CSCI 241

Scott Wehrwein

Graph Traversals:
Depth-First Search (Iteratively)

Goals

Be able to implement DFS iteratively using a stack.

Depth-first Search: Iteratively

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  * Pre: u is unvisited. */
public static void dfs(int nodeID) {
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      for each edge (u, v) from u:
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  }
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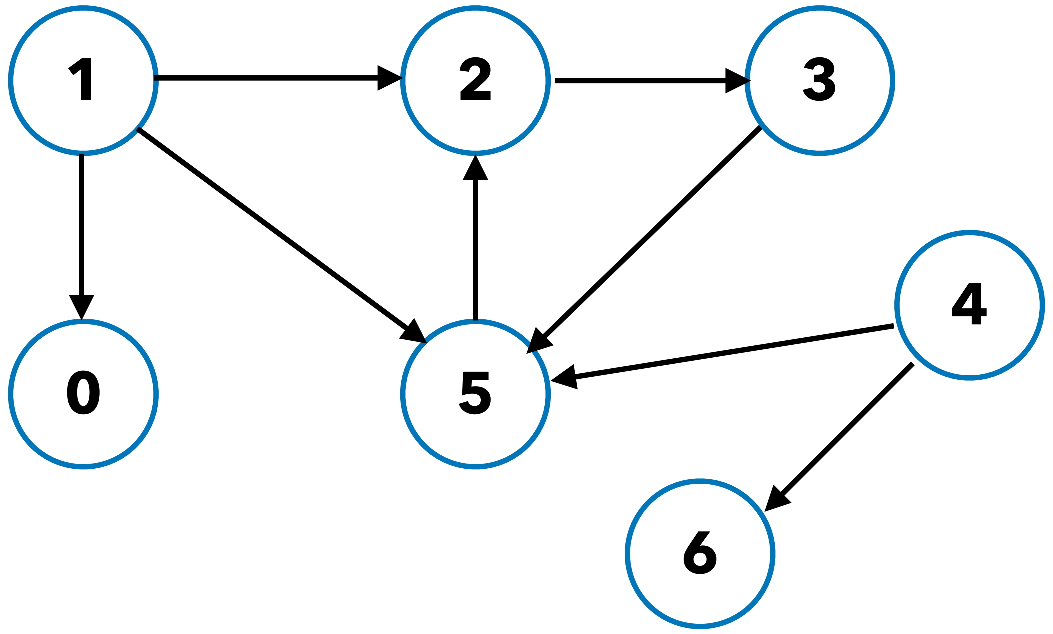

$$\begin{tikzcd} 1 \arrow[r] \arrow[d] \arrow[dr] & 2 \arrow[r] & 3 \arrow[dl] & \\ 0 & 5 \arrow[u] & & 4 \arrow[ll] \arrow[dl] \\ & & 6 & \end{tikzcd}$$

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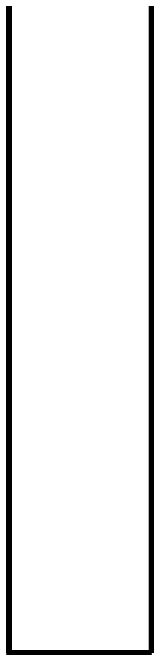
Stack s:



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dfs(1)
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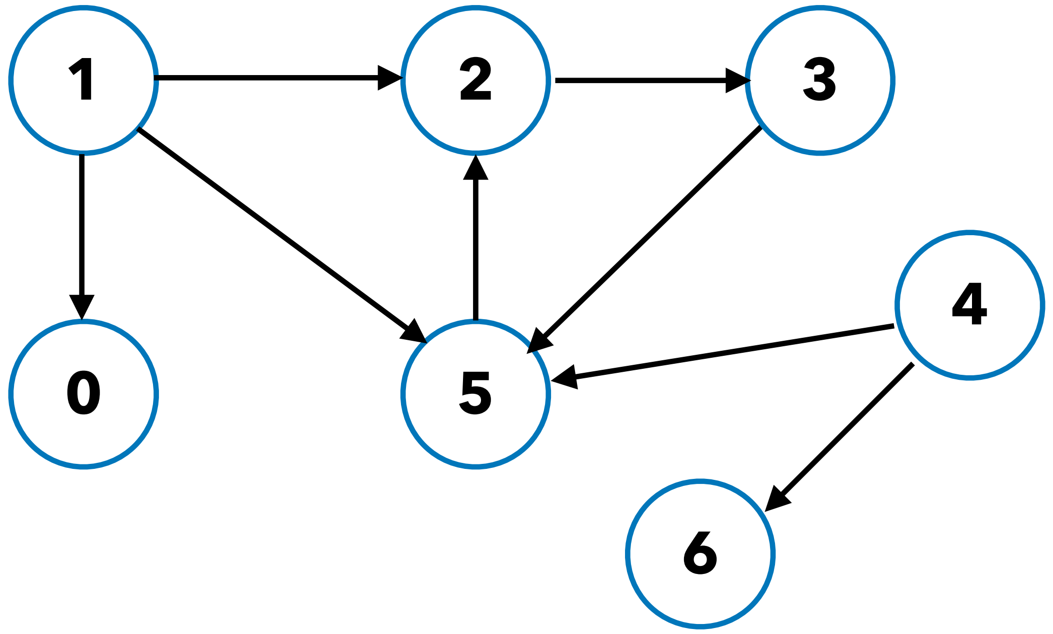

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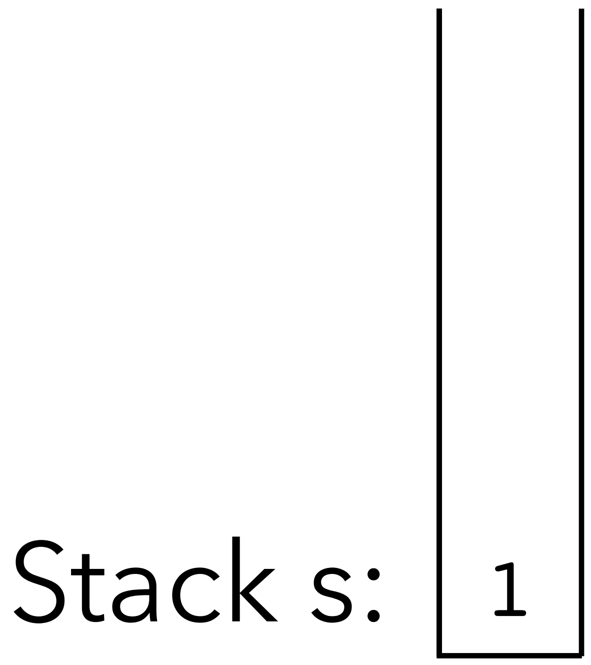
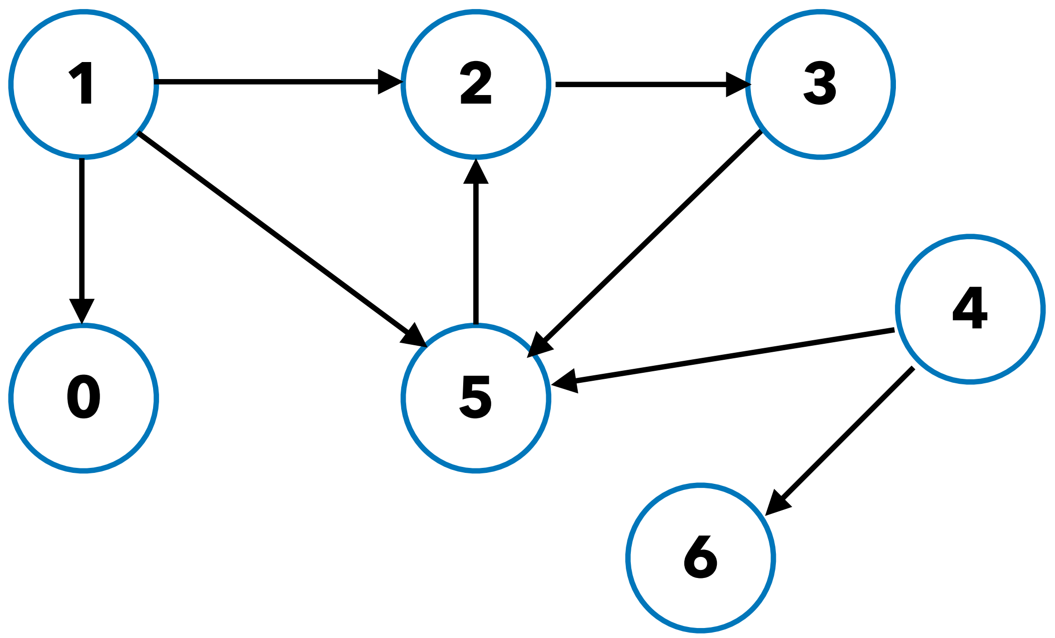
dfs(1)





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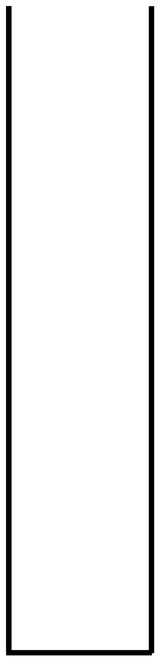
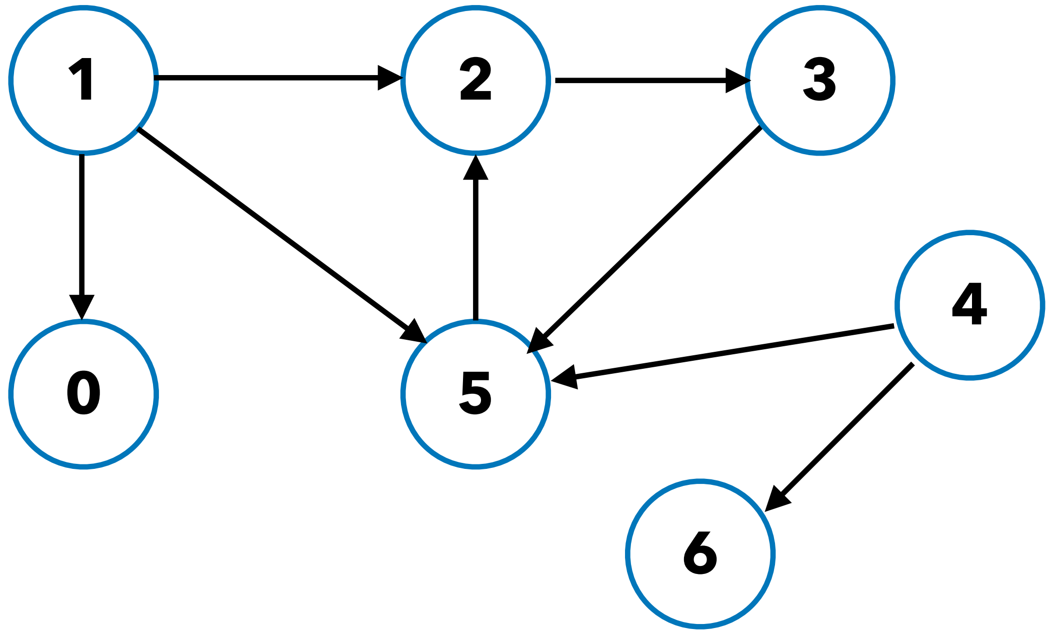


dfs(1)



