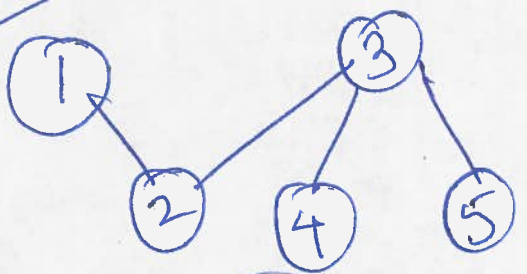


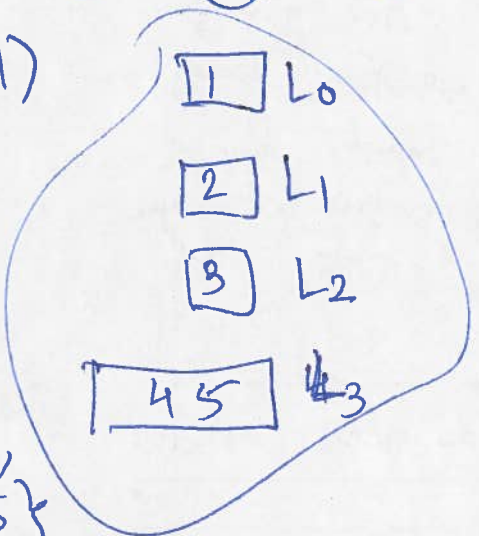
Sep 27

Compute ALL connected components of  $G$ .

#CC = 3

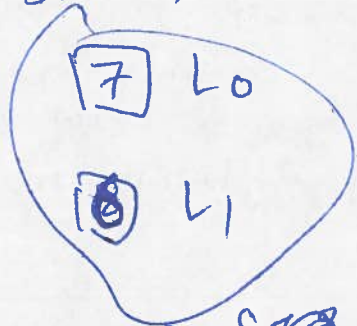


BFS(1)



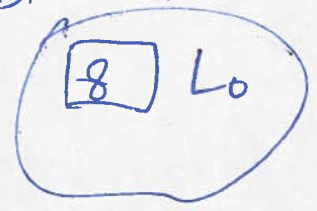
CC(1) = {1, 2, 3, 4, 5}

BFS(7)



CC(7) = {6, 7}

BFS(8)



CC(8) = {8}

**NOTE:** Can we DFS (or Explore) instead of BFS.

$n_u$ : #neighbors of  $u$

(degree of  $u$ )

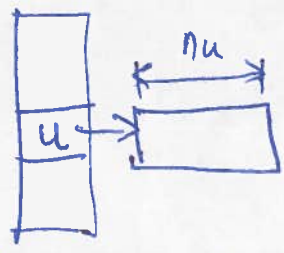
Recall:  $2m = \sum_{u \in V} n_u$

#ptr =  $n$   
sum of list size

$= \sum_u n_u = 2m$

$\Rightarrow$  overall =  $n + 2m$  entries

Adj:



**NOTE:**

$0 \leq m \leq \binom{n}{2} \leq n^2$   
 $= \frac{n(n-1)}{2}$

$O(n)$  ← as small  
 $O(m+n)$   
→ as large as  $O(n^2)$