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BarBeerDrinker Project (Plus) – CS336

Part 2 – Pattern/Constraint Checking

Here are the following queries for each of the questions in Part 2 of this project. I have attached my query as below along with the output of the query:

1. Transactions/bills cannot be issued at times when the given bar is closed

   Query:

   ```
   SELECT CASE WHEN EXISTS (

           SELECT *
           FROM BarBeerDrinkerProject.transactions t1, BarBeerDrinkerProject.operates
   t2, BarBeerDrinkerProject.bills t3
           WHERE t1.bill_id = t3.bill_id AND t3.bar = t2.bar AND t3.time < t2.start AND
   t3.time > t2.end

           )

   THEN 'FALSE' ELSE 'TRUE'
   END;
   ```

   Output:
   TRUE

   Conclusion:
   Thus, the condition is adhered to.

2. Drinkers cannot frequent bars in different state

   Query:

   ```
   SELECT CASE WHEN EXISTS (

           SELECT t1.bar, t1.drinker, t3.state, t2.state
           FROM BarBeerDrinkerProject.frequents t1, BarBeerDrinkerProject.drinker t2,
   BarBeerDrinkerProject.bar t3
           WHERE (t2.state != t3.state AND t2.name = t1.drinker AND t1.bar = t3.name)

   )
   ```

```
    THEN 'FALSE' ELSE 'TRUE'
END;
```

Output:
TRUE

Conclusion:
Thus, the condition is adhered to.

3. For every two beers, b1 and b2, different bars may charge differently for b1 and b2 but b1 should either be less expensive than b2 in ALL bars or more expensive than b2 in ALL bars. For example, it cannot be the case that in one bar Corona is more expensive than Bud, and in another bar, Bud is more expensive than Corona. However, Corona may be more expensive than Bud in one bar, and have the same price as Bud in another.

Query:

```
 SELECT CASE WHEN EXISTS (

        SELECT DISTINCT s2.barname
        FROM BarBeerDrinkerProject.sellsbeer s1, BarBeerDrinkerProject.sellsbeer s2
        WHERE s1.beername IN (SELECT temp.name from BarBeerDrinkerProject.beer
temp)
                AND s2.beername IN (SELECT temp.name from
BarBeerDrinkerProject.beer temp)
                AND s1.beername != s2.beername and s1.price > s2.price AND EXISTS
                        (SELECT s3.beername
                        FROM BarBeerDrinkerProject.sellsbeer s3
                        WHERE s3.beername = s2.beername AND s1.price <
s3.price)
        )

        THEN 'FALSE' ELSE 'TRUE'
        END;
```

Output:
TRUE.

Conclusion:
Thus, the condition is adhered to.