

Implementation of DBMS
Exercise Sheet 9
Klingemann, WS 2022 / 2023

- 1) Delete from the B+-tree of order 4 you produced in Sheet 7, task 3 the key 18.
- 2) Consider B+-trees of order 2. Give an example of a B+-tree with three levels whose set of keys could alternatively be represented in a B+-tree with two levels. Your example should consist of two trees, one with three levels and the equivalent one with two levels.
- 3) Delete from the B-tree of order 2 you produced in Sheet 8, task 3 the keys 7, 30, 10 in this order.
- 4) Suppose we have a file of 1,000,000 records that we want to hash into a table with 1000 buckets. 100 records will fit in a block, and we wish to keep blocks as full as possible, but not allow two buckets to share a block. Empty buckets do not consume a block. What is the minimum and maximum number of blocks that we could need to store this hash table?
- 5) In an extensible hash table with n records per block, what is the probability that an overflow will have to be handled recursively, i.e., all members of the block will go into the same one of the two blocks created in the split?