

CS392 Database System Concept

Assignment 6

Due April 17th, 2014

1. RAID systems typically allow you to replace failed disks without stopping access to the system. Thus, the data in the failed disk must be rebuilt and written to the replacement disk while the system is in operation. Which of the RAID levels yields the least amount of interference between the rebuild and ongoing disk access? Explain your answer.
2. Explain why the allocation of records to blocks affects database-system performance significantly.
3. List the two advantages and two disadvantages of each of the following strategies for shooting a relational database:
 - a) Store each relation in one file.
 - b) Store multiple relations (perhaps even the entire database) in one file.
4. When is it preferable to use a dense index rather than a sparse index? Explain your answer.
5. Why is a hash structure not the best choice for a search key on which range queries are likely?
6. Show how to compute existence bitmaps from other bitmaps. Make sure that your techniques works even in the presence of null values, by using a bitmap for the value *null*.