UNOFFICIAL QUIZ *for* PRACTICE

QUIZ 11

Computer Science 61A . November 19, 2015 . alvinwan.com/cs61a

This quiz will not count towards your grade. It exists to simply gauge your understanding. You will have 5 minutes to complete this quiz. In that timespan, your goal is to complete the first question and at least attempt the second.

01. CALLING ALL SQUARES

Write a SQL statement that finds all perfect squares from 156 to 1145.

```
> select * from squares  # expected output

169
196
...
1024
1089


create table squares as  # code here

  with

    i(n) as (

      select ___ union

      select _____ from i _____

    )

  select _____ as n

    from _____, _____

    where _____;
```

02. SUMUKH PHONE HOME

Sumukh is trying to escape an angry turkey horde and a Thanksgiving gone horribly wrong. He has a map G containing all nodes between him and the escape spaceship. However:

1. All nodes only allow travel in one direction, meaning he can walk from a to b but not b to a. You can assume that no cycles exist.
2. Sumukh can only move 2x as fast as a turkey. He can only travel at maximum 300 mi. before the swarm of turkeys close in on him.

Write a SQL statement that, given a table G of nodes, will generate all possible paths to the spaceship, along with the path's total distance. All paths should end at "spaceship".

```
> .schema
G(str start, str finish, int dist)  # added datatypes

> select * from paths # expected output

Soda dungeon,San Francisco,spaceship|100
Cory,Prof. DeNero's office,San Jose,San Francisco,spaceship|150
...

create table paths as

  with

    candidates(_____, _____, path, dist) as (

      select _____ from G union

      select _____

        from _____ as p1, _____ as p2

        where _____

          and _____

    )

  select path, dist as distance from candidates where finish = "spaceship";
```