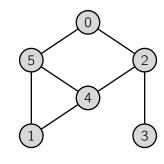
## 1 **DFS Start and Finish Time**

Consider the following graph:



You start your DFS algoritmh at node 0, and assume that the vertices' numbers are used as tie breakers (you visit vertices with smaller numbers first). What is the DFS start time and finish time for each of the vertices?

Vertex 0's start time:	
	0
	Correct
Vertex 0's finish time:	
	11
	Correct
Vertex 1's start time:	
	5
	Correct
Vertex 1's finish time:	
	8
	Correct
Vertex 2's start time:	
	1
	Correct
Vertex 2's finish time:	10
	10
Vertex 3's start time:	Correct
vertex 3 s start time.	2
Vertex 3's finish time:	Correct
	3
	Correct
Vertex 4's start time:	Correct
	4
,	Correct
Vertex 4's finish time:	
	9
	Correct
Vertex 5's start time:	
	6
	Correct
Vertex 5's finish time:	
	7

## Snakey the snake is in the bottom left corner of the grid, and is trying to reach O, the ultimate Oreo.

**DFS** or BFS

2

0 0 0 0

Correct

X 0 0 0 0 0 Χ 0 0 Χ 0 Χ X *X* 0 Χ 0 0 S 0 *X* 0 Snakey can move from her current cell to the adjacent cells (right, left, up, or down) if they exist and

are not marked with X (X cells are blocked). However, every time that Snakey moves from one cell to the other, Snakey has to eat a cookie. What is the minimum number of cookies Snakey needs to eat to get to the O? 10

Correct Consider the general case of this problem, where a grid is given as an input with blocked and available

cells and the locations of the Snakey and Oreo, and the goal is to find the minimum number of cookies for Snakey to reach the Oreo. Which algorithm would you use to solve this problem? BFS O DFS

- O Both of the above

Assume you have a tree of size n, vertices numbered from 1 to n, rooted at the first vertex, and

Correct

you want to order the vertices in an array A of size n such that for each vertex v, all the vertices in v's subtree are located in a consecutive subarray of A. Which algorithm would you use to find such ordering? O BFS DFS

O Both of the above

Correct

Assume you want to find the connected components of an undirected graph. Which algorithm would

- you use? O BFS
- O DFS Both of the above

Correct