

Last Name: Suh

First Name: Joowon

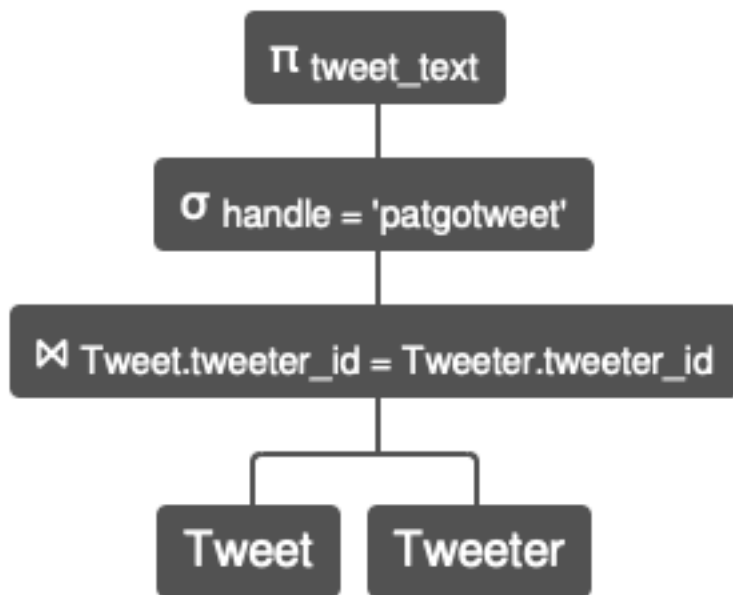
Student ID: 44414081

1. [10pts] Find the text of all tweets that were posted by the tweeter with the handle 'patgotweet'.

a) [6pts] Relational Algebra

$\pi \text{ tweet_text } (\sigma \text{ handle} = \text{'patgotweet'} (\text{Tweet} \bowtie \text{Tweet.tweeter_id} = \text{Tweeter.tweeter_id } (\text{Tweeter})))$

b) [1pt] Parse Tree



c) [3pts] Result

$\pi \text{ tweet_text } (\sigma \text{ handle} = \text{'patgotweet'} (\text{Tweet} \bowtie \text{Tweet.tweeter_id} = \text{Tweeter.tweeter_id } (\text{Tweeter})))$

Tweet.tweet_text

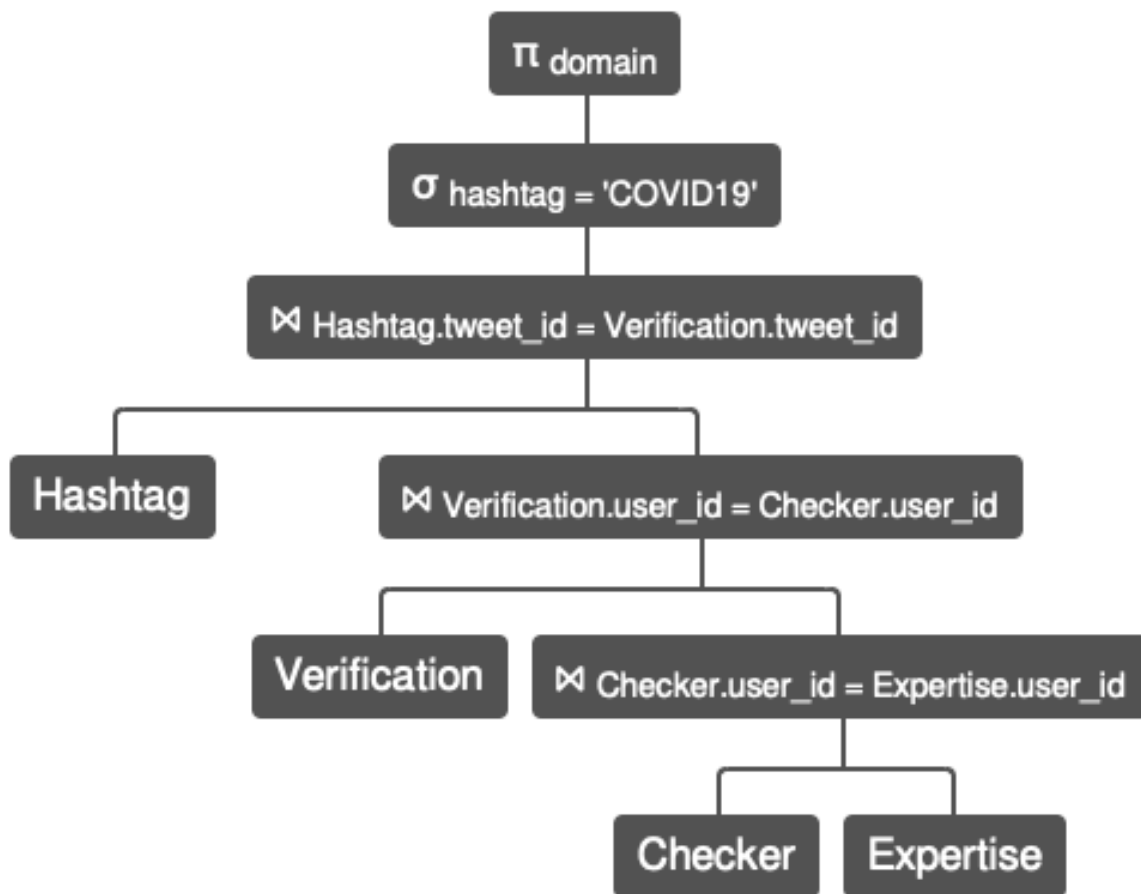
@TheValuesVoter @MrsPerrin I'm in one of those states. It's a big Trump state so Covid is all a hoax here and masks don't work. It's a strange place to live right now.... and a bit scary and frustrating.

2. [10pts] List the domains of expertise for checkers who have verified tweets that have the hashtag "COVID19". (Note: The hashtag value is all in capital letters.)

a) [6pts] Relational Algebra

$\pi_{\text{domain}} (\sigma_{\text{hashtag} = \text{'COVID19'}} (\text{Hashtag} \bowtie \text{Hashtag.tweet_id} = \text{Verification.tweet_id} (\text{Verification} \bowtie \text{Verification.user_id} = \text{Checker.user_id} (\text{Checker} \bowtie \text{Checker.user_id} = \text{Expertise.user_id} (\text{Expertise}))))))$

b) [1pt] Parse Tree



c) [3pts] Result

$\pi_{\text{domain}} (\sigma_{\text{hashtag} = \text{'COVID19'}} (\text{Hashtag} \bowtie \text{Hashtag.tweet_id} = \text{Verification.tweet_id} (\text{Verification} \bowtie \text{Verification.user_id} = \text{Checker.user_id} (\text{Checker} \bowtie \text{Checker.user_id} = \text{Expertise.user_id} (\text{Expertise}))))))$

