CSE221 Lab Assignment 05

Task-01

A) First of all, I took all the vertices in a list which helped me to get every vertex easily. Then I create an adjacency list that represents the graph. After that, I took an array where I store all the vertices' indegree count. Then I run the DFS where I check whether every vertex is visited or not by seeing the color. If I get a vertex in which one is visited, then the graph exhausts and stores the vertex in a stack. Later I took another list where I got the vertex from the stack which it pops and got the desired output.

B) First of all, I took a list where I store all the vertices. Then I create an adjacency list which represents the graph. After that I took an array where I tracked all the vertices indegree and I also initialized a dictionary by which I could track on the visited vertex. Then call BFS with a vertex which had indegree 0, and the BFS run, and we get a list which gives the desired output what I want.

Task-02

Here, we took a vertex list where all the vertices are present. Then create an adjacency list which represents the graph, and an indegree list which helped to track a vertex that had incoming edges. Now, send a vertex which had indegree 0 to the BFS function, and run the BFS function from where we get the desire answer in a list.

Task-03

In this task, I follow the Kosaraju algorithm. Firstly, I run DFS and get a vertex which is exhausted and put it in a stack. Then I changed the direction of the graph and again ran DFS and again got the exhausted vertex which I kept in the string and at the end I did some operations to handle the string what I get just like the outputs and get the desired answer.