ECE 573 HW4 Report

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Q1

The graph is cyclic, which means it contains at least one circle in it.

The idea of test whether a graph is acyclic or not is simple. Just do the DFS for all the vertices in the graph. And if the next vertex we are going to visit has been visited, and this vertex is not where we come from (I call it “parent”), there must be a circle in the graph.

In the codes, what is different from original DFS is that, when we call the DFS function, we also add the vertex v’s parent vertex w to the parameters list. If a vertex u from G.adj(v) has been visited, and it is not equal to w, there must be a circle, and the graph is cyclic.