BU CLA CS 530: Analysis of Algorithms

Spring 1996

Problem Set 14

Due Thursday 96.05.02, at 11:00 am, in class. Late submissions not accepted.

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1. Problem 37-2 part **a** only, page 984, in [CLR]. Do the case $k = 2$ only.
   Hint: Try the construction on a small example, e.g. a graph with 3 or 4 vertices.

2. Show that if (the optimization problem of) the clique problem has a polynomial-time approximation algorithm with relative error ε for *some* $0 < \varepsilon < 1$, then for *every* $0 < \varepsilon' < 1$ the clique problem has a polynomial-time approximation algorithm with relative error ε'.
   Hint: Do Problem 1 above first. Then, based on the presumed approximation algorithm with relative error ε, construct another approximation algorithm with relative error δ, for some $\delta < \varepsilon$. Generalize for arbitrary $\varepsilon' < \varepsilon$.

3. Problem 37-2 part **b**, page 984, in [CLR].

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