

COMP3121 Social and Collaborative Computing

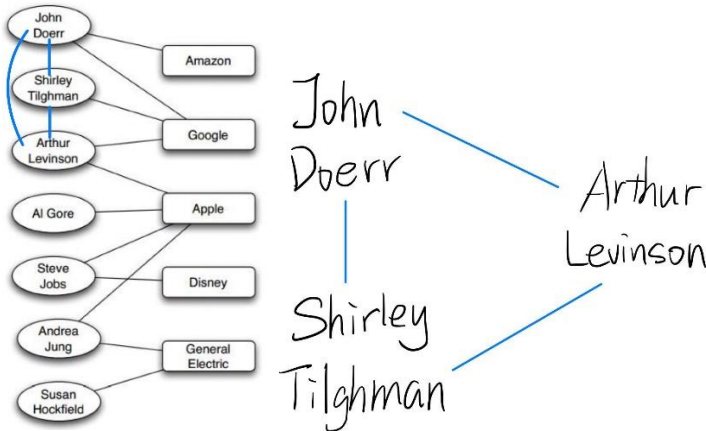
Homework 2

ZHOU Siyu Feb. 7th

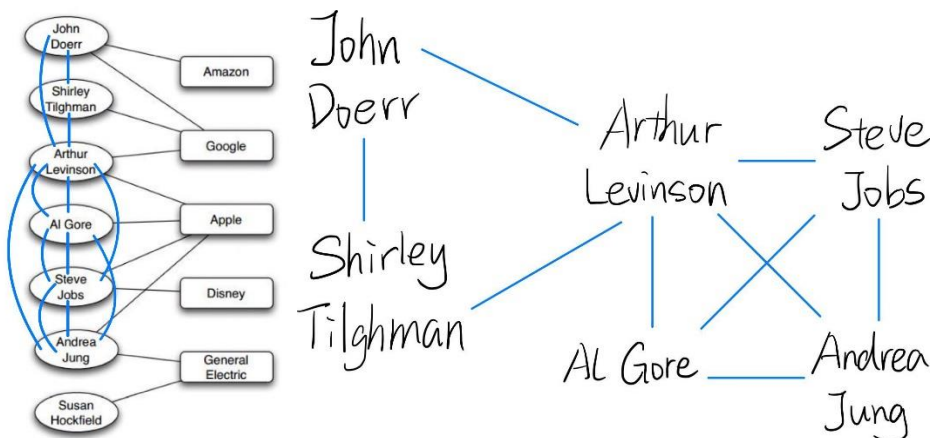
Question 1

Answer: graph 1

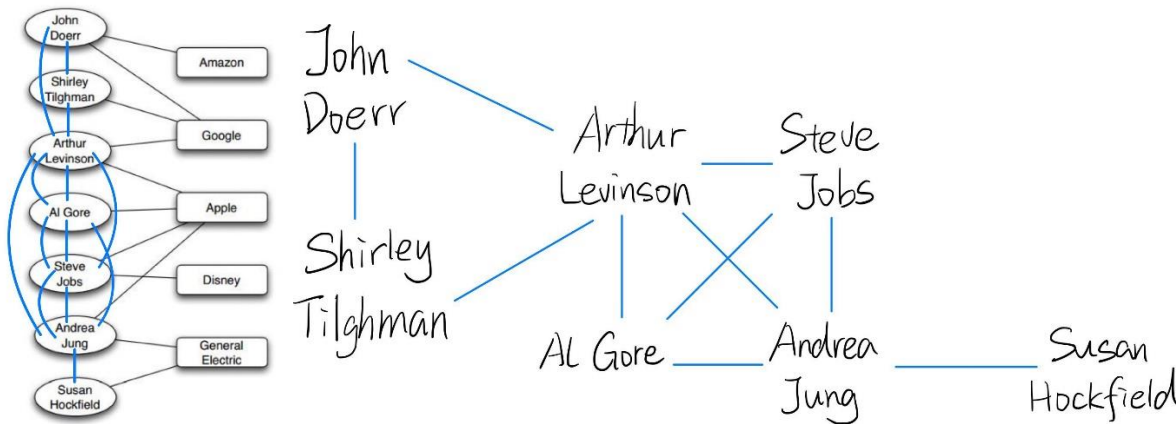
John Doerr, Shirley Tilghman and Arthur Levinson are connected to company Google (have a focus in common), so there are connections between any two of them in projected graph, and three edges between John Doerr and Shirley Tilghman, between John Doerr and Arthur Levinson, between Shirley Tilghman and Arthur Levinson are formed in the projected graph.



Arthur Levinson, Al Gore, Steve Jobs, and Andrea Jung are connected to company Apple (have a focus in common), then there are connections between any two of them in the projected graph. Six edges between Arthur Levinson and Al Gore, between Arthur Levinson and Steve Jobs, between Arthur Levinson and Andrea Jung, between Al Gore and Steve Jobs, between Al Gore and Andrea Jung will be formed in the projected graph.



Andrea Jung and Susan Hockfield are connected to company General Electric (have a focus in common), then there is one connection between them in the projected graph. An edge will be formed between Andrea Jung and Susan Hockfield.



So graph 1 represent such “projection” of the graph of this affiliation network.

Question 2

Answer: Minimum number of social activities(foci) in that affiliation network is 4.

There are 4 enclosed triangles formed in this projected graph and 1 enclosed quadrilateral with no diagonal.

Considering in the case of minimum number, for triangle ABE, individual A, B and E could participate in same social activities, so there will be at least one activity. For triangle ACE, individual A, C and E could participate in same social activities, so there will be at least two activities in that network now. For triangle BDF, individual B, D and F participate in same social activities, so there will be at least three activities now. For triangle CFD, individual C, F and D could participate in the same social activities, then there's at least 4 social activities. For quadrilateral CEBF, there's no diagonal in CEBF, so there's no same social activities between individual C, E, B, F. So there will be at least 4 foci (each connect only 3 individuals).

Overall, in that affiliation network, minimum number of social activities is 4.