Expertise.domain

Health Service Quality

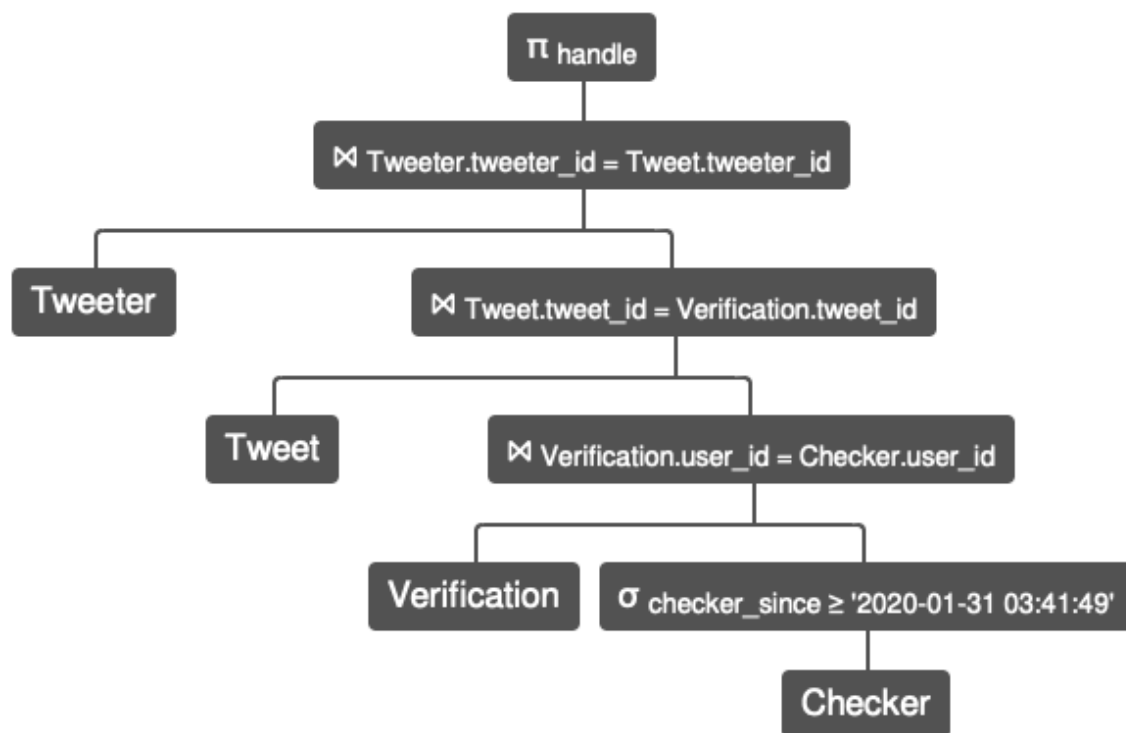
Public Health

3. [10pts] List the handles of Tweeters who have posted a tweet that has been verified by a Checker who has been a checker since “2020-01-31 03:41:49”.

a) [6pts] Relational Algebra

$\pi_{\text{handle}} (\text{Tweeter} \bowtie \text{Tweeter.tweeter_id} = \text{Tweet.tweeter_id} (\text{Tweet} \bowtie \text{Tweet.tweet_id} = \text{Verification.tweet_id} (\text{Verification} \bowtie \text{Verification.user_id} = \text{Checker.user_id} (\sigma_{\text{checker_since} \geq '2020-01-31 03:41:49'} (\text{Checker}))))))$

b) [1pt] Parse Tree



c) [3pts] Result

$\pi_{\text{handle}} (\text{Tweeter} \bowtie \text{Tweeter.tweeter_id} = \text{Tweet.tweeter_id} (\text{Tweet} \bowtie \text{Tweet.tweet_id} = \text{Verification.tweet_id} (\text{Verification} \bowtie \text{Verification.user_id} = \text{Checker.user_id} (\sigma_{\text{checker_since} \geq '2020-01-31 03:41:49'} (\text{Checker}))))))$

Tweeter.handle
theblack_abyss
SandyInCalif
NecessaryPaper
mptrottier
oceanviewmom

4. [15pts] List the evidence-providing users' ids and the associated checkers' ids where the users live in the state of CA and the checkers used evidence submitted by users who are not checkers themselves.

Example:

Let's say that we have the following evidence and info about who submitted it:

ev_id	url	Submitted by
0	"http://foo.com"	checker0
1	"http://baz.org"	user1
2	"http://baz.org"	user2

In your query (relational algebra), you need to consider only the evidence submitted by user1 and user2 (i.e., ev_id = 1 and ev_id = 2, respectively) if they live in California. Your result should not include ev_id = 0 as it was submitted by a checker (namely checker0).

a) [9pts] Relational Algebra

$a = \pi_{\text{user_id}} (\sigma_{\text{address_state} = 'CA'} \text{User} \bowtie \text{EvidenceFrom})$

$k = \pi_{\text{ev_id}} (\sigma_{\text{address_state} = 'CA'} \text{User} \bowtie \text{EvidenceFrom})$

