Institut for Matematik og Datalogi
Syddansk Universitet

March 13, 2017
JFB

On-Line Algorithms – F17 – Lecture 9

Lecture, March 3

We briefly covered chapter 7 and and up through the introduction to section 8.3 in chapter 8 in the textbook.

Lecture, March 8

We will finish chapter 8 and begin on the paper, "The relative worst order ratio applied to paging", by J. Boyar, L.M. Favrholdt, and K.S. Larsen, in *Journal of Computer and System Sciences*, volume 73, pages 817–843, 2007. You get this through the electronic journals SDU's library has (using the link on the course's homepage). In section 2, we will initially only consider definitions 1 and 2 and skip the others. Next we will cover up through Corollary 3 of section 4, and then section 6. Note that the slides are available through the course homepage.

Lecture, March 13

We will cover section 3, the definitions for relatedness and weakly comparable in section 2 and Theorem 7 of section 5 of "The relative worst order ratio applied to paging". If there is time, we will cover Theorem 8 in section 5 of "The relative worst order ratio applied to paging". (If we do not cover this, the last problem for March 15 should be ignored.)

Problems for March 15

1. Problems that we didn't finish from March 10.
2. How would you define a "strict relative worst order ratio"?

3. Show that the relative worst order ratio is transitive, so if A is at least as good as B and B is at least as good as C, then A is at least as good as C.

4. Using relative worst order analysis, compare First-Fit and Next-Fit for the classical bin packing problem (trying to minimize the number of bins used). Next-Fit is the algorithm that only keeps one bin open at a time. If the current item fits there, Next-Fit places it there. Otherwise, it closes the bin (never considering it again) and opens a new bin.