Public Service Announcement

"Camp Sudo is looking for motivated, qualified teaching fellows to lead 5-week intensive computer science summer camps in the Bay Area! You and a colleague will inspire young high school minds through code education by leading them on a curriculum that covers basic computer science fundamentals (HTML, CSS, JS). The position is stipended and relocation will be made available. Applications due APRIL 22ND, 2016. Online Application at [http://bit.ly/1UOMFJn](http://bit.ly/1UOMFJn) and Job Description at [http://bit.ly/1qagzPl](http://bit.ly/1qagzPl). Questions? Email chenchen@campsudo.org <chenchen@campsudo.org>.

Lecture 32: More SQL

- Abstractly, a select statement that lists multiple tables filters all possible combinations of rows from those tables.
  - create table T1 as
    - select "a" as val union select "b";
  - create table T2 as
    - select 1 as val union select 2;
  - select T1.val, T2.val from T1, T2;
    - a|1
    - a|2
    - b|1
    - b|2

Comparison to Python

- This includes the case where the same table is named twice, as in
  - select A.val, B.val from T1 as A, T1 as B;
    - a|a
    - a|b
    - b|a
    - b|b
- Thus, the select ... from ... part is rather like the for part of a list comprehension in Python:
  - [ (A.val, B.val) for A from T1 for B from T1 ]
- The where clause is now a filter, like the if clause in a list comprehension.
  - select A.val, B.val from T1 as A, T1 as B
    - where A.val <= B.val;
      - a|a
      - a|b
      - b|b

Expressions

- Familiar arithmetic is possible:
  - select 3 + 4;
    - 7
  - select 3+GP from grade_values;
    - 7
    - 7
    - 6.7
    - 6
    - 6.3
    - ...
- Also string operations (not quite like Python):
  - select First || " " || Last from students;
    - Jason Knowles
    - Valerie Chan
    - ...

Aggregation

- Certain expressions aggregate results:
  - select avg(GP) from grades, grade_values
    - where Letter=Grade and SID = 101;
    - 3.25
  - select max(GP) from grades, grade_values
    - where Letter=Grade and SID = 101;
    - 3.7
  - select count(GP) from grades, grade_values
    - where Letter=Grade and SID = 101;
    - 4