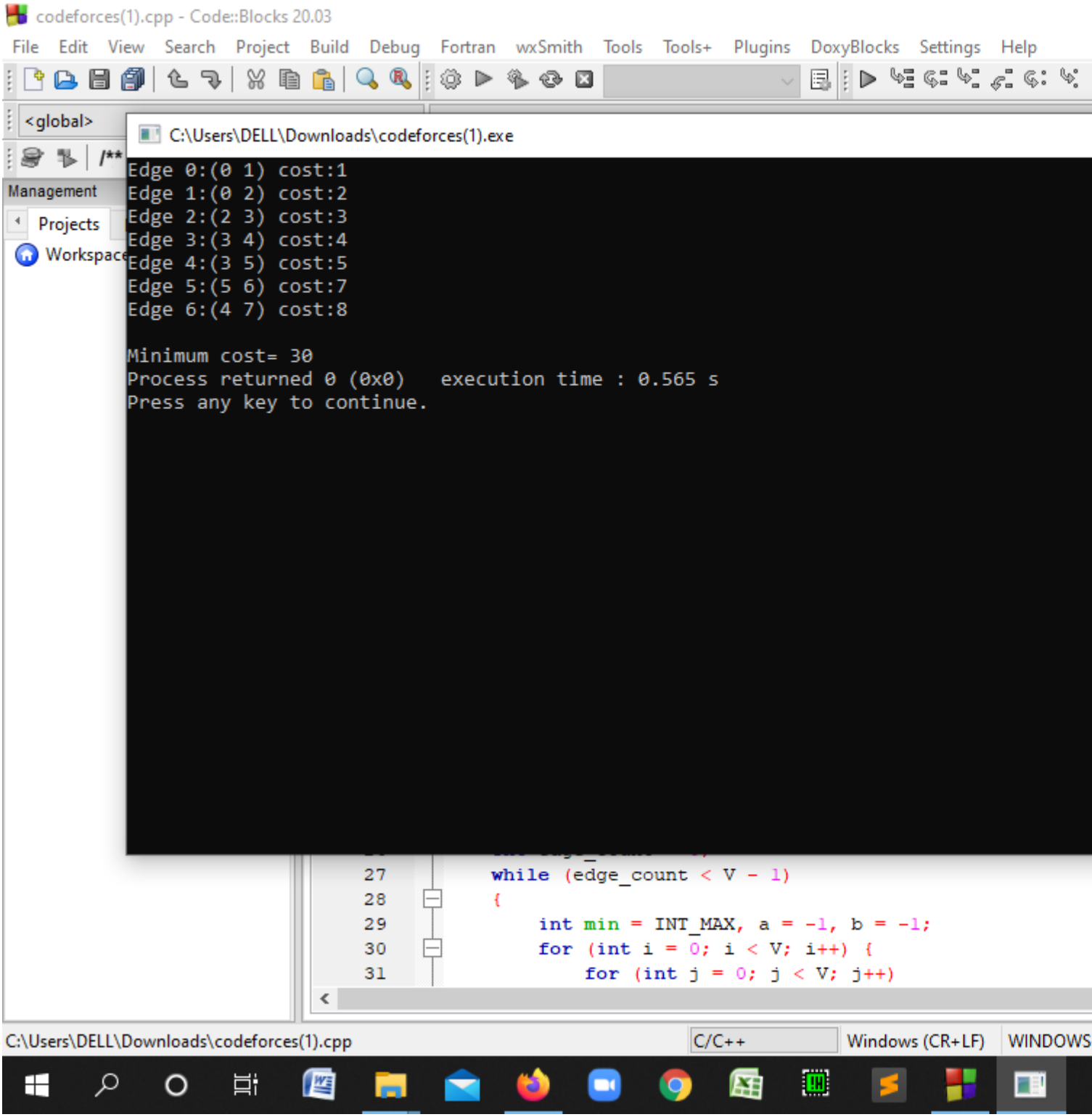

Fig. 3. Solving Method