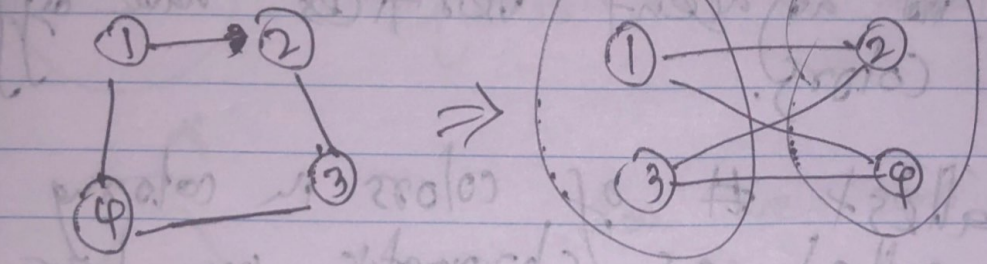
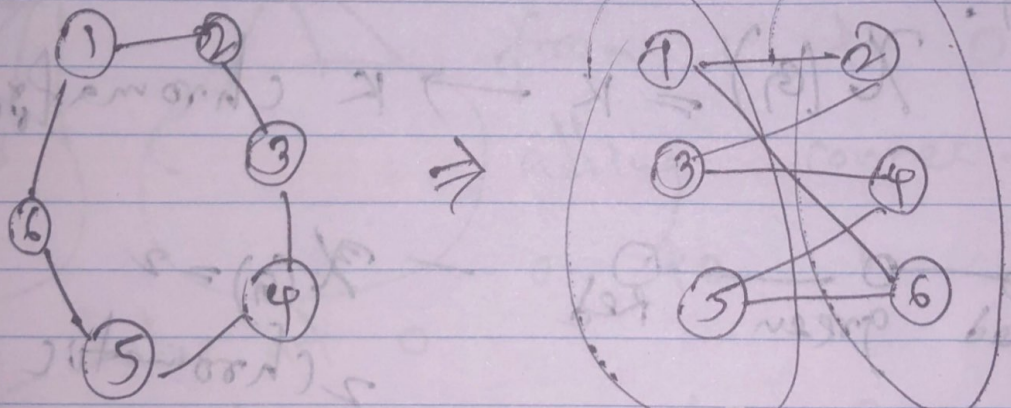
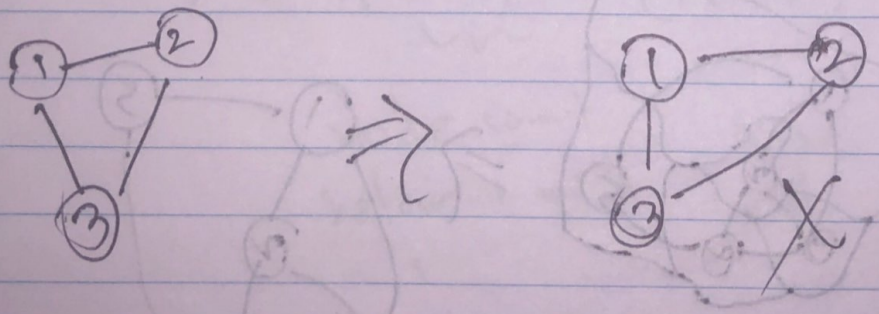
* Possible Bipartition

graph Coloring problem





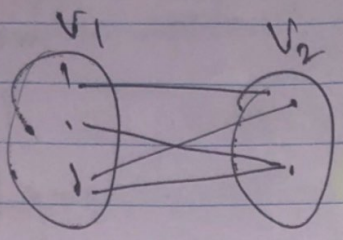


can be a disjoint graph as well.

$O(N+E)$
$O(N+E)$ dfs or bfs.

Bipartite graph, $G=(V, E)$

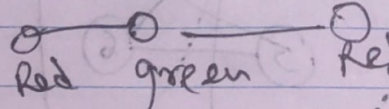
$V = V_1 \cup V_2$ & $(V_1 \cap V_2 = \phi)$



Proper coloring → coloring a graph s.t no adjacent vertices have different colors.

Smallest # of colors in coloring G is called as chromatic number of G.

$\chi(G) = K \rightarrow K$ chromatic



$\chi(G) = 2$
2 chromatic