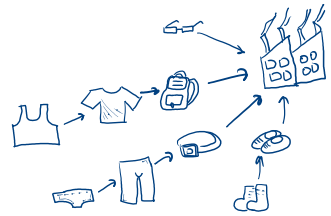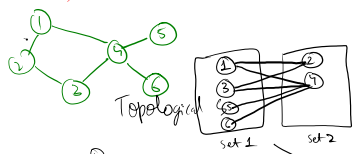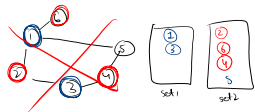# TOPOLOGICAL Sort

I
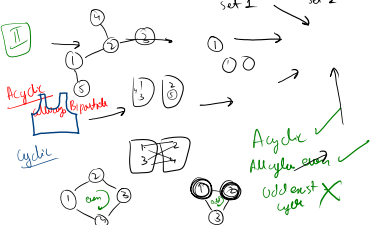Is graph Bipartite?

If you can divide the vertices of a graph in Two mutually exclusive and exhaustive sets such that all edges are across set the graph is said to be bipartite.
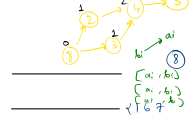
set 1   set 2

Topological

set 1   set 2

II
Acyclic   Bipartite
Cyclic

Acyclic
All cycles even
Odd exist cycle ✗

Any graph having an odd length cycle the graph is not bipartite

III
= the root
= fork
= visit
= child node

S = Red
-1 = Blue

$\frac{-1}{0}$ $\frac{1}{1}$ $\frac{1}{2}$ $\frac{-1}{5}$ $\frac{1}{6}$
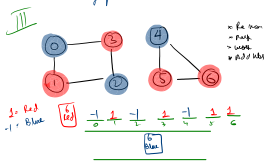
Kahn's algo

1) Calculate Indegree for every node
2) Add all nodes having Indegree 0 to the Queue
3) Start BFS
   { template
     queue
     visit
     ADD into # }

Deadlock