Views Quiz

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Quiz due May 10, 2022 12:52 IST

Each multiple-choice quiz problem is based on a "root question," from which the system generates different correct and incorrect choices each time you take the quiz. Thus, you can test yourself on the same material multiple times. We strongly urge you to continue testing on each topic until you complete the quiz with a perfect score at least once. Simply click the "Reset" button at the bottom of the page for a new variant of the quiz.

After submitting your selections, the system will score your quiz, and for incorrect answers will provide an "explanation" (sometimes for correct ones too). These explanations should help you get the right answer the next time around. To prevent rapid-fire guessing, the system enforces a minimum of 10 minutes between each submission of solutions.

Q1

1/1 point (graded)

[Q1] Consider the following base tables. Capitalized attributes are primary keys. All non-key attributes are permitted to be NULL.

```
MovieStar(NAME, address, gender, birthdate)
MovieExecutive(LICENSE#, name, address, netWorth)
Studio(NAME, address, presidentLicense#)
```

Each of the choices describes, in English, a view that could be created with a query on these tables. Which one can be written as a SQL view that is updatable according to the SQL standard?

- ○ A view "NewYorkWealth" containing the average net worth of movie executives whose address contains "New York".
- ○ A view "GenderBalance" containing the number of male and number of female movie stars.
- ◉ A view "StudioPres" containing the license number, name, address, of all executives who are studio presidents.
- ○ A view "StudioPresInfo" containing the studio name, executive name, and license number for all executives who are studio presidents.

✔

Answer-Selection Feedback

Although views with more than one table in their top-level FROM clause are not updatable, we can write this view using one table in the top-level FROM clause and a subquery on a different table in the WHERE clause. Also, although net worth is omitted from the view, it is permitted to be NULL.

Problem Explanation

In order to be updatable according to the SQL standard, a view must:

- Have only one table T in its top-level FROM clause
- Not use SELECT DISTINCT in its top-level FROM clause
- Include all attributes from T that do not permit NULLs
- Not refer to T in subqueries
- Not use GROUP BY or aggregation

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Answers are displayed within the problem

Q2

1/1 point (graded)

[Q2] Consider the following schema:

```
Book(ISBN, title, year) // ISBN and title cannot be NULL
Author(ISBN, name) // ISBN and name cannot be NULL
```

and the following view definition over this schema:

```
Create View V as
  Select Book.ISBN, count(*)
  From Book, Author
  Where Book.ISBN = Author.ISBN
  And Author.name Like 'A%'
  And Book.year > 2000
  Group By Book.ISBN
```

This view is not updatable according to the SQL standard, for a number of reasons. Which of the following is a valid reason for the view being non-updatable according to the standard?

- (●) Use of aggregate function COUNT
- ( ) Book.year is omitted from the view
- ( ) NULL values are not permitted in Book.ISBN
- ( ) The condition Author.name Like 'A%'

✔

Answer-Selection Feedback

Updatable views cannot include GROUP BY or aggregation.

Problem Explanation

In order to be updatable according to the SQL standard, a view must:

- Have only one table T in its top-level FROM clause
- Not use SELECT DISTINCT in its top-level FROM clause
- Include all attributes from T that do not permit NULLs
- Not refer to T in subqueries
- Not use GROUP BY or aggregation

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Answers are displayed within the problem

Q3

1/1 point (graded)

[Q3] Suppose a table T(A,B,C) has the following tuples: (1,1,3), (1,2,3), (2,1,4), (2,3,5), (2,4,1), (3,2,4), and (3,3,6). Consider the following view definition:

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```
Create View V as
  Select A+B as D, C
  From T
```

Consider the following query over view V:

```
Select D, sum(C)
From V
Group By D
Having Count(*) <> 1
```

Which of the following tuples is in the query result?

- (5,11)
- (3,7)
- (3,12)
- (2,3)

✔

Problem Explanation

First compute the tuples in V(D,C) based on the tuples in T. V contains: {(2,3), (3,3), (3,4), (5,5), (6,1), (5,4), (6,6)}. In the query over V there are grops for D = 2, 3, 5, and 6. All groups pass the Having clause except D=2. Sum the C attributes in each of the remaining groups to get the final result: {(3,7), (5,9), (6,7)}.

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Answers are displayed within the problem

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