Introduction to Databases Problem Set #2

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Problem 2

a

Let liquor be L and sales be S.
Let $\rho(C(1->\text{lid1}, 7->\text{lid2}), L \times S)$ be X
Names $= \pi_{\text{name}}(\sigma_{\substack{\text{lid1 = lid2} \\ \text{month = December} \\ \text{county = } Polk \\ \text{quantity >= 1}}}(X) \cap \sigma_{\substack{\text{lid1 = lid2} \\ \text{month = December} \\ \text{county = } Linn \\ \text{quantity >= 1}}}(X))$

b

Let liquor be L and sales be S.
Let $\rho(C(1->\text{lid1}, 7->\text{lid2}), L \times S)$ be X
Manufacturers $= \pi_{\text{manufacturer}}\sigma_{1 \neq 10}((\sigma_{\substack{\text{lid1 = lid2} \\ \text{month = January} \\ \text{county = } Polk \\ \text{quantity >= 1}}}(X) \bowtie_{\text{manufacturer}} \sigma_{\substack{\text{lid1 = lid2} \\ \text{month = January} \\ \text{county = } Polk \\ \text{quantity >= 1}}}(X)))$

Problem 3

a

B	D
x	c
y	a
x	a

b

A	B	D	A
1	x	c	1
3	y	a	1
3	x	a	1
1	x	c	3
3	y	a	3
3	x	a	3
1	x	c	3
3	y	a	3
3	x	a	3

c

A	B	C	A	B	D
1	x	a	3	y	c
1	x	a	3	x	a

d

Empty T1 as T1 - T2 = T1, hence T1- (T1 -T2) = Null

A	B	C
Null	Null	Null
Null	Null	Null
Null	Null	Null

e

Since the two tables have no common attributes, cross product with empty T2

A	B	C	A	B	D
1	x	a			
2	y	b			
3	z	b			
1	x	a			
2	y	b			
3	z	b			
1	x	a			
2	y	b			
3	z	b			