BU CLA CS 530: Analysis of Algorithms
Spring 1995

Problem Set 13 (due Friday 95.04.28 at 4:30 p.m.)

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1. Exercise 37.2-1, page 973, in [CLR].
   (Hint: Let the solution of Problem 2 in Set 12 inspire you.)

2. Exercise 37.3-2, page 978, in [CLR].

3. Consider the following problem — call it VCIS (for "vertex-cover and independent set"):

   > Given an undirected graph $G = (V, E)$, determine whether there is a set of vertices $U \subseteq V$ which is both a vertex cover and an independent set, and if such a set U exists, find one which has minimum size.

   Is VCIS NP-hard? If yes, prove it. If no, design a polynomial-time algorithm to solve it. (Hint: If $G = (V, E)$ is a triangle, there is no $U \subseteq V$ which is both a vertex cover and an indpendent set. If $G = (V, E)$ is a rectangle, two diagonally-opposed vertices are both a vertex cover and an independent set.)

4. Problem 37-1, page 983, in [CLR].

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