$l = \pi_{\text{user_id}} (\text{User})$

$b = \pi_{\text{user_id}} (\text{User} \bowtie \text{Checker})$

$c = \text{Verification} \bowtie \text{VerifiedUsing}$

$n = \pi_{\text{user_id}} (c/k)$

$((l-b) \cap a) \cup n$

b) [3pt] Parse Tree

User.user_id
44
0
3
6
15
22
21

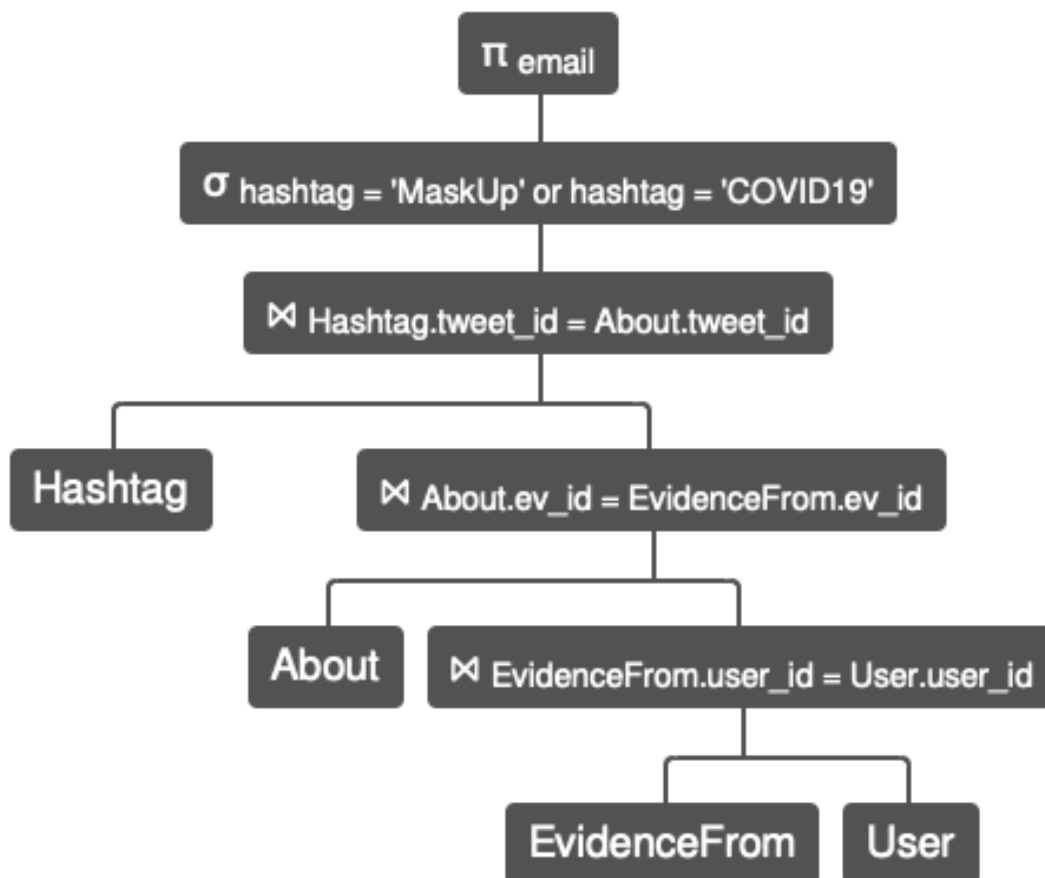
Evidence.url	Verification.comment	User.name_first	User.name_last
http://states-covid-numbers.org	Masks works! Check the CDC	Jonathan	Howard
http://states-covid-numbers.org	Masks works! Check the CDC	Gina	Miranda
http://florida-covid19.gov	Masks works! Check the CDC	Jonathan	Howard
http://florida-covid19.gov	Masks works! Check the CDC	Antonio	Olson
http://florida-covid19.gov	Masks works! Check the CDC	Gina	Miranda
https://cdc.gov	Masks works! Check the CDC	Jonathan	Howard
https://cdc.gov	Masks works! Check the CDC	Antonio	Olson
https://cdc.gov	Masks works! Check the CDC	Gina	Miranda
https://cdc.gov	Masks works! Check the CDC	Courtney	White
http://mask-works.info	Masks works! Check the CDC	Courtney	White
http://states-covid-numbers.org	Masks works! Check the CDC	Antonio	Olson
http://covid-is-not-hoax.net	Masks works! Check the CDC	Courtney	White

