Institut for Matematik og Datalogi
Syddansk Universitet, Odense

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LMF

DM538 – Ugeseddel 11

Uge 48

Forelæsning tirsdag d. 26/11

NB: Forelæsningen bliver ikke nødvendigvis om tirsdagen — jeg prøver at få skemalæggeren til at flytte den til et tidspunkt, hvor ingen har overlap — I får besked.

Kleinberg and Tardos:

- Vi afslutter afsnit 13.2: Global minimum cut
- Afsnit 13.3: Coupon Collector's Problem
- Afsnit 13.4: MAX 3-SAT
- Hvis der bliver tid, begynder vi på afsnit 13.5: Median finding and Quicksort

Øvelser fredag d. 29/11

- Cormen: opgave 5.3-2, 5.3-3, 5.3-4, 5.3-7
  Hint til opgave 5.3-3: Se på $n = 3$. Sammenlign antallet af mulige swap-sekvenser med antallet af permutationer af 3 elementer.
- Denne opgave er en omskrivning af en opgave fra Kleinberg and Tardos:

  This exercise is about *contention resolution*. We have a system with 10 processes. Certain pairs of processes are in conflict, meaning that they need access to the same resource. Hence, such a pair cannot run at the same time. Assume that each proces is in conflict with exactly 2 other processes.

  Consider the following randomized algorithm for finding a largest possible set S of processes that can run simultaneously.
  Each process independently picks a random value; it chooses 1 with probability p and 0 with probability $1 - p$.
  If it chooses 1, and all conflicting processes choose 0, then the process enters the set S.

  What is the optimal value of p?
  What is the expected size of S for this value of p?
  Assuming the above strategy is used t times, give a lower bound on the probability that all processes enter the set S at least once, for $t = 25$ and $t = 50$.
- Eksamen januar 2013 opgave 3