Institut for Matematik og Datalogi
Syddansk Universitet

February 18, 2003
JFB

On-Line Algorithms – F03 – Note 2

Lecture, February 5

We began with an introduction to the course. Then, we covered through section 1.3 of chapter 1.

Lecture, February 7

We covered sections 1.4 and 1.5 in chapter 1, and covered the beginning of section 1.6, up to (but not including) corollary 1.3.

Lecture, February 14

We will finish chapter 1 in the textbook and begin on chapter 2, probably through section 2.2.

Lecture, February 21

We will finish chapter 2 and begin on chapter 6. (We are only skipping chapters 3 and 4 temporarily. Kim Skak Larsen will lecture on them February 28 and March 7.)

Problems for Wednesday, February 20

1. Exercise 1.11 in the textbook. To make the factoring lemma hold in the full cost model, change the definition of $\mathrm{ALG}(x, j)$ to add one for the positive comparison. Try adding something to the original definition, even in the case where r_j is in front of x. Then, when comparing MTF to OPT, try looking at two different times where MTF pays the maximum, while OPT pays the minimum.

2. Exercise 1.12 in the textbook.

3. Give a request sequence for TIMESTAMP, where TIMESTAMP's performance ratio is exactly 2. You may assume any starting configuration.

4. Exercise 2.1 in the textbook.

5. Exercise 2.3 in the textbook (but only for the static case).

6. Show that there is a request sequence on which BIT's performance ratio is no better than $\frac{7}{4}$ in the partial cost model. (It is sufficient to look at lists of length 2.) to get the result 2 for $p \geq 1/2$. Can you get it?