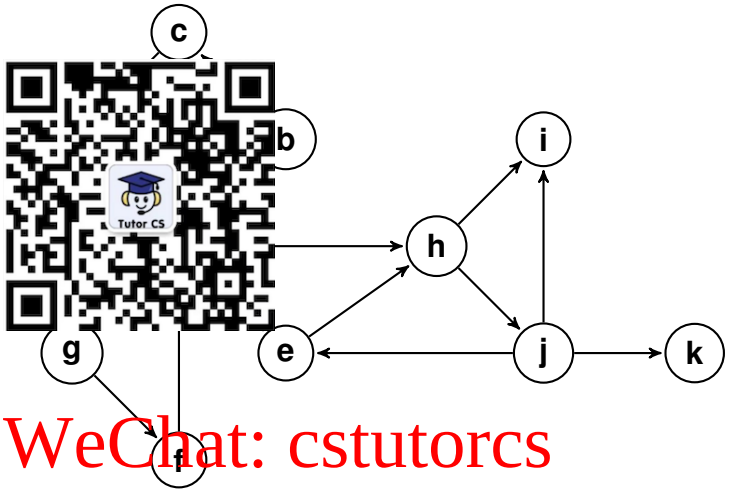
Strongly Connected Components

3. Consider the un-weighted directed graph $G = (V, E)$ below.



(a) (6 points) Show the strongly connected components (SCC) of G. Give your answer as the lists of vertices that belong to the same SCC. Each vertex must belong to one and only one SCC. Your answer must have the minimum number of SCC. No justification needed.

(b) (6 points) Build the component graph $G^{SCC} = (V^{SCC}, E^{SCC})$ of G. You can draw it or give its set of vertices V^{SCC} and edges E^{SCC}. No justification needed.

(c) (8 points) Describe an algorithm that computes the component graph. Your algorithm must be as efficient as possible.

(d) (6 points) Give the complexity of your algorithm. The complexity must be represented using an asymptotic notation (i.e. big O) and it must be a tight bound of the worst case running time of your proposed algorithm. No justification needed.