

CS1315 Spring 2004

Pre-quiz 3

Your name: _____

Your GTnum (PRISM username): _____

Breakout Day and Time: _____

(12 points) 1. *Short Essay:* Using your new CS1315 knowledge of computing, help the people you know understand computers better:

a) It's just one week until Christmas and your mom calls you frantic. She won't have time to do her shopping at the malls and the catalog website where she tried to buy gifts told her that the site had experienced a database error and wouldn't be working until late tomorrow. "Why would the site rely on a database anyway and why does that prevent me from looking at the catalog?" she asks. Having just finished your CS1315 class, you calmly respond to Mom's questions and then offer to help her finish up her shopping.

b) Before your CS class, you started to do some initial online research for a big class project. Unfortunately, you don't remember the page number of the journal you were reading; all you remember is the title of the article and there is no Table of Contents. To find your place again, you start scrolling through the journal from the first page. What type of search are you using? Name another search type that could help you find your page more quickly (*if* the articles were sorted in alphabetical order).

c) There are three categories of computer problems that we've talked about in this class: Class P, Intractable, and Class NP. Define and give an example of each.

d) Why is PhotoShop so much faster than JES?

(8 points) 2. Among the most common letters in the English language is the vowel 'E' and the consonants 'T', 'R', and 'S'. Write a program **commonLetters** to count this vowel and these three consonants in an input string, and then print the letter with the highest count as well as printing its count, i.e., "The letter E was most common and appeared 17 times."

You might think about Count 'Em Up from the midterm review:

```
def countAs(string):
    countA=0
    countB=0
    countC=0
    for letter in string:
        if letter=='a':
            countA=countA+1
        if letter=='b':
            countB=countB+1
        if letter=='c':
            countC=countC+1
    print 'As=',countA,' Bs=',countB,' Cs=',countC
```

You might also want to look at the database examples on page 253-255, or consider hash tables (page 256).

You might also think about the function **max()** and the method **sort()** for lists.

```
>>> table={}
>>> table["a"]=1
>>> print table["a"]
1
>>> table["a"]=table["a"]+1
>>> print table["a"]
2
>>> print table
{'a': 2}
```

You are welcome to collaborate on this pre-quiz. Please write the names of your collaborators below: