Quiz 9 Query Processing

Due Nov 8 at 10:30am **Points** 100 **Questions** 5
Available Nov 8 at 10am - Nov 8 at 10:30am 30 minutes **Time Limit** None

Instructions

This is a 30 minutes quiz with Multiple Choice Questions.

Having an issue with the quiz? Please send an email to the course staff (rkheni@wpi.edu) (mailto:cvieira@wpi.edu) with "CS542 Quiz" included in the subject line any time during the quiz. If you require help through zoom then please join the zoom link https://wpi.zoom.us/j/2094237642 (https://wpi.zoom.us/j/2094237642) .

This quiz was locked Nov 8 at 10:30am.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	26 minutes	50 out of 100

Score for this quiz: **50** out of 100
Submitted Nov 8 at 10:26am
This attempt took 26 minutes.

Question 1 — 10 / 20 pts

Given the following operation:

Grouping operator on realtion S (Group by column X), when S is sorted based on column Y

Is the operator non-blocking? No (Blocking)

Assume relation S is 1000 blocks.

What is the minimum number of memory buffers required to execute this operation in one pass? 32

Answer 1:

Correct! No (Blocking)

Answer 2:

rrect Answer 1000

u Answered 32

Question 2

20 / 20 pts

Given the following operation:

Sort operator on relation S (sort by column A), and assume the operator can use a B-tree index that exists on column A to read the tuples.

Is the operator non-blocking? [Select]

Assume relation S is 1000 blocks.

What is the minimum number of memory buffers required to execute this operation in one pass? [Select]

Answer 1:

Correct! Yes (Non-blocking)

Answer 2:

Correct! 1

Question 3

0 / 20 pts

What is the minimum number of main memory buffers needed to perform a hash-join on the following relations:

R: 40000 tuples, 10 tuples per block

S: 20000 tuples, 20 tuples per block

- 71
- 4000
- 1000
- ou Answered — 64
- rrect Answer — 32

Question 4

0 / 20 pts

For the efficient two-pass join algorithm covered in class (sort-merge-join), assume we have available 100 memory buffers (M= 100), relation R after the preparation phase for sorting, it generates 40 sorted runs. What is the maximum size of relation S (in blocks) that the algorithm can handle to successfully do the join? (Choose the closest answer to the correct one)

- 4000
- rrect Answer — 6000
- ou Answered — 5000
- 10000

Question 5

20 / 20 pts

Given two relations, R and S with sizes shown below:

R: 40000 tuples, 10 tuples per block

S: 20000 tuples, 20 tuples per block

Assume there are 100 memory buffers available.

When doing a block-oriented nested loop join of R and S, which relation should be the **outer** relation to minimize the total number of I/Os? What is the total number of I/Os for this choice?

- Use Relation R as outer; 41,405 I/Os
- Use Relation R as outer; 44,000 I/Os
- Use Relation R as outer; 44,405 I/Os
- **rrect Answer** Use Relation S as outer; 41,405 I/Os
- Use Relation S as outer; 44,405 I/Os
- **ou Answered** Use Relation S as outer; 41,000 I/Os

Quiz Score: **50** out of 100