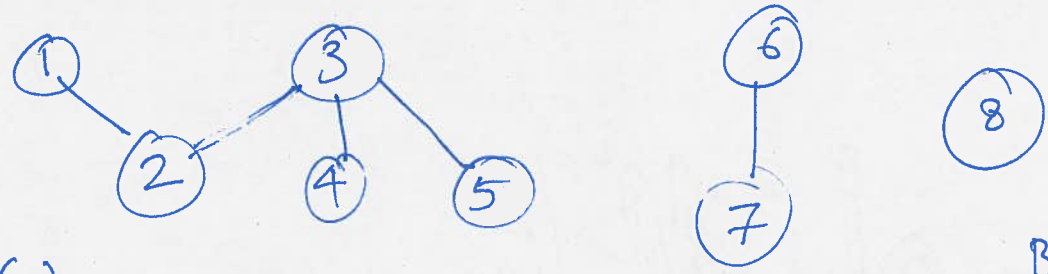


Sep 28

Compute ALL connected components of G.



BFS (1)

- [1] L<sub>0</sub>
- [2] L<sub>1</sub>
- [3] L<sub>2</sub>
- [4 5] L<sub>3</sub>

CC(1) = {1, 2, 3, 4, 5}

BFS(6)

- [6] L<sub>0</sub>
- [7] L<sub>1</sub>

CC(6) = {6, 7}

BFS(8) [8] L<sub>0</sub>

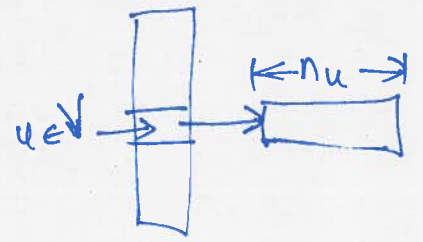
CC(8) = {8}

Output: {1, 2, 3, 4, 5} ; {6, 7} ; {8}

Note: Can use DFS also.

n<sub>u</sub> = # neighbors of u (degree of u)

2m = ∑<sub>u ∈ V</sub> n<sub>u</sub>



#pointers = n

sum of sizes of lists of neighbors

= ∑<sub>u ∈ V</sub> n<sub>u</sub> = 2m

⇒ total size = n + 2m = Θ(n+m)

0 < m ≤  $\binom{n}{2}$  =  $\frac{n(n-1)}{2}$