Digital World (2018)

Week 6, S1: Manipulating Strings

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From lists to strings

- if you can iterate over lists and extract their elements, you already know how to do the same for strings

-11 -9 -7 -5 -3 -1
-10 -8 -6 -4 -2

string = “nasi kerabu”

0 2 4 6 8 10
1 3 5 7 9

- a key difference is that strings are immutable

=> *operations such as string[10] = ‘i’ will cause an error*
=> *“manipulate” strings by creating new ones from substrings*

Substrings

string[start:stop]

string[start:stop:step]

stop but <u>don't</u> include!

-11 -9 -7 -5 -3 -1
-10 -8 -6 -4 -2

string = "nasi kerabu"

0 2 4 6 8 10
1 3 5 7 9

string[0:4] string[-6:] string[-2:-5:-1] string[::-1]

'nasi' in string string.find('kerabu') string.find('kukus')

From *nasi kerabu* to *nasi goreng merah*

string = string[0:5] + 'goreng merah'

Manipulating strings?

Python might already have an efficient implementation

- save yourself the work! check the online reference first:

  => https://docs.python.org/3/library/stdtypes.html#string-methods

- str.isalpha(), str.isalnum(), str.isdigit(), …

- there are also some useful constants in the string library

  => https://docs.python.org/3/library/string.html#module-string

String comparisons?

‘a’ < ‘b’

‘kerabu’ < ‘goreng’

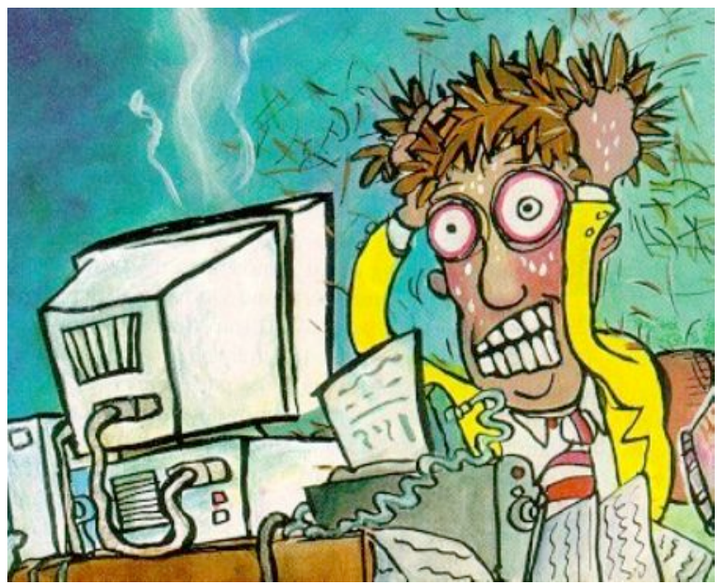
‘dog’ < ‘doghouse’

‘dog’ < ‘Doghouse’

Comparing letters: *a rather silly game*

- the computer secretly chooses a letter (from a-z or A-Z)
- the user is challenged to choose a letter with an ordinal value that is either >= or <= that of the computer's letter
- the difference in ordinal values is returned as the number of points

  => *a lower score is better!*



Summary

- string elements can be accessed and iterated over as if they were lists of characters

- however, strings are immutable; "change" them by creating new strings from substrings

  => *use the slicing notation to extract substrings*

- strings can be compared based on ordinal values

- Python 3 provides many useful functions for strings