6. [15pts] Find the email addresses of all users who have submitted evidence about tweets that have either the hashtag “MaskUp” or the hashtag “COVID19”. **(Note: Hashtags are case-sensitive.)**

a) [9pts] Relational Algebra

$\pi_{\text{email}} (\sigma_{\text{hashtag} = \text{'MaskUp'} \text{ or } \text{hashtag} = \text{'COVID19'}} (\text{Hashtag} \bowtie \text{Hashtag.tweet_id} = \text{About.tweet_id} (\text{About} \bowtie \text{About.ev_id} = \text{EvidenceFrom.ev_id} (\text{EvidenceFrom} \bowtie \text{EvidenceFrom.user_id} = \text{User.user_id} (\text{User})))))))$

b) [3pt] Parse Tree



c) [3pts] Result

$\pi_{\text{email}} (\sigma_{\text{hashtag} = \text{'MaskUp'} \text{ or } \text{hashtag} = \text{'COVID19'}} (\text{Hashtag} \bowtie \text{Hashtag.tweet_id} = \text{About.tweet_id} (\text{About} \bowtie \text{About.ev_id} = \text{EvidenceFrom.ev_id} (\text{EvidenceFrom} \bowtie \text{EvidenceFrom.user_id} = \text{User.user_id} (\text{User}))))))$

User.email

davis_holly86@hotmail.com

pau.miller@yahoo.com

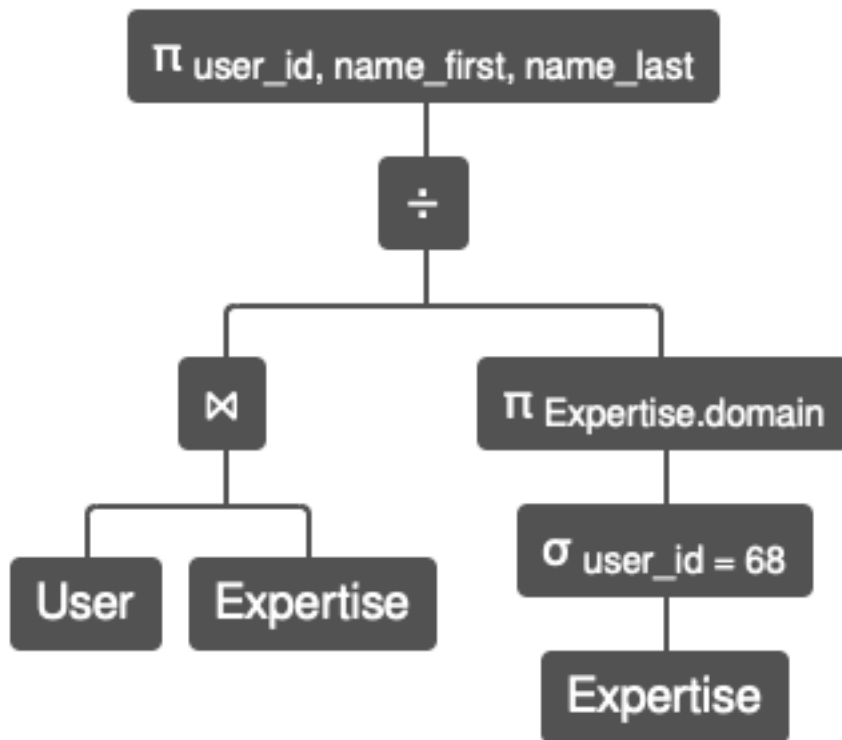
bradshaw73051@gmail.com

7. [15pts] Find the user IDs, first names, and last names of checkers that have **all** the domains of expertise from the user with ID = 68. (Note: Your answer will include the “ID = 68” checker as well, of course.)

