In-Video Quiz

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Q3

1/1 point (ungraded)

Suppose relation Student has 20 tuples. What is the minimum and maximum number of tuples in the result of this expression:

$\rho_{s1(i1,n1,g,h)} Student \bowtie \rho_{s2(i2,n2,g,h)} Student$

- minimum = 0, maximum = 400
- minimum = 20, maximum = 20
- ✔ minimum = 20, maximum = 400
- A4: minimum = 40, maximum = 40

Explanation

If every student has a unique GPA-HS combination, then students join only with themselves, and there are 20 tuples in the result (minimum). If every student has the same GPA and HS as every other student, then all pairs join and the result has 20*20=400 tuples.

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Answers are displayed within the problem

Q4

1/1 point (ungraded)

Suppose relations College, Student, and Apply have 5, 20, and 50 tuples in them respectively. Remember that cName is a key for College. Do not assume sName is a key for Student. Do assume that college names in Apply also appear in College. What is the minimum and maximum number of tuples in the result of this expression:

$\pi_{cName} College \cup \rho_{cName}\ (\pi_{sName} Student) \cup \pi_{cName} Apply$

- ✔ minimum = 5, maximum = 25
- minimum = 5, maximum = 75
- minimum = 25, maximum = 45
- minimum = 75, maximum = 75

Explanation

Recall that duplicates are eliminated automatically in relational algebra. If all students have names that are also college names, then there are only 5 names altogether (minimum). If every student

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has a unique name and none of them are college names, then there are 5+20=25 names altogether (maximum). Since all college names in Apply are also in College, the third term of the expression

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