CSCI 201: Introduction to Programming
Sheet 06: Strings & Lists
Fall 2019

Nile University

State whether true or false:-

1) A Python string literal is always enclosed in double quotes.
2) The last character of a strings is at position len(s) - 1 .
3) A string always contains a single line of text.
4) In Python '4' + "5" is "45".
5) Python lists are mutable, but strings are not.
6) ASCII is a standard for representing characters using numeric codes.
7) The split method breaks a string into a list of substrings, and join does the opposite.
8) The add method can be used to add an item to the end of a list.

Multiple Choice

1) Accessing a single character out of a string is called:
   a) slicing b) concatenation c) assignment d) indexing
2) Which of the following is the same ass [0 : -1] ?
   a) s [- 1] b) s [:] c) s [: len (s) - 1] d) s [0 : len (s)]
3) What function gives the Unicode value of a character?
   a) ord b) ascii c) chr d) eval
4) Which of the following cannot be used to convert a string of digits into a number?
   a) int b) float c) str d) eval
5) A successor to ASCII that includes characters from (nearly) all written languages is
   a) TELLI b) ASCII++ c) Unicode d) ISO
6) Which string method converts all the characters of a string to upper case?
   a) capitalize b) capwords c) uