
CS 61A Structure and Interpretation of Computer Programs

Spring 2017

DISCUSSION QUIZ 11 SOLUTIONS

1. (5 points) The Powers that Three

Write a recursive `select` statement to compute the powers of three from $3^0, 3^1, \dots, 3^8$. You should not need all of the lines provided (an ideal solution will only use two or three).

```
with threes(pwr) as (  
  select 1 union  
  select pwr * 3 from threes where pwr <= 2187  
)  
select pwr from threes;
```

2. (5 points) Cats!... the second most popular pets in the US

We can also use SQL to determine the anagrams of a word! Let's try using SQL to find the anagrams of "cats". (Remember that string concatenation in SQL is performed using the `||` operator.)

```
with given(char, weight) as (  
  select 'c', 1 union  
  select 'a', 10 union  
  select 't', 100 union  
  select 's', 1000  
)  
select a.char || b.char || c.char || d.char  
from given as a, given as b, given as c, given as d  
where a.weight + b.weight + c.weight + d.weight = 1111;
```