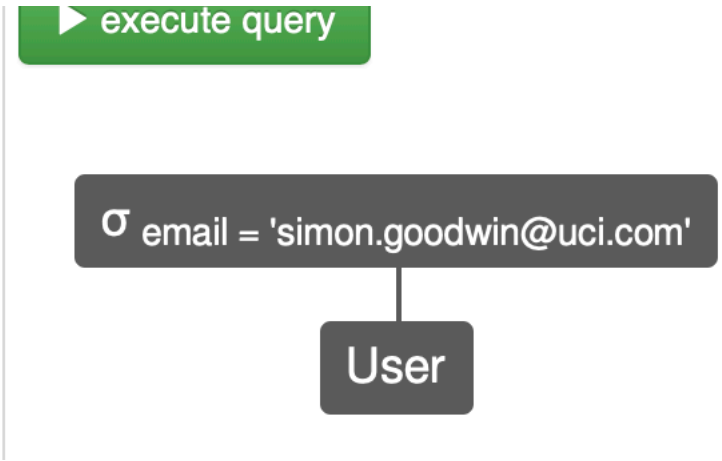
Last Name: ZHOU First Name: YIHUA ZHOU Student ID: 83186710

1. [10pts] Find all users whose email is ‘simon.goodwin@uci.com’.

a) [6pts] Relational Algebra

σ email='simon.goodwin@uci.com' User

b) [1pt] Parse Tree



c) [3pts] Result (1 Row)

σ email = 'simon.goodwin@uci.com' User

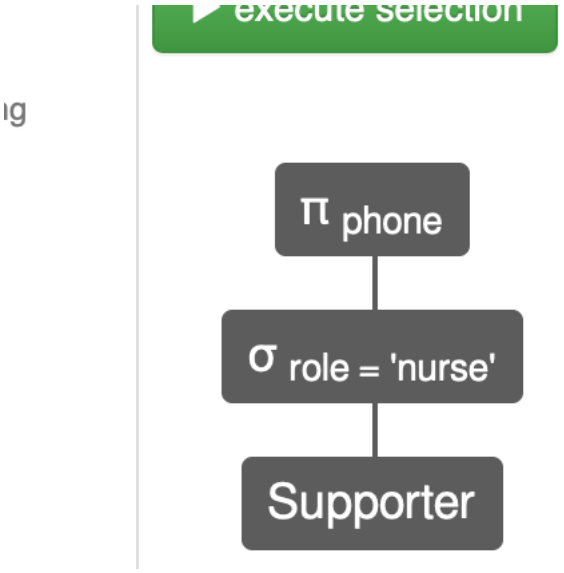
User.phlid	User.email	User.pswd
4	simon.goodwin@uci.com	9e70aba2e1bd50759076052327368995

2. [10pts] List the phones of Supporters who have the role of ‘nurse’.

a) [6pts] Relational Algebra

π phone (σ role='nurse' Supporter)

b) [1pt] Parse Tree



c) [3pts] Result (2 Rows)

$\pi_{\text{phone}}(\sigma_{\text{role = 'nurse'}}\text{Supporter})$

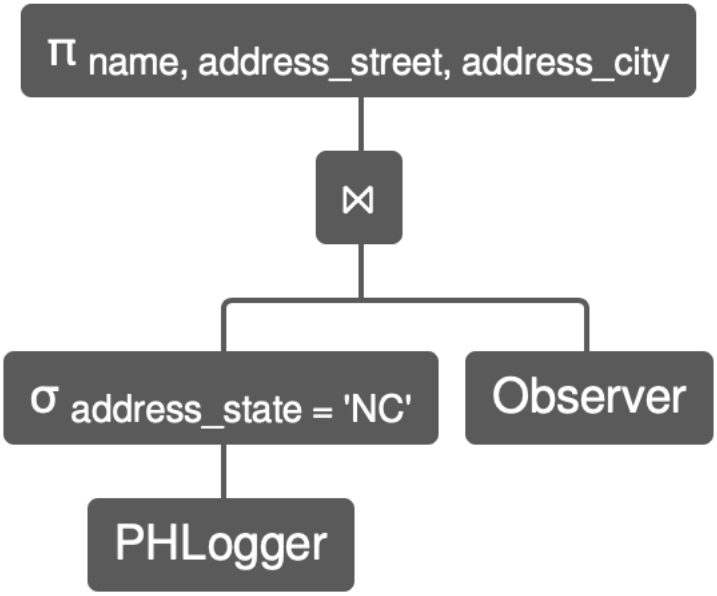
Supporter.phone
(148) 250-5706
895.815.0501

3. [10pts] List the name, street, and city of PHLoggers who reside in the state of ‘NC’ and are associated with an Observer.

a) [6pts] Relational Algebra

π name, address_street, address_city ((σ address_state='NC' PHLogger)⋈ Observer)

b) [1pt] Parse Tree



c) [3pts] Result (2 Rows)

π name, address_street, address_city ((σ address_state = 'NC' PHLogger) ⋈ Observer)

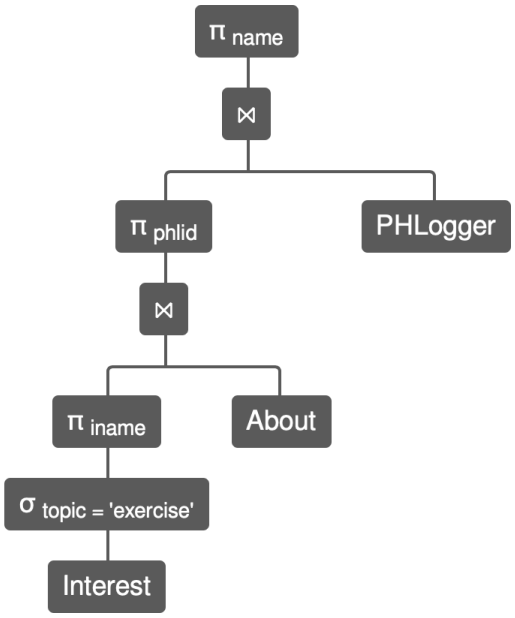
PHLogger.name	PHLogger.address_street	PHLogger.address_city
Laree Schamberger	Alexander Cape	Beerview
Simon Goodwin	Ranae Pine	South Ashleymouth

4. [15pts] List the names of PHLoggers who have a thought about an interest group with topic ‘exercise’.

a) [9pts] Relational Algebra

π name (π phlid ((π iname σ topic = 'exercise' Interest)⋈ About) ⋈ PHLogger)

b) [3pt] Parse Tree



c) [3pts] Result (5 Rows)

π name (π phlid ((π iname σ topic = 'exercise' Interest) ⋈ About) ⋈ PHLogger)

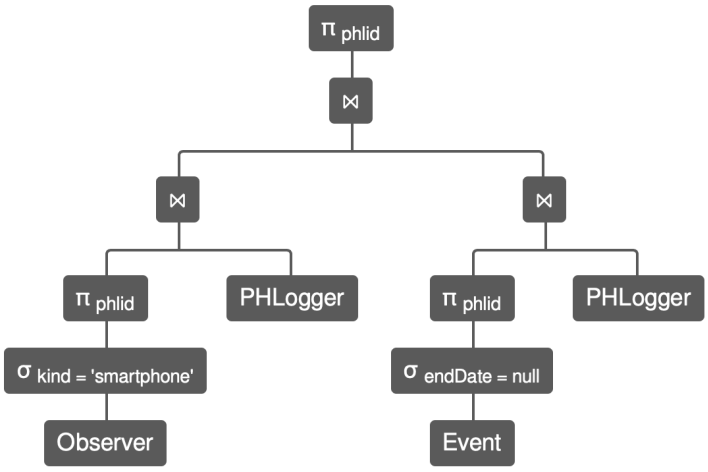
PHLogger.name
Hannah Veum
Gilbert Nienow
Hans Ratke
Dustin Schmidt
Katrina Leannon

5. [15pts] Find the phlids of PHLoggers who own an Observer of kind ‘smartphone’ and are associate with an event that doesn’t have an end date.

a) [9pts] Relational Algebra

π phlid (((π phlid σ kind = 'smartphone' Observer) ⋈ PHLogger)⋈((π phlid σ endDate = null Event) ⋈ PHLogger))

b) [3pt] Parse Tree



c) [3pts] Result (3 Rows)

π phlid (((π phlid σ kind = 'smartphone' Observer) ⋈ PHLogger) ⋈ ((π phlid σ endDate = null Event) ⋈ PHLogger))

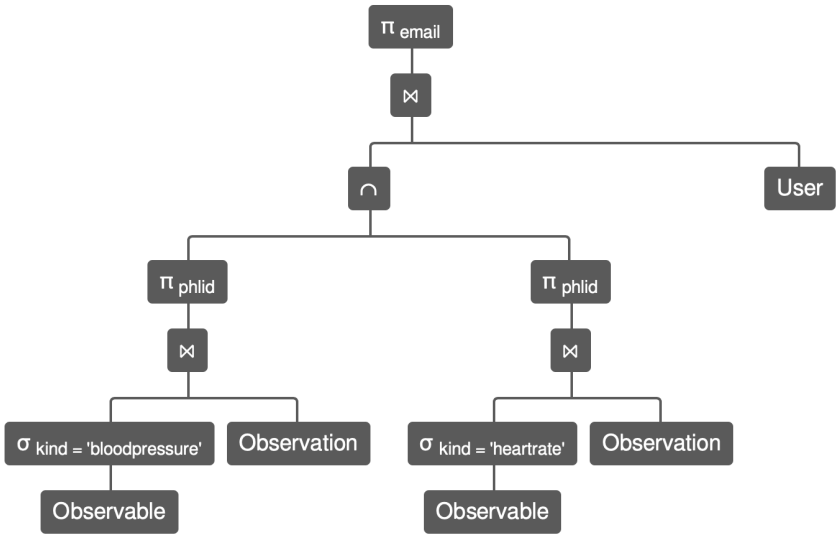
Observer.phlid
4
9
7

6. [20pts] List the emails of users who are associated with an Observable of kind ‘bloodpressure’ as well as an Observable of kind ‘heartrate’.

a) [12pts] Relational Algebra

π email (((π phlid ((σ kind = 'bloodpressure' Observable)⋈ Observation)) ∩ (π phlid ((σ kind = 'heartrate' Observable) ⋈ Observation))) ⋈ User)

b) [5pt] Parse Tree



c) [3pts] Result (8 Rows)

π email (((π phlid ((σ kind = 'bloodpressure' Observable) ⋈ Observation)) ∩ (π phlid ((σ kind = 'heartrate' Observable) ⋈ Observation))) ⋈ User)

User.email
sadie.beer@uci.com
titus.luettgen@uci.com
jamey.brown@uci.com
hannah.veum@uci.com
ricky.deckow@uci.com
laree.schamberger@uci.com
katrina.leannon@uci.com
gilbert.nienow@uci.com

7. [20pts] List the names and emails of PHLoggers who are members of all available interest groups with the topic of 'alcoholism'.

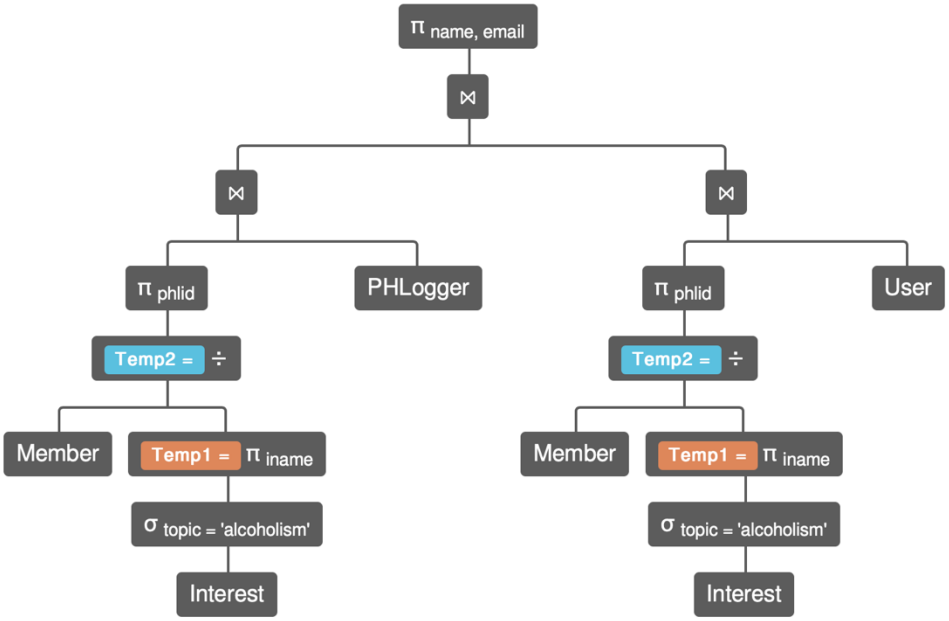
a) [12pts] Relational Algebra (Hint: ***Use Division!***)

Temp1 = π iname (σ topic = 'alcoholism' Interest)

Temp2 = Member ÷ Temp1

π name,email (((π phlid Temp2) ⋈ PHLogger) ⋈ ((π phlid Temp2) ⋈ User))

b) [5pt] Parse Tree



c) [3pts] Result (6 Rows)

π name, email (((π phlid (Member ÷ (π iname (σ topic = 'alcoholism' Interest)))) ⋈ PHLogger) ⋈ ((π phlid (Member ÷ (π iname (σ topic = 'alcoholism' Interest)))) ⋈ User))

PHLogger.name	User.email
Laree Schamberger	laree.schamberger@uci.com
Gilbert Nienow	gilbert.nienow@uci.com
Jamey Brown	jamey.brown@uci.com
Hans Ratke	hans.ratke@uci.com
Dustin Schmidt	dustin.schmidt@uci.com
Katrina Leannon	katrina.leannon@uci.com