Assignment 2 (part 1)

- 1. Compute eigenvector centrality and betweenness centrality of each vertex in this small network.
- 2. Using your favorite numerical software for finding eigenvectors of matrices, construct the Laplacian and the modularity matrix for this small network:
 - a. Find the eigenvector of the Laplacian corresponding to the second smallest eigenvalue and hence perform a spectral bisection of the network into two equally sized parts.
 - b. Find the eigenvector of the modularity matrix corresponding to the largest eigenvalue and hence divide the network into two communities.
- <u>Deadline: Feb. 1, 2016(Mon) 13:20 JST</u>

Assignment 2 (part 2)

- 3. Explain quantitatively why "your friends have more friends than you do" in the configuration model.
- 4. Write examples of parameters β and γ of SIR model when
 - a. there is an epidemic
 - b. there is no epidemic

Deadline: Feb. 1, 2016(Mon) 13:20 JST

Instructions for submission

- Submit your assignment to 5-8 report box at the passage on the third floor between A4 si West8E and West8W buildings.
- Use A4 size papers. Write in English.
- Please staple in the upper left corner.
- Write your name and student ID number.
- If you are a student of Suzukakedai-campus, you can send by email (cn@ai.cs.titech.ac.jp).



Submit to the right box

