

DM19 – Fall06 – Weekly note 14

Instruktorater

Instruktorater: Hjælp dine medstuderende, dygtiggør dig selv og få penge for det. Søg I dag!

Der er ofte gode muligheder for at få et instruktorat, selvom man ikke er langt henne i studiet. Hvis du har spørgsmål, så henvend dig gerne på IMADA. Ansøgningsproceduren er beskrevet på: www.jobs.sdu.dk. Hvis du allerede er ansat som instruktør i efteråret 2006, leverer du ansøgning om tildeling af timer ind på IMADAs sekretariat (se opslaget vedr. bilag mm.) ANSØGNINGSFRIST: 20.12 2006 KL. 12:00.

Stuff covered December 13, 2006

Branch and Bound from DM19 notes. Pages 20-27 are not pensum. We started on the notes on online algorithms and covered Section 1.

Exercises December 19, 2006

- From notes on Branch and Bound exercises 1,2,3,4,6
- Prove Theorem 1 (on page 3 in online algorithms notes) for FIFO
- Show that LFU is not competitive for any $k \geq 3$. This means that for any function $f(k)$ and any constant a , there exists a request sequence on which LRU has C_{LFU} faults, while an optimal off-line algorithm has C_{OPT} faults and $C_{LFU} \geq f(k) \times C_{OPT} + a$.
- Consider the algorithm Flush-When-Full (FWF) for paging. In this algorithm on a fault on a page p we either bring p into the fast memory if there is a free space for it (less than k pages in fast memory) or delete all pages in the fast memory (flush it) and then insert page p as the only page. Prove that FWF has competitive ratio k .
- Consider the bin-packing problem from Problem 35.1 in the textbook. Note that the First-Fit algorithm described there is on-line. Show that the First-Fit algorithm for bin-packing cannot be better than $\frac{5}{3}$ -competitive. Hint: use items of size $\frac{1}{7} + \epsilon$, $\frac{1}{3} + \epsilon$ and $\frac{1}{2} + \epsilon$, where $\epsilon > 0$ is very small).

Lecture December 20, 2006

We will cover Section 2 and part of Section 8+9 from DM19 notes on online algorithms. Sections 3-7 are not pensum.

Test exam December 21, 2006

The test exam will be Thursday December 21, 12.15-14 in U47. Note that this replaces the scheduled extra excercises that day (at the same time). First Jacob will be examined in Approximation algorithms and after that Lasse will be examined in Heuristics.