Fall 2020 – Quiz 5 (Views)

10 points, 10 minutes

MW 3:30pm section

Consider the following view and a query Q that uses the view, similar to what you have seen in class.

```
CREATE VIEW CanDrink AS
SELECT distinct drinker, beer
FROM Frequents, Sells
WHERE Frequents.bar = Sells.bar and beer like 'Bud%';

Q: select beer from CanDrink
   where drinker = 'Steve';
```

1. [1 point] Explain what is "view expansion".
   View expansion is the process that DBMS using view. The query is replaced by its algebraic equivalents, and "spliced into" the expression tree for the query.
   (accept answer with same meaning)
2. [4 points] Show the query obtained by applying "view expansion" to the query Q.
   select distinct beer
   from Frequents, Sells
   where Frequents.bar = Sells.bar and beer like 'Bud%' and drinker = 'Steve'
   (accept answer that is workable syntax and same result)

3. [5 points] Give a query execution plan for the expanded query. Recall that a query execution plan may consist of selection, projection, and join operators, details on each operation (e.g., selection and join conditions, attributes for projection), and the order they are executed.
   1. Join two table on bar (1+0.5)
   2. Projection on drinker,beer (1)
   3. Selection on condition beer like 'Bud%' and drinker = 'Steve' (2)
   4. Project on beer (0.5)

   Optimized plan:
   1. do a SELECTION for table Frequent('steve'), do another SELECTION for table Sell('Bud%'), which can be done in same time and eliminated rows before joining.
   2. JOIN Frequent and Sell from selection result on 'bar'
   3. PROJECTION on beer from joint result