

Computer Science 321
Database Systems
Fall 2003

HW 4 Due: November 10, 2003 Total weight: 100 pts.

1. [40pts] This homeworks assumes that you have read Chapter 9, as you were asked to do. In Section 9.7.2 of the textbook, the authors state that “The second approach is typically superior”. List and briefly explain any advantage and disadvantage you can think of the second vs. the first approach (focus on memory and time as the main resources, but you may consider other issues as well in your comparison).

The authors also state that “the second approach” provides a “clean way to deal with **null** values”. How does the first approach deal with null values instead? Briefly explain how the two approaches compare in this respect.

2. [60pts] Write pseudocode (in a style similar to that of Figure 10.10 in the textbook) for an **efficient** bulk loading of B+trees. Use a generic parameter d for the order of the B+tree, and assume that the data entries have been already sorted according to the search key k .