COMP3121 Social and Collaborative Computing

Homework 3

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Question 1

Answer: (1) is true

The first graph only contains edges who have called each other in the past year. The second graph only contains two people have called each other at least once a week on average in the past year. This change makes the new graph did not contain any edges who have called each other in the frequency that is lower than once a week and higher than once a year. In other words, the new graph didn't contain many weak ties edges in the new network (graph). Then this will reduce the weak tie edges in the network, so statement 1 is true, and statement 2 is not true.

Question 2

Answer: (1) is the path outputted by decentralized search

According to decentralized search, we firstly know the objective is node 9, and we then considering the local knowledge: node 0 has 4 edges connected, 0-F, 0-1, 0-C, and 0-4. Node C is much closer to node 9 comparing with other nodes connected with node 0. (Node 0 – node C)

Then we considering node C, node C has 4 edges connected, C-B, C-D, C-8, and C-1. By comparing all nodes connected with node C, node 8 is much closer to node 9 than other nodes. (Node C – node 8)

Then node 8 directly go to node 9. (Node 8 – node 9)

So, the path outputted by decentralized search between node 0 and node 9 is 0-C-8-9, which is the path (1).