Connected Components

A connected component of an undirected graph is a maximal set of nodes such that each pair of nodes is connected by a path. Connected components form a partition of the set of graph vertices, meaning that connected components are non-empty, they are pairwise disjoints, and the union of connected components forms the set of all vertices.

Now, we need to count the number of connected components of a graph G which is represented using an adjacency matrix

Algorithm

- Create a global boolean array visited of size V where V is the number of vertices and initialize all the elements of the array as false
- Initialize the variable count = 0 to store the count of a number of connected components.
- For every vertex V of Graph G
  - If V is not visited, increment the count as count = count+1.
  - Then call the DFS for vertex V.

DFS Algorithm

- Mark visited[V] = true.
- For every neighboring vertex, U of V in graph G do the following
  - Mark visited[U] = true;
  - Call DFS recursively for vertex U.