



In-class exercises

GRA 4142 Data Management and Python Programming

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Write a function that accepts an integer number and then calculates and returns the sum of its digits. Then use this function to find out what positive integers less than 10000 have the property that they are equal to the cube of their digit sum.

Write a function that accepts a string and prints out a table showing its unique characters and for each character the number of occurrences.

Test your function with a few sample strings. For example, if the name of the function is `stats`, then `stats('banana')` will print:

```
b | 1 time(s)
a | 3 time(s)
n | 2 time(s)
```

Extra challenge: print the table sorted by the number of occurrences, from the most frequent character to the least frequent one.

In *shakespeare_sonnets.txt* you will find the text of the first three sonnets by William Shakespeare. Write a program to answer the following questions:

- ▶ How many words are there in the text? (Answer: 336)
- ▶ How many unique words are there in the text?
- ▶ What is the most frequent word?
- ▶ Extra challenge: Which three words are the most frequent and how many times they have occurred in the text?

There are some words that contain ' or - inside. Keep these words as they are, i.e. do **not** split e.g. *self-substantial* into *self* and *substantial*.

Notes:

- ▶ Pay attention to newlines, quotes and punctuation marks (such as dot, question mark, comma, colon and semicolon).
- ▶ *Hello* and *hello* are the same word.