HW13b

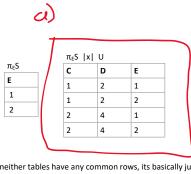
Tuesday, March 7, 2023 9:01 AM

Q:		R:	R:		
A	В	В	C		
5	1	1	4		
6	1	2	4		
4	2	2	5		
3	4	3	6		
		3	9		

S:		
С	D	E
4	1	1
4	2	1
3	3	2
2	4	2

U:	
C	D
1	2
2	4

- Use the relations given above in problem 1 to evaluate the relational expressions or explain why the expression is invalid.
- a) $\pi_E S \times U$
- b) Q |× | R
- c) $\sigma_{\text{B} \lhd} Q \mid \times \mid R \mid \times \mid \rho_{\text{C} \leftarrow \text{B}} U$



since neither tables have any common rows, its basically just doing the product of them $\label{eq:common common common$

b)				
	Q x	R		
	Α	В	С	
	5	1	4	
	6	1	4	
	4	2	4	
	4	2	5	

$\sigma_{B<2}Q$	
Α	В
5	1
6	1

$\rho_{C\leftarrow B}U$		
В	D	
1	2	
2	4	

$\sigma_{B<2}Q$	x R	
Α	В	С
5	1	4
6	1	4

$\sigma_{B<2}Q$	x R	x ρ _{C←B} l	J
Α	В	С	D
5	1	4	2
6	1	4	2

 Using the database instance below and for each query to the right, give: (i) a relational algebra expression; (ii) an SQL query*; and (iii) a Datalog query and rule**.

*Execute SQL queries against the SnoopyDatabase, and hand in screenshots of your queries and the results of running your queries. (For details about how to do this see a) List the names of students whose phone number is 555-1234. C. Brown Snoopy i) http://students.cs.byu.edu/~cs236ta/shar edLib/homework/SQLite3Essentials.ht edi.lb/homework/3/1-10-2-3-3-1-10-3-3-1-10-3-3-1-10-3-3-1-10-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-3-1-10-3-3-1-1 Find the names and corresponding course numbers of all students who have a class in the Turing Aud. interpreter at: http://students.cs.byu.edu/~cs236ta/shared Lib/homework/DatalogInterpreter.html) CS101 CS101 C. Brown L. Van Pelt i) C. Brown 12 Apple St. 555-1234 L. Van Pelt 34 Pear Ave. 555-5678 56 Grape Blvd. c) Find the name and phone number of students taking 33333 555-1234 12 Apple St any of the immediate prerequisites of CS120. C. Brown 555-1234 L. Van Pelt 555-5678 Snoopy 555-1234 Snoopy CS101 Turing Aud. EE200 25 Ohm Hall i) PH100 Newton Lab. CS101 M 9AM CS101 W 9AM CS101 F 9AM EE200 Tu 10AM EE200 W 1PM EE200 Th 10AM PH100 Tu HAM

CS101 CS100

EE200 EE005

EE200 CS100

CS120 CS101

CS121 CS120

CS205 CS101

S206 CS121

CS206 CS205

CS101 12345

EE200 12345

EE200 22222

EE200 33333

CS101 33333

PH100 67890

CS101

 $\pi_N\,\sigma_{P=555\text{-}1234}\,SNAP$ $\pi_{N,C} \sigma_{R = Turing Aud.}$ (CR |x| CSG |x| SNAP) $\pi_{\text{N,P}} \; \sigma_{\text{C = CS120}} \, ((\rho_{\text{C}\leftarrow \text{Prereq}} \text{CSG } \; |x| \; \text{CP}) \; |x| \; \text{SNAP})$