COS 598a
February 12, 2001

Assignments 1

Homeworks

Exercise 1 Let $\mathcal{D}_n$ be the family of graphs defined in class. Prove that the radio broadcast problem for $\mathcal{D}_n$ has a deterministic solution using $O(n)$ steps. Furthermore, prove that any deterministic solution for $\mathcal{D}_n$ must use $\Omega(n)$ steps.

Exercise 2 Show that for the family $\mathcal{D}_n$, the radio broadcast problem has a randomized solution using $O(\log n)$ steps.

Exercise 3 Show that for all graphs on n vertices the radio broadcast problem has a randomized solution using $O(n \log n)$ steps.

Explorations

Direction 1 Can you improve the deterministic solutions discussed in class today for the radio broadcast problem in either upper bound or lower bound?

Direction 2 Can you get any nontrivial bounds for the radio gossip problem, either deterministic or randomized?