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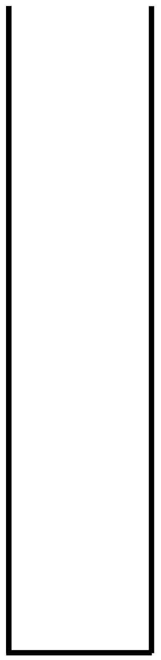
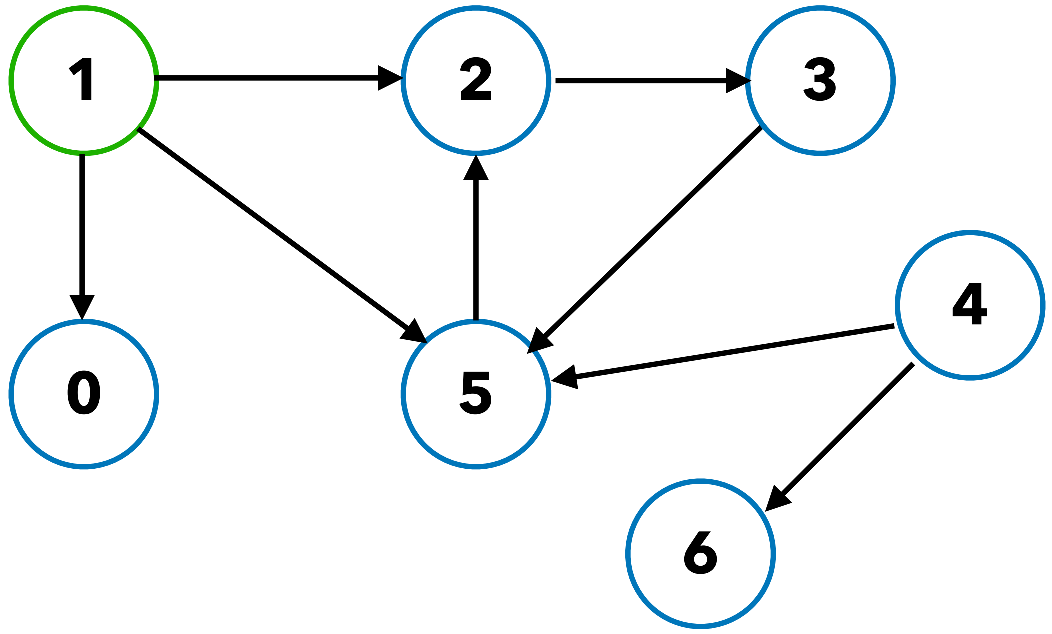


dfs(1)



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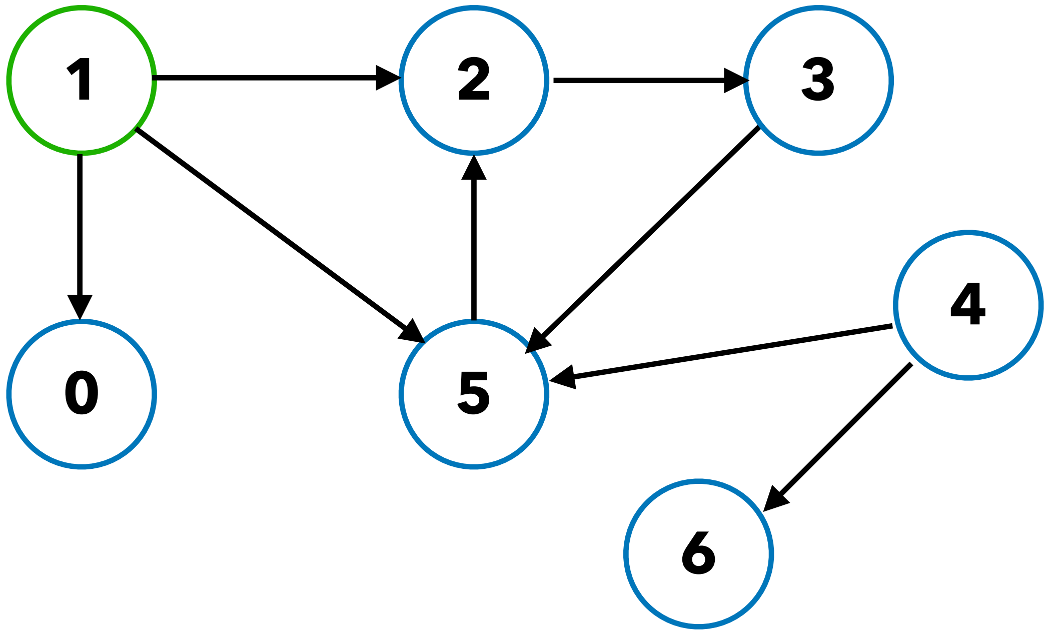
dfs(1)

Stack s:

0
2
5



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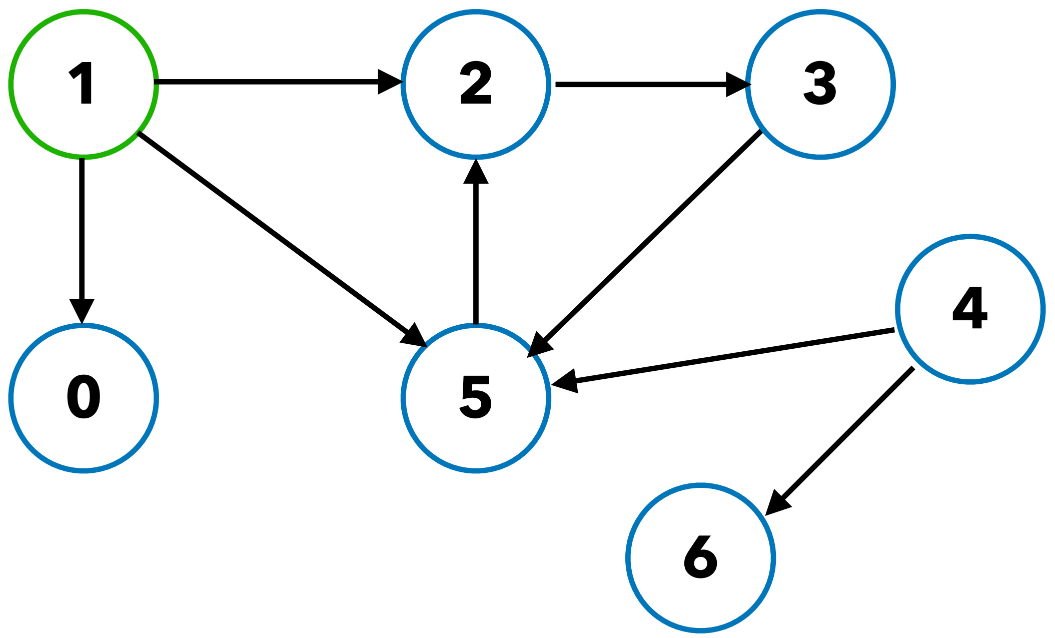
dfs(1)



