Homework #1 (Special Topics on Graph Algorithms)

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Choose only one of the following problems to work on. Your solution could be in English or Chinese. E-mail your solution in PDF format to me by June 13, 2006. Please note that some of them are very challenging, and if you can show your approach is promising, that would be good enough for this homework assignment. Of course, a complete solution is always welcome.

1. Give an approximation algorithm for the SROCT problem with an approximation ratio better than two.

2. Give a polynomial-time algorithm for edge-partitioning an unweighted tree into k parts such that its max/min ratio is at most 2.

3. Give an improvement of whatever we discuss in the paper presentation sessions.

4. Describe a practical application of spanning trees, and implement it.

5. Design your own problem, and discuss with me to see whether it can be considered as a homework problem.