Institut for Matematik og Datalogi
Syddansk Universitet

October 14, 2005
JFB

DM19 – Algorithms and Complexity – E05 – Lecture 7

Lecture, October 12

We finished with string matching from chapter 32 and began on Huffman codes from section 16.3, covering up through lemma 16.2.

Lecture, October 26

We will finish with Huffman codes. Then, we will begin on NP-completeness from chapter 34 in the textbook and the section by Papadimitriou and Steiglitz from the first set of notes. This will include a brief introduction to undecidability. For more details on undecidability, see chapter 5 of the textbook by Lewis and Papadimitriou (or Part 2 of Sipser's textbook), which is on reserve for DM17 in the library.

Lecture, November 2

We will continue with NP-completeness and begin on approximation algorithms from chapter 35 in the textbook, covering Cook's Theorem and beginning on some reductions.

Problems to be discussed in week 44

1. 16.3-7.
2. 34.1-3, 34.1-5.
3. Suppose that there is a language L for which there is an algorithm that accepts any string $x \in L$ in polynomial time and rejects any $x \notin L$, but this algorithm runs in super-polynomial (more than polynomial) time if $x \notin L$. Argue that L can be decided in polynomial time.
4. Define an algorithm to show that SATISFIABILITY is in NP.
5. 34.2-3, 34.2-5, 34.2-8, 34.2-10.
6. 34.3-2, 34.3-6.