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Task-4

Time complexity of BFS (Task-2)

i) Adjacency Matrix:

1) Single operations = $O(1)$.
2) Appending nodes inside queue = $O(n)$
3) Traversing = $O(n^2)$

Total time complexity = $O(1+n+n^2)$
= $O(n^2)$

ii) Adjacency list:

1) ~~sing~~ Single operations = $O(1)$
2) Appending nodes = $O(n)$
3) Neighbours of nodes = $O(m)$

Total = $O(1+n+m)$
= $O(m+n)$

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Time complexity of DFS (Task 3)

Adjacency list:

DFS_VISIT = O(m)

printing = O(n)

Total = O(m+n)

~~Adjan~~ Adjacency Matrix:

For the nodes and traversing = O(n×n)
= O(n²)

∴ The viral will reach victory road faster as he used ~~DFS~~ DFS.

Because in DFS the endpoint reached before the ending of the loop where the BFS ~~visits~~ visits all the ~~neighi~~ neigbours and nodes.

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