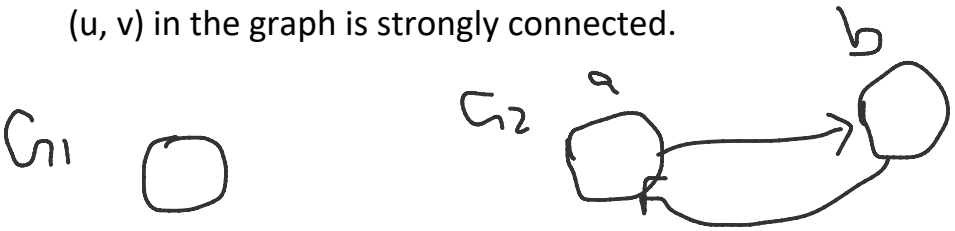
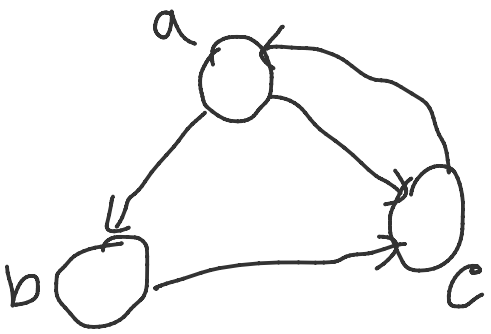
Strongly Connected Components (SCC)

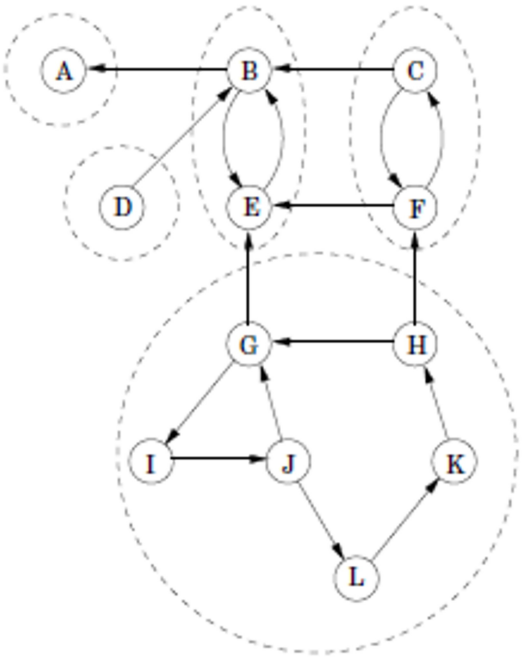
Thursday, January 28, 2021 9:17 AM

Two vertices, u and v, of a directed graph are said to ***strongly connected*** iff there is a ***path*** from u to v then there is a also a ***path*** from v to u in the graph i.e. both are reachable from each other.

A directed graph is said to be strongly connected if for ever pair of vertices (u, v) in the graph is strongly connected.

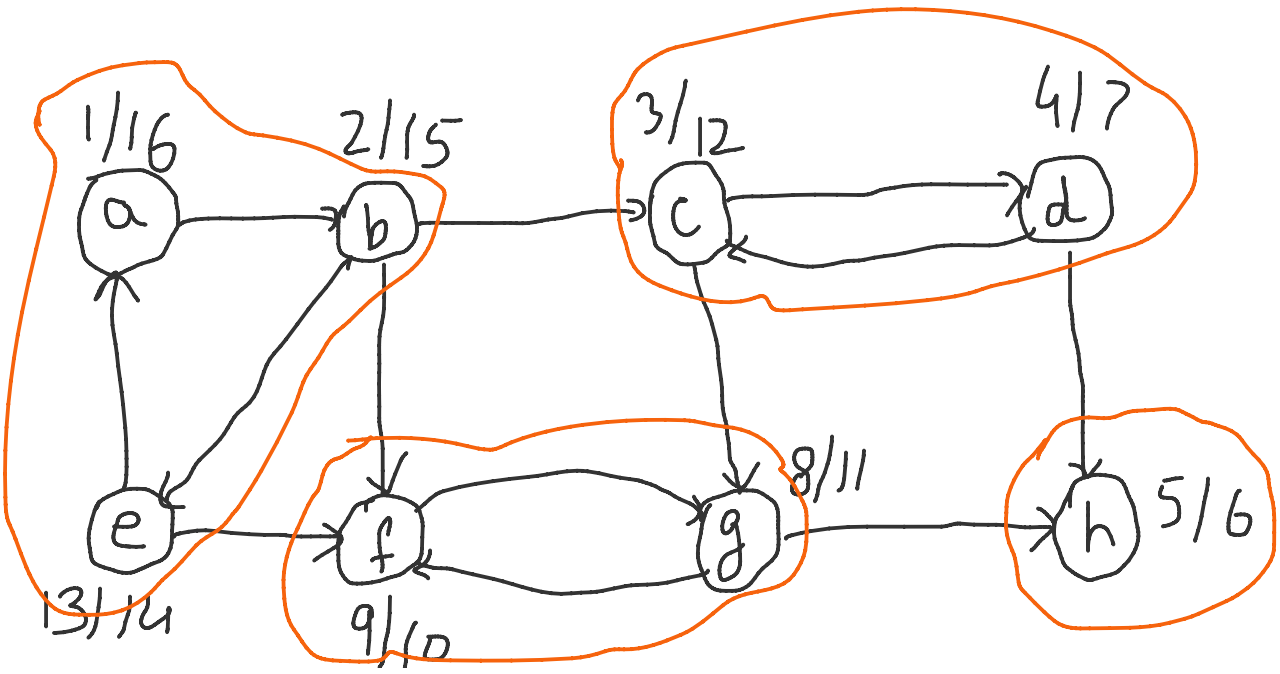






A Strongly Connected Component (SCC) of a directed graph G(V,E) is a ***maximal set of vertices*** $C \subseteq V$ such that every pair of vertices in C is reachable from each other i.e. they are strongly connected.

1) Apply DFS to the graph to find out the discover and finish times of each vertex.
2) Find $G^T(V, E^T)$ of G(V,E); $E^T = \{<u, v>; \text{ if } <v, u> \in E\}$
3) Apply DFS on G^T in reverse order of finishing time of step 1. All vertices visited during the execution of DFS-VISIT constitute a SCC.



Predecessor:
Node:
Discover Time:
Finish Time: