

COMP3121 Homework 2

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1 Question 1

- The first one is the graph which represents the projection of the bipartite affiliation graph.
- The second one is wrong. For example, there should be no edge between "AI Gore" and "Susan Hockfield".
- The third one is wrong. For example, there should be no edge between "Shirley Tilghman" and "Steve Jobs".
- The forth one is wrong. For example, there should be no edge between "John Doerr" and "Steve Jobs".

All in all, the first one is correct.

2 Question 2

- Answer: The minimum number of social activities in this affiliation network is 4.
- Explanation: according to the graph in the question, we can firstly pay more attention to $\{A, B, E\}$. In this triangle, they can share one foci. In the graph, we find four triangle like this, which are $\{A, B, E\}$, $\{A, C, E\}$, $\{B, F, D\}$, and $\{C, F, D\}$. They cannot share focus with each other. For example, if $\{A, B, E\}$ and $\{A, C, E\}$ share one foci, the ntherer will be an edge between B and C.

Also, we may find that the minimum number of focus is related to the number of maximal clique in the graph. From this point, we can also notice that the minimum number of social activities in this affiliation network is 4.

- Here I give an attempted answer of the affiliation network.

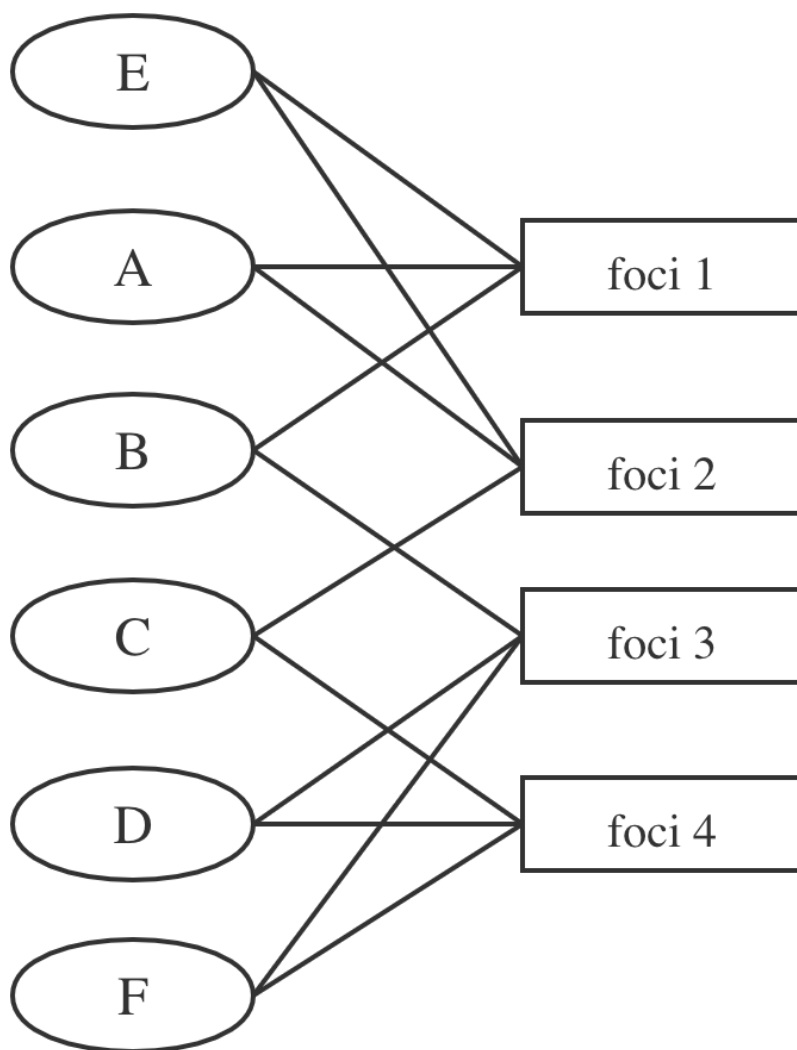


Figure 1: One example