New submission for: Lecture Exercise 22

Due: 11/27/2020 @ 11:59 PM EST

Question 1. What is the cost of external sort of a relation R that spans 200,000 pages?
Recall that as we did in all our computations in class, in the last step of the sort, the sorted relation is simply put in the output buffer which has no associated cost.
Check all options below that are true:

- [ ] Given M=200, cost of sorting R is 1,200,000 pages
- [x] Given M=500, step 2 is run once
- [x] Given M=1,000, step 2 is run once
- [ ] Given M=1,000, step 2 is run twice
- [ ] Given M=1,000, cost of sorting R is 800,000 pages
- [x] Given M=200, cost of sorting R is 1,000,000 pages
- [ ] Given M=500, cost of sorting R is 1,200,000 pages
- [x] Given M=500, cost of sorting R is 600,000 pages
- [ ] Given M=200, step 2 is run once
- [x] Given M=200, step 2 is run twice
- [ ] Given M=500, step 2 is run twice
- [x] Given M=500, cost of sorting R is 1,000,000 pages
- [ ] Given M=200, cost of sorting R is 600,000 pages
- [ ] Given M=200, cost of sorting R is 800,000 pages
- [ ] Given M=1,000, cost of sorting R is 600,000 pages
- [ ] None of these options
- [ ] Given M=1,000, cost of sorting R is 1,000,000 pages
- [ ] Given M=1,000, cost of sorting R is 400,000 pages
- [ ] Given M=500, cost of sorting R is 1,000,000 pages

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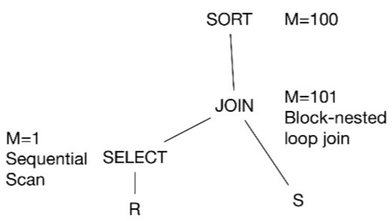

Question 2. You are given the following statistics:
PAGES(R)= 1,000
PAGES(S)= 500
PAGES(SELECT(R))= 200 (size after selection)
PAGES(R JOIN S)= 12,000 (size after join)
PAGES(SELECT(R JOIN S))= 4,000 (size after join and selection)
Check all options that are correct:

- [ ] Total cost of this query plan is 66,000 pages
- [x] Cost of sequential scan of R is 1,000 pages
- [ ] Total cost of this query plan is 11,000 pages
- [x] For the sort, step 1 and step 2 requires total of 8,000 page read/writes
- [ ] Total cost of this query plan is 20,000 pages
- [ ] None of these options
- [ ] Total cost of this query plan is 14,000 pages
- [ ] Total cost of this query plan is 10,000 pages
- [ ] For the sort, step 1 and step 2 requires total of 24,000 page read/writes
- [ ] For the join, S is read 5 times
- [ ] Cost of sequential scan of R is 200 pages
- [x] For the join, S is read twice
- [ ] For the sort, step 1 and step 2 requires total of 12,000 page read/writes
- [ ] For the sort, step 1 and step 2 requires total of 60,000 page read/writes
- [ ] For the join, S is read 10 times

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20 / 26 **Test 1 l22ex_1** Hide Details

Visualize whitespace characters

Student Question 1
5 correct, 1 incorrect, 0 optional

```
1 Given M=500, step 2 is run once
2 Given M=1,000, step 2 is run once
3 Given M=200, cost of sorting R is 1,000,000 pages
4 Given M=500, cost of sorting R is 600,000 pages
5 Given M=200, step 2 is run twice
6 Given M=500, cost of sorting R is 800,000 pages
7
```

Expected Question 1
5 correct, 1 incorrect, 0 optional

```
1 Given M=500, step 2 is run once
2 Given M=200, step 2 is run twice
3 Given M=1,000, step 2 is run once
4 Given M=500, cost of sorting R is 600,000 pages
5 Given M=200, cost of sorting R is 1,000,000 pages
6 Given M=1,000, cost of sorting R is 600,000 pages
7
```

18 / 24 **Test 2 l22ex_2** Hide Details

Visualize whitespace characters

Student Question 2
3 correct, 1 incorrect, 0 optional

```
1 Cost of sequential scan of R is 1,000 pages
2 For the sort, step 1 and step 2 requires total of 8,000 page read/writes
3 For the join, S is read twice
4
```

Expected Question 2
3 correct, 1 incorrect, 0 optional

```
1 Cost of sequential scan of R is 1,000 pages
2 Total cost of this query plan is 10,000 pages
3 For the sort, step 1 and step 2 requires total of 8,000 page read/writes
4 For the join, S is read twice
5
```