a) [9pts] Relational Algebra

$\pi_{\text{user_id, name_first, name_last}} (\text{User} \bowtie \text{Expertise} \div (\pi_{\text{Expertise.domain}} \sigma_{\text{user_id} = 68} \text{Expertise}))$

b) [3pt] Parse Tree



c) [3pts] Result

$\pi_{\text{user_id, name_first, name_last}} (\text{User} \bowtie \text{Expertise} \div (\pi_{\text{Expertise.domain}} \sigma_{\text{user_id} = 68} \text{Expertise}))$

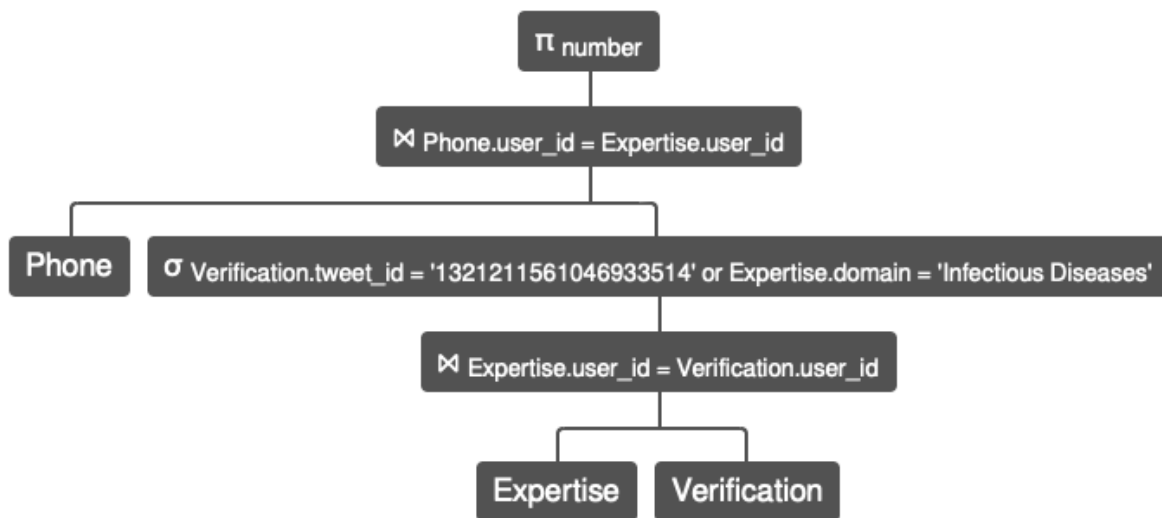
User.user_id	User.name_first	User.name_last
40	Lauren	Rhodes
68	Darren	Ortiz
87	Anthony	Monroe

8. [10pts] List the phone numbers of checkers who have either verified the tweet with the id “1321211561046933514” or who are experts in “Infectious Diseases”.

a) [6pts] Relational Algebra

$\pi_{\text{number}} (\text{Phone} \bowtie \text{Phone.user_id} = \text{Expertise.user_id} (\sigma \text{ Verification.tweet_id} = '1321211561046933514' \text{ or } \text{Expertise.domain} = 'Infectious Diseases' (\text{Expertise} \bowtie \text{Expertise.user_id} = \text{Verification.user_id} (\text{Verification}))))$

b) [1pt] Parse Tree



c) [3pts] Result

$\pi_{\text{number}} (\text{Phone} \bowtie \text{Phone.user_id} = \text{Expertise.user_id} (\sigma \text{ Verification.tweet_id} = '1321211561046933514' \text{ or } \text{Expertise.domain} = 'Infectious Diseases' (\text{Expertise} \bowtie \text{Expertise.user_id} = \text{Verification.user_id} (\text{Verification}))))$

Phone.number
001-070-249-0204
001-337-445-5627x321
193-407-5790x179
524.899.8641
164.768.4712x8904
403-156-1446