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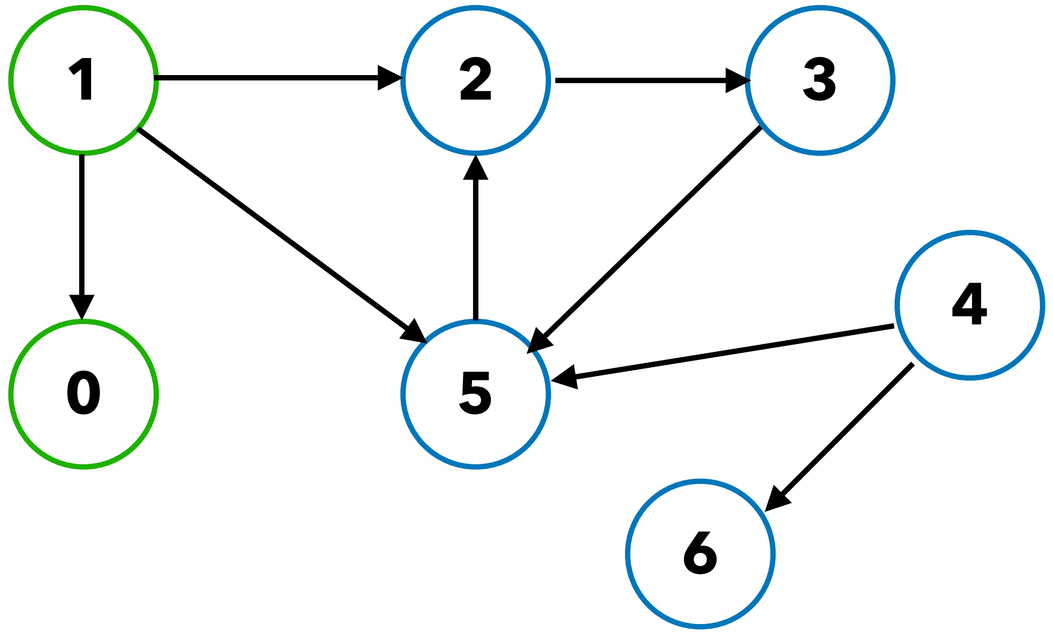

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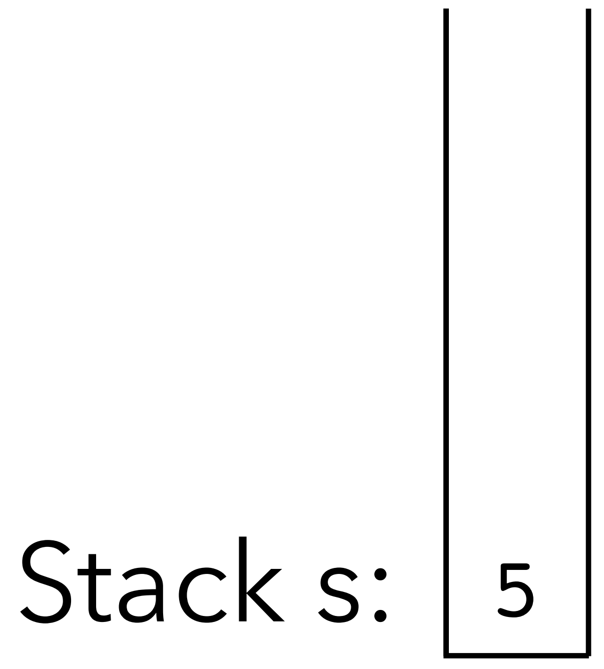
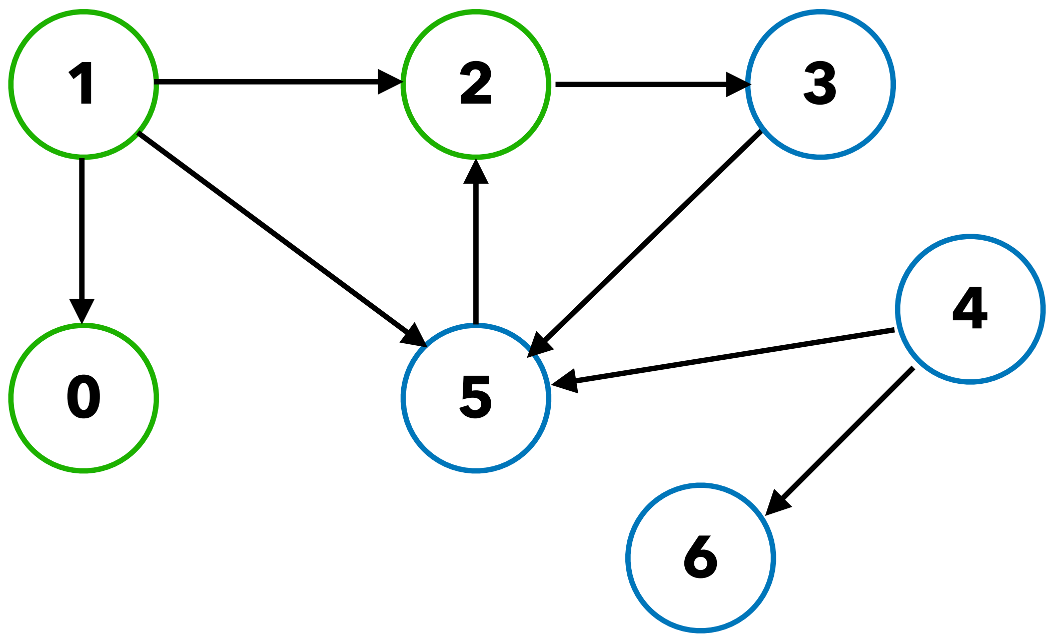


dfs(1)



