

Implement Iterative Deepening Search (IDS) (Uninformed Search)

1. You are given an undirected or bidirected graph and a source from which you will start your journey. You have to find and print the list of vertices you can go from the source vertex given as input.
 - a. First will have the total number of nodes (**n**) and the total number of edges (**m**).
 - b. Next m lines will be followed by m pairs of integers denoting the bi-directional edges.
 - i. a b
 1. It means there is a connection from **a to b** and
 2. Also, a connection from **b to a**.
 - c. Then a single integer **s** denoting the source.
2. Use the idea of Graph traversal to solve the problem. Use **Recursion** for this task.
3. Outputs:
 - . Print the nodes in the order they are getting explored starting from the source node including in which depth level they were explored for different depth limit
 - a. The **highest depth limit should be 9**

Input #1	Output#1
14 12 0 1 0 4 0 2 1 3 1 4 3 5 5 6 5 7 6 8 2 11 11 10 9 13 0	When depth limit: 0 Explored 0 at depth 0 When depth limit: 1 Explored 0 at depth 0 Explored 1 at depth 1 Explored 4 at depth 1 Explored 2 at depth 1 When depth limit: 2 Explored 0 at depth 0 Explored 1 at depth 1 Explored 3 at depth 2 Explored 4 at depth 2

Explored 2 at depth 1
Explored 11 at depth 2

When depth limit: 3

Explored 0 at depth 0
Explored 1 at depth 1
Explored 3 at depth 2
Explored 5 at depth 3
Explored 4 at depth 2
Explored 2 at depth 1
Explored 11 at depth 2
Explored 10 at depth 3

When depth limit: 4

Explored 0 at depth 0
Explored 1 at depth 1
Explored 3 at depth 2
Explored 5 at depth 3
Explored 6 at depth 4
Explored 7 at depth 4
Explored 4 at depth 2
Explored 2 at depth 1
Explored 11 at depth 2
Explored 10 at depth 3

When depth limit: 5

Explored 0 at depth 0
Explored 1 at depth 1
Explored 3 at depth 2
Explored 5 at depth 3
Explored 6 at depth 4
Explored 8 at depth 5
Explored 7 at depth 4
Explored 4 at depth 2
Explored 2 at depth 1
Explored 11 at depth 2
Explored 10 at depth 3

When depth limit: 6

Explored 0 at depth 0
Explored 1 at depth 1
Explored 3 at depth 2
Explored 5 at depth 3
Explored 6 at depth 4
Explored 8 at depth 5
Explored 7 at depth 4

	<p>Explored 4 at depth 2 Explored 2 at depth 1 Explored 11 at depth 2 Explored 10 at depth 3</p> <p>When depth limit: 7</p> <p>Explored 0 at depth 0 Explored 1 at depth 1 Explored 3 at depth 2 Explored 5 at depth 3 Explored 6 at depth 4 Explored 8 at depth 5 Explored 7 at depth 4 Explored 4 at depth 2 Explored 2 at depth 1 Explored 11 at depth 2 Explored 10 at depth 3</p> <p>When depth limit: 8</p> <p>Explored 0 at depth 0 Explored 1 at depth 1 Explored 3 at depth 2 Explored 5 at depth 3 Explored 6 at depth 4 Explored 8 at depth 5 Explored 7 at depth 4 Explored 4 at depth 2 Explored 2 at depth 1 Explored 11 at depth 2 Explored 10 at depth 3</p> <p>When depth limit: 9</p> <p>Explored 0 at depth 0 Explored 1 at depth 1 Explored 3 at depth 2 Explored 5 at depth 3 Explored 6 at depth 4 Explored 8 at depth 5 Explored 7 at depth 4 Explored 4 at depth 2 Explored 2 at depth 1 Explored 11 at depth 2 Explored 10 at depth 3</p>
Input #2	Output#2

14 10 0 1 0 2 0 4 1 3 1 4 2 11 3 5 6 7 8 9 10 13 4	<p>When depth limit: 0</p> <p>Explored 4 at depth 0</p> <p>When depth limit: 1</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 1</p> <p>When depth limit: 2</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 2 at depth 2</p> <p>When depth limit: 3</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 4</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 5</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 6</p> <p>Explored 4 at depth 0</p>
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	<p>Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 7</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 8</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p> <p>When depth limit: 9</p> <p>Explored 4 at depth 0 Explored 0 at depth 1 Explored 1 at depth 2 Explored 3 at depth 3 Explored 5 at depth 4 Explored 2 at depth 2 Explored 11 at depth 3</p>
Input #3	Output#3
7 5 1 2 1 4 2 5 3 6 0 6 6	<p>When depth limit: 0</p> <p>Explored 6 at depth 0</p> <p>When depth limit: 1</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 2</p>

	<p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 3</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 4</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 5</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 6</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 7</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 8</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p> <p>When depth limit: 9</p> <p>Explored 6 at depth 0 Explored 3 at depth 1 Explored 0 at depth 1</p>
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