

The University of New South Wales

COMP9315 DBMS Implementation

Final Exam

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Question 5 (5 marks)

Consider two tables $R(x, y, z)$ and $S(a, x, b)$ with $b_R = 100$ and $b_S = 20$, and a natural join on these two tables (via attribute x). If we have a buffer pool with $B = 20$ buffers, then calculate how many pages would be read/written when performing the join operation using the methods below. Do not include the cost of writing the final result.

- Block nested loop join, with R as outer table and S as inner.
- Sort merge join, using intermediate files for sorting.
Do not assume any sort order on the original files.
- Grace hash join, with R as outer table and S as inner.
Use buffers as appropriate for input, output and in-memory hash tables.
You can assume that all hash functions distribute tuples uniformly
and that all partitions of R will fit in the in-memory hash table.

Show all working.

Instructions:

- Type your answer to this question into the file called `q5.txt`
- Submit via: **give cs9315 exam_q5 q5.txt**
or via: Webcms3 > exams > Final Exam > Submit Q5 > Make Submission

End of Question