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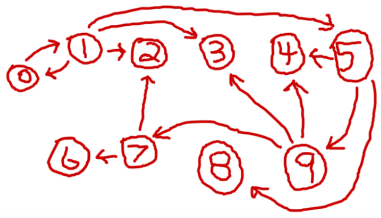
Graph Algorithms
Spring 2022
HW-3

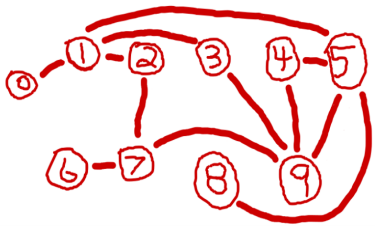
I ran into several issues with the original tests for the acyclic method and am not sure what exactly is wrong in my code. I wrote a few tests for it and was playing around with removing nodes until it would pass the test to find out where I was going wrong. I couldn't get it to fail until I tried to use a graph with two separated clusters. I decided to give up hunting down this issue in the sake of solving the rest of the assignment but I am curious why it happens. I wrote a few extra cases for the DFS tests too and tried to make a graph that would get a cool effect when using top sort, however all I was really able to get happen was make the first half of the nodes have parents of a lower value than the upper half. Its not anything really that interesting, it was convenient for testing though. I reused a few of the same graph that I made from HW2 but some of the tests modify these graphs such as in the acyclic tests. This was so I could show the graph going from having cycles to not.

The performance tests are interesting in this assignment. I am surprised that directed graphs perform so much better than undirected, but I suppose that makes sense considering its an extra constraint that can help narrow the DFS directions. I don't have anything to compare it to in HW-2 because my repo would not build the output.dat file when I tried.

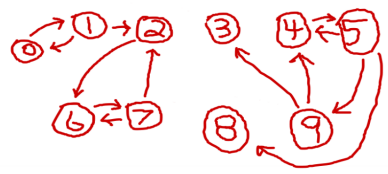
Graph_A_Directed



Graph_A_Undirected



Graph_B_Directed



Graph_C_Directed_Bipartite