

## Task -04

for BFS:

we appended a node into the queue  
the time complexity is  $O(V)$ .

Here,  $V$  is the number of vertices.

For the inner loop the complexity is  
 $O(E)$ , Here  $E$  is the number of Edges.

$$\begin{aligned}\text{total time complexity} &= O(V) + O(E) \\ &= O(V + E).\end{aligned}$$

Now, for adjacency matrix  $= O(V^2)$ .  
An: A..

For DFS  $\Rightarrow$

~~For~~ In DFS, we need to traverse the neighbours also. and the time complexity for that is  $O(V)$ .

Again, we are traversing the edges of every vertices, and the time complexity for that is  $O(E)$ .

therefore,

$$\begin{aligned}\text{total time complexity} &\Rightarrow O(V) + O(E) \\ &= O(V + E)\end{aligned}$$

for ~~adj~~ adjacency matrix  $\Rightarrow O(V^2)$

A.

Now, Here, we can see,  
DFS is more efficient and  
taking less time compare to  
BFS. That's because of DFS is  
taking less vertices <sup>to be</sup> ~~are~~ traversed.  
Since, by using the DFS algorithm,  
we will traverse less vertices than  
myself and therefore will go to  
victory road faster.