Algorithms – handout 11

Method of conditional probabilities; Number theory

January 20, 2000

We show how the randomized algorithm for approximating the domatic number can be derandomized using the method of conditional expectations to give a deterministic greedy algorithm.

Then we will present a few algorithms in number theory.

Notice: Next week, January 27, there will be no class.

Homework:

A proper 3-CNF formula is the logical *and* of clauses, where each clause is the logical *or* of exactly 3 distinct literals. For example:

$$(x_1 \vee x_2 \vee \bar{x_3}) \wedge (\bar{x_4} \vee x_1 \vee x_3)$$

Give a greedy algorithm that is guaranteed to satisfy at least a 7/8-fraction of the clauses of a proper 3-CNF formula.