

On-Line Algorithms – F14 – Lecture 7

Announcement

There will be no class on March 5 or March 6.

Lecture, February 24, 15:15-16, in U49D

We covered up through section 6.2.1 in chapter 6 in the textbook. We finished up through section 6.41 of chapter 6 on February 27.

Lecture, March 3

We will finish chapter 6 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 the slides are available through the course homepage.

Lecture, March 12

We will We will cover sections 3, the definitions for relatedness and weakly comparable in section 2 of “The relative worst order ratio applied to paging”, and Theorem 7 of section 5. If there is time, we will cover Theorem 8 in section 5 of “The relative worst order ratio applied to paging”.

Problems for March 17

1. In the definition of RLRU, in the case where p is requested, but there is not fault, the algorithm only marks the next page if it is different from the previous. What happens to the results on RLRU if this check is removed and the page is always marked. What if it is never marked?
2. In the definition of RLRU, what if you change the condition starting a new phase to be “the $k + 2$ nd different page since the start of the last phase was found” or “this was the $k + 2$ nd fault since the start of the last phase”? What happens to the results on RLRU?
3. Compare MTF and TRANS for the list processing problem, using the relative worst order ratio.
4. How would you define a “strict relative worst order ratio”?
5. Work out an example showing how to change a worst case ordering for LRU to a worst case ordering for PERM_π .