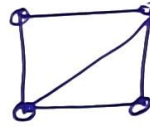
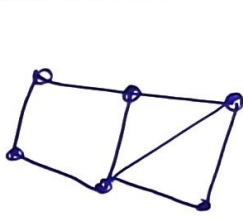


# Connected Component in Graph

①



5 Component  
I

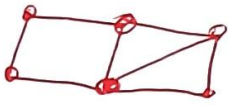
II

III

IV

V

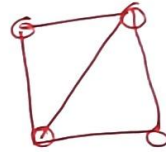
O/P



Label = 1



Label = 2



Label = 3



4

5

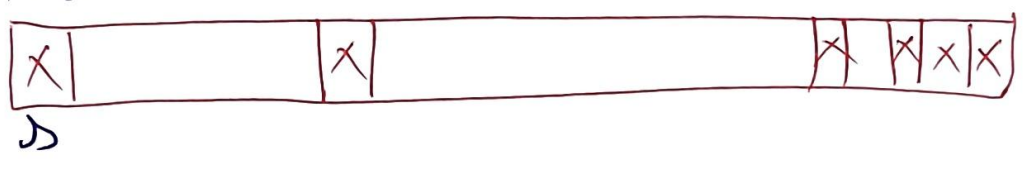


\* Store label in an array so that given two vertices we can tell in O(1) time that whether they are in Same Component / Different

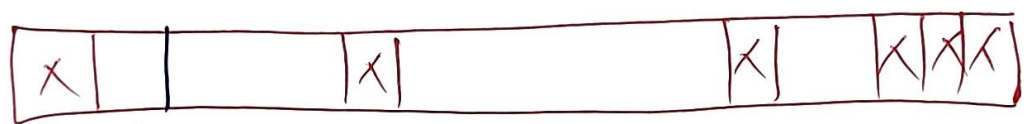


An array to check whether the vertex has been part of any BFS.

- 1) Start from first index in the array and choose it as source node, and apply BFS. Mark traversed node in this array



- 2) Select another vertex by traversing from First index onwards.



↓  
New Source node

And Repeat

Time =  $O(|V| + |E|) + \frac{|V|}{}$

↓  
fast array