DM508 – Algorithms and Complexity – F08
Lecture 3

Lecture, January 30

Lower bounds from section 2.4 of the first part of the notes were discussed (part of this is also in section 8.1 of the textbook). We also covered sections 3.1, 3.2 and 3.3 of those notes.

Lecture, February 4

We will cover section 3.5 of the DM508 notes, plus median finding from chapter 9 (sections 9.2 and 9.3) in the textbook. We may also begin on NP-completeness, from chapter 34 in the textbook and the section by Papadimitriou and Steiglitz from the course notes.

Lecture, February 6

We will continue with NP-Completeness, covering Cook's Theorem and beginning on some reductions.

Problems to be discussed on February 12

Do problems:

1. 9.2-1, 9.2-3, 9.2-4, 9.3-3, 9.3-7, 9.3-9,

2. 34.1-3, 34.1-5, 34.2-3.

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.