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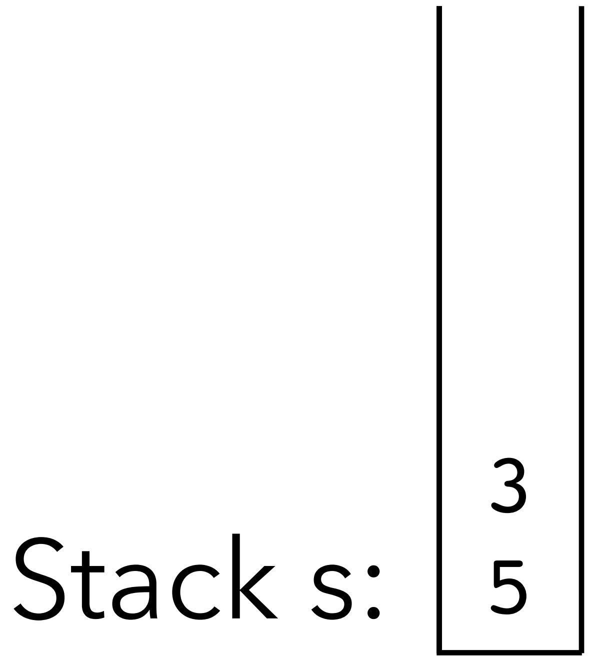
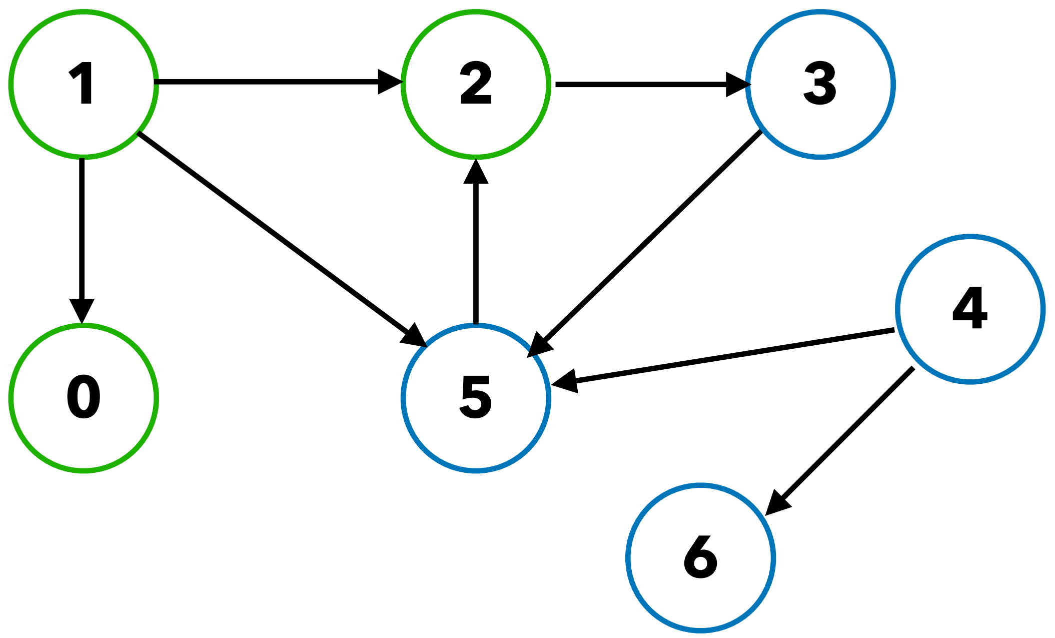
dfs(1)





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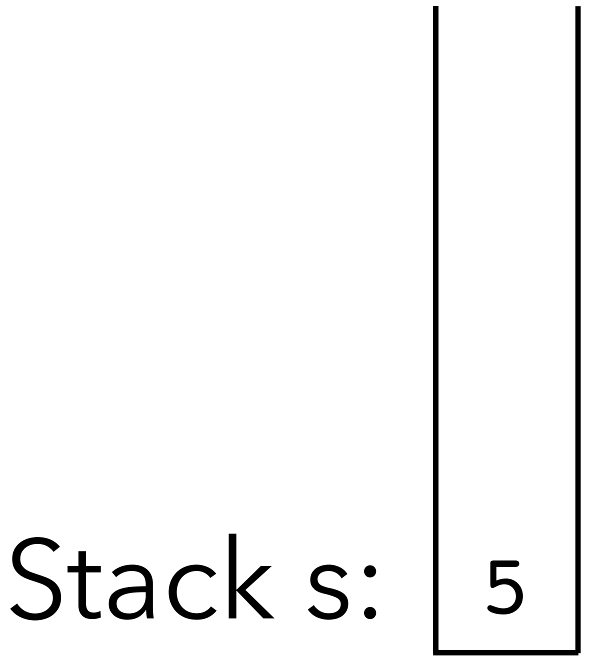
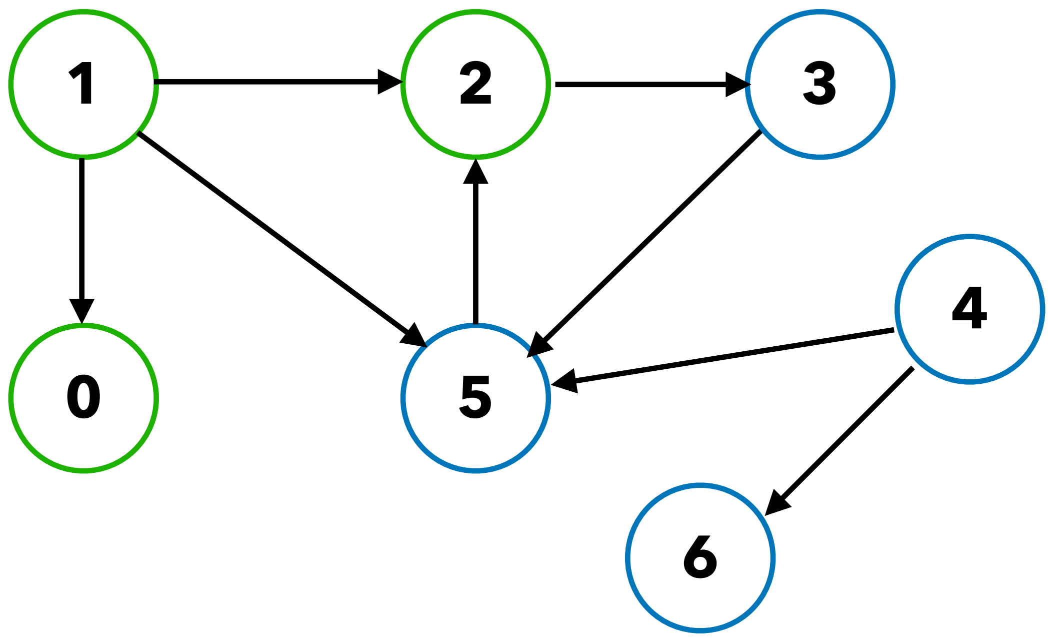


dfs(1)



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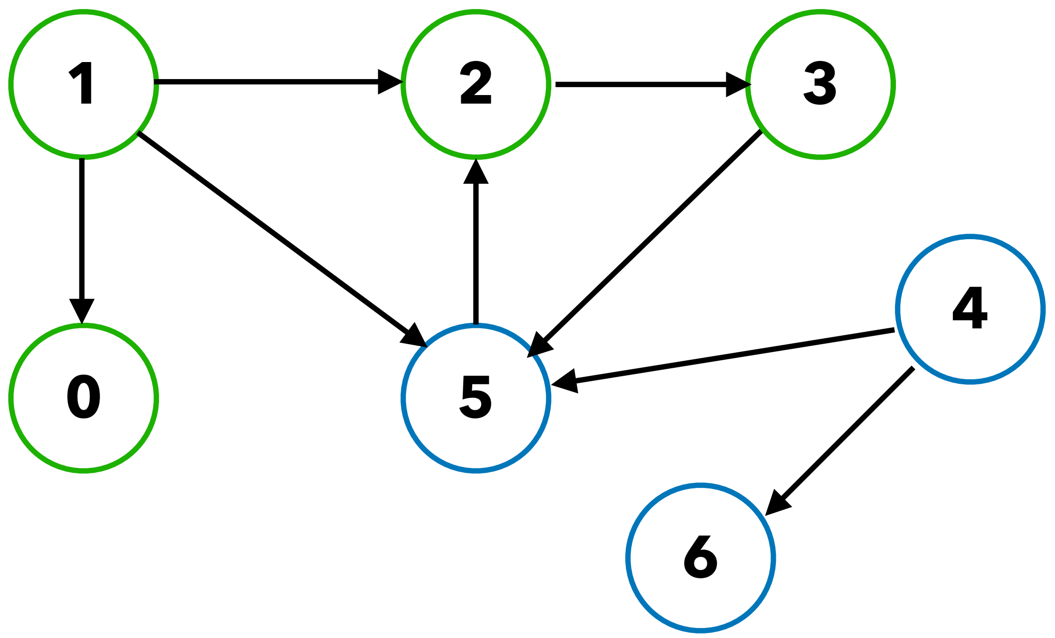
Stack s:

5
5

dfs(1)



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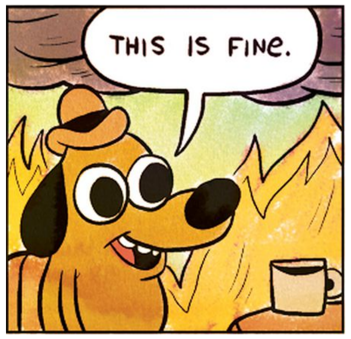

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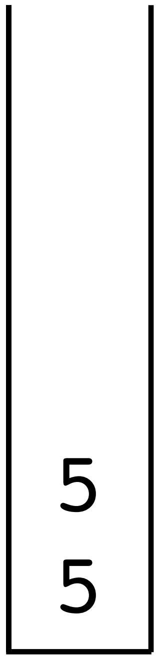

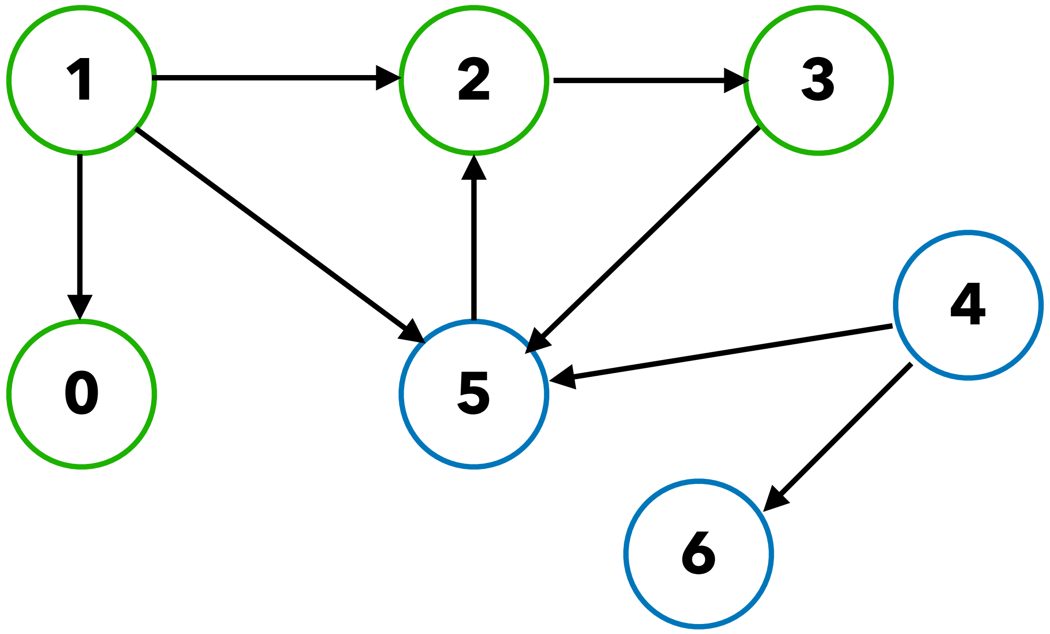

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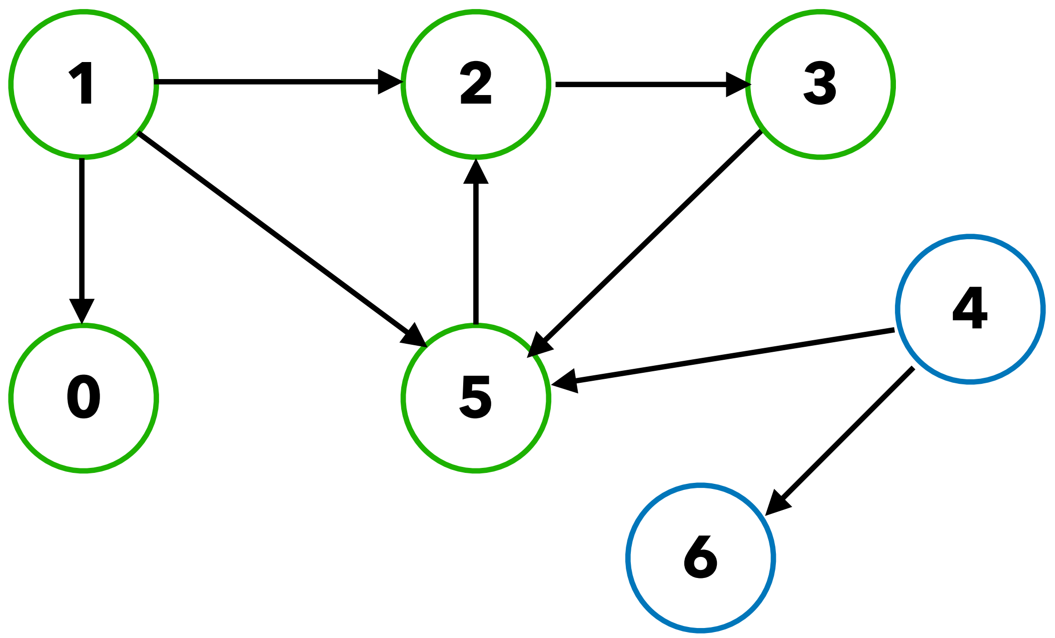
dfs(1)



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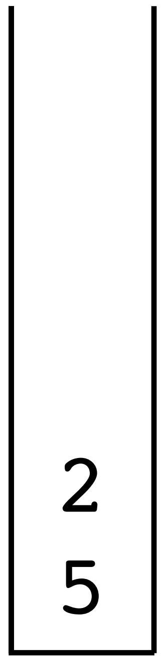
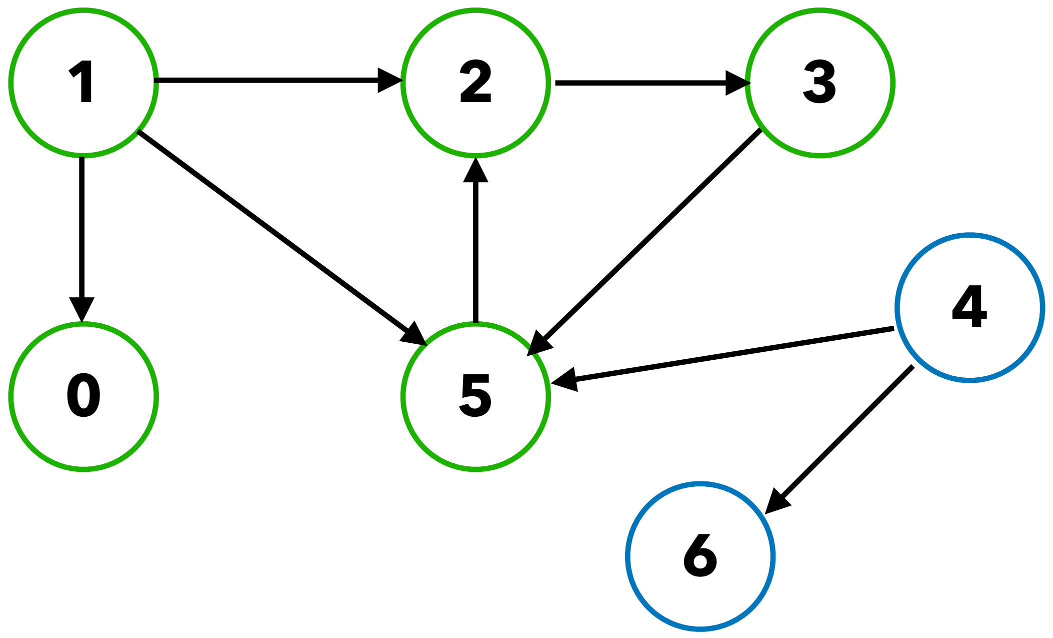


dfs(1)



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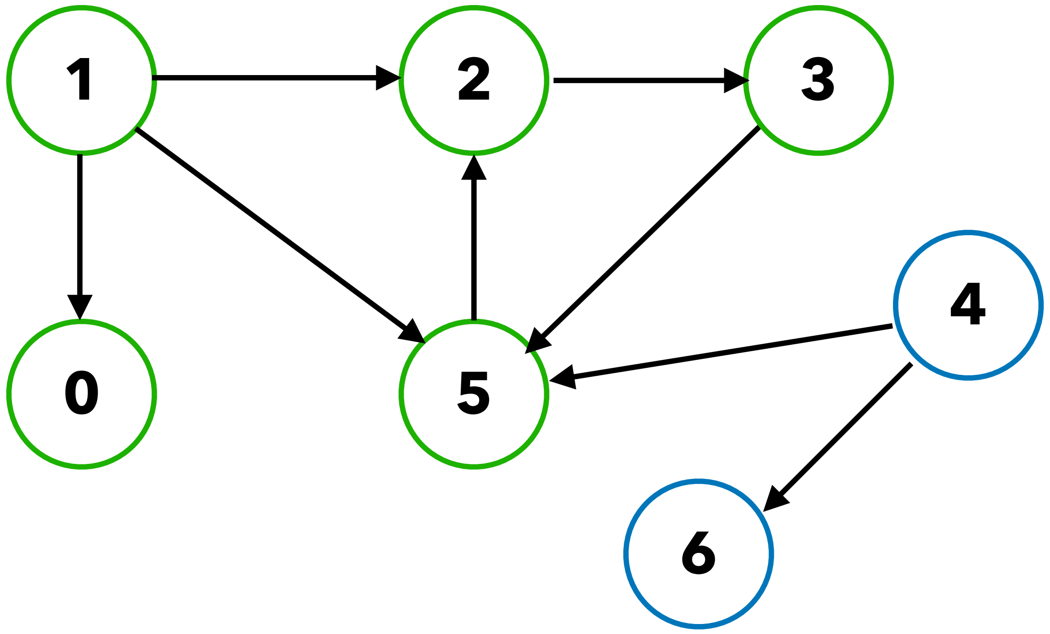
dfs(1)



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dfs(1)

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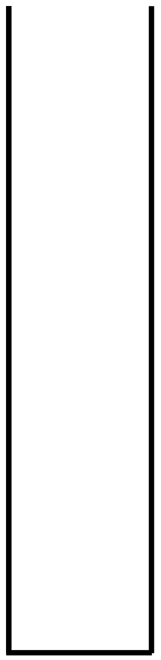

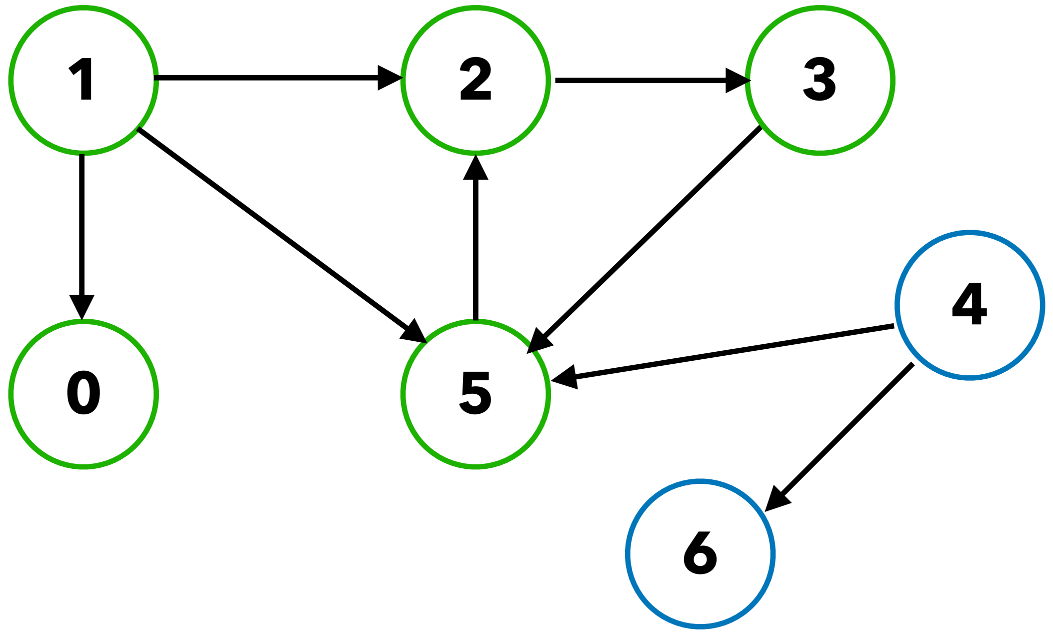

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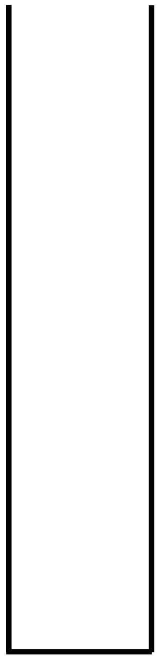

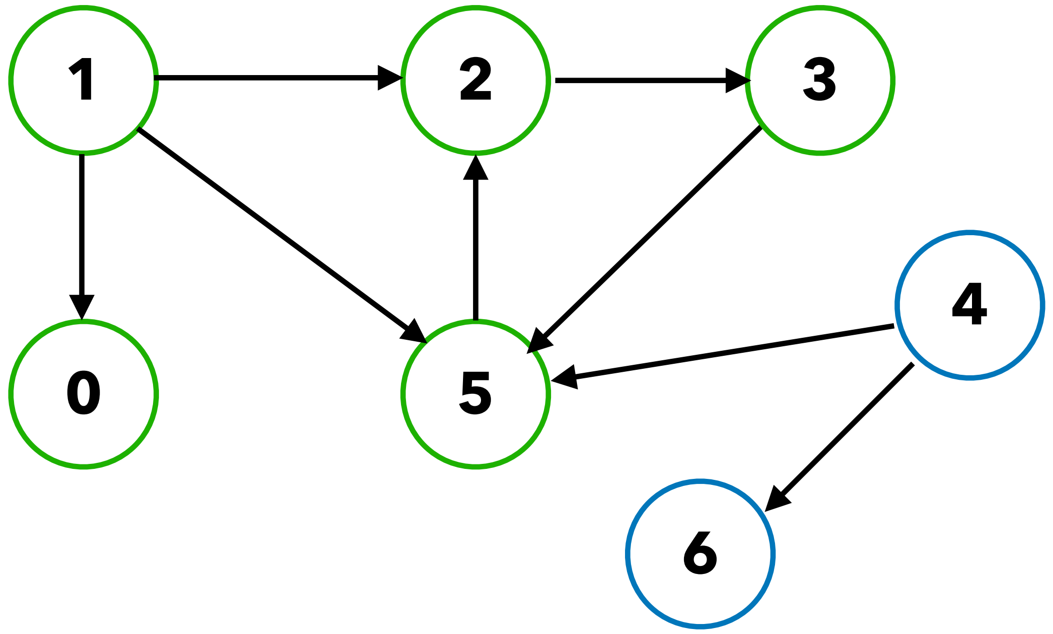

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