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Group Number: 142

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

Our data satisfies the constraint, and to prove that:

select(not exists(select distinct b.billID from bills as b

join bars as s on s.name = b.bar

where(time_to_sec(time(b.time)) - time_to_sec(time(s.closing)) < '0'

and time_to_sec(time(b.time)) - time_to_sec(time(s.opening)) < '0')))

Result returned:

(not exists(select distinct b.billID from bills as b join bars as s on s.name = b.bar where(time_to_sec(time(b.time)) - time_to_sec(time(s.closing)) < '0' and time_to_sec(time(b.time)) - time_to_sec(time(s.opening)) < '0')))
1

This means that Transactions/bills cannot be issued at times when the given bar is closed.

Query 2: Drinkers cannot frequent bars in different city

Our data satisfies the constraint, and to prove that:

select(not exists(select f.drinker, f.bar from frequents f, bars b, drinkers d

where f.bar = b.name and f.drinker = d.name and b.city != d.city));

Result returned:

(not exists(select f.drinker, f.bar from frequents f, bars b, drinkers d where f.bar = b.name and f.drinker = d.name and b.city != d.city))
1

This means that it is true that drinkers cannot frequent bars in different city.

Query 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. Cannot be the case that in one bar Corona is more expensive than Bud and in another Bud is more expensive than Corona. But Corona may be more expensive than Bud in one bar, and have the same price as Bud in another.

Our data satisfies the constraint, and to prove that:

select (not exists (select a.item, a.price as price1, b.item, b.price as price2, c.item, c.price as price3, d.item, d.price as price4 from sells a, sells b, sells c, sells d

where a.bar != b.bar

and a.item < b. item

and a.price < b.price

and a.bar = c.bar

and b.bar = d.bar

and c.bar != d.bar

and c.item < d.item

and a.item = c.item

and b.item = d.item

and c.price > d.price

order by a.item));

Result returned:

(not exists (select a.item, a.price as price1, b.item, b.price as price2, c.item, c.price as price3, d.item, d.price as price4 from sells a, sells b, sells c, sells d where a.bar != b.bar and a.item < b. item and a.price < b.price and a.bar = c.bar and b.b
1

This means that there cannot be the case that in one bar Corona is more expensive than Bud and in another Bud is more expensive than Corona.