

## 9\_Query\_Optimization\_Cost\_Exercises

**Due** Mar 11 at 3pm**Points** 10**Questions** 8**Time Limit** None**Allowed Attempts** 7

### Attempt History

	Attempt	Time	Score
KEPT	<a href="#">Attempt 3</a>	25 minutes	5 out of 10
LATEST	<a href="#">Attempt 7</a>	less than 1 minute	0.5 out of 10
	<a href="#">Attempt 6</a>	less than 1 minute	0.5 out of 10
	<a href="#">Attempt 5</a>	less than 1 minute	0.5 out of 10
	<a href="#">Attempt 4</a>	less than 1 minute	0 out of 10
	<a href="#">Attempt 3</a>	25 minutes	5 out of 10
	<a href="#">Attempt 2</a>	less than 1 minute	1 out of 10
	<a href="#">Attempt 1</a>	9,719 minutes	0.5 out of 10

Score for this attempt: **0.5** out of 10

Submitted Mar 18 at 9:57am

This attempt took less than 1 minute.

For these questions, there exists 4 relations:  $R(A,B,C)$ ,  $S(C,D)$ ,  $T(D,E,F)$ , and  $U(B,G)$ .

The size of attributes  $A$  to  $D$  are 10 bytes each, attributes  $E$  and  $F$  have size 100 bytes, and

attribute  $G$  has size 1000 bytes. The blocks size is 16,384 bytes with **no spanning**.

Relation  $R$  has 100,000 tuples, relation  $S$  has 20,000 tuples,  $T$  has 5,000 tuples, and relation  $U$  has 150,000 tuples.

Other statistics:  $V(R,C)=10,000$ ,  $V(S,D)=500$ ,  $V(R,B)=1000$ .

Assume that attributes with the same name can be joined across relations (and duplicates are eliminated during a join), and the first attribute is the primary key of the relation.

Answer the following questions about calculating intermediate result sizes. Answer the question in terms of the **# of tuples and the # of blocks**.

Unanswered

### Question 1

0 / 1 pts

What is the size of  $\pi_B(U)$ ?

Tuples:

Blocks:

Answer 1:

You Answered

(You left this blank)

Correct Answer

150000

Answer 2:

**You Answered**

(You left this blank)

**Correct Answer**

92

**Unanswered****Question 2****0 / 1 pts**What is the size of  $\pi_{B,C}(R)$ ?

Tuples:

Blocks:

**Answer 1:****You Answered**

(You left this blank)

**Correct Answer**

100000

**Answer 2:****You Answered**

(You left this blank)

**Correct Answer**

123

Unanswered

**Question 3****0 / 1 pts**What is the size of  $\sigma_{D=10}(S)$ ?

Tuples:

Blocks:

**Answer 1:**

You Answered

(You left this blank)

Correct Answer

40

**Answer 2:**

You Answered

(You left this blank)

Correct Answer

1

**Question 4****0.5 / 1 pts**What is the size of  $\sigma_{C>10}(S)$ ?

Tuples:

6667

Blocks:

6

Correct!	Answer 1:
	6667
	Answer 2:
You Answered	6
Correct Answer	9

Unanswered	Question 5	0 / 1 pts
What is the size of $\sigma_{B=5}(R)$ ?		
Tuples: <input type="text"/> Blocks: <input type="text"/>		
You Answered	Answer 1:	
	(You left this blank)	
	Correct Answer	100
You Answered	Answer 2:	
	(You left this blank)	

**Correct Answer**

1

**Unanswered****Question 6****0 / 1 pts**

What is the size of  $\sigma_{C>10 \text{ AND } D=10}(S)$ ?

Tuples:

Blocks:

**Answer 1:****You Answered**

(You left this blank)

**Correct Answer**

14

**Answer 2:****You Answered**

(You left this blank)

**Correct Answer**

1

**Unanswered****Question 7****0 / 1 pts**

What is the size of  $R \bowtie S$ ?

Tuples:  Blocks:

**Answer 1:**

**You Answered**

(You left this blank)

**Correct Answer**

100000

**Answer 2:**

**You Answered**

(You left this blank)

**Correct Answer**

245

**Correct Answer**

306

**Unanswered**

### Question 8

**0 / 3 pts**

Find the best join ordering for all 4 relations using the **minimum intermediate result sizes IN BLOCKS** as the determining factor.

☐  $R \bowtie (S \bowtie T) \bowtie U$

**Correct Answer**☐  $((R \bowtie S) \bowtie T) \bowtie U$ ☐  $(R \bowtie S) \bowtie (T \bowtie U)$ ☐  $(T \bowtie U) \bowtie S \bowtie R$ Quiz Score: **0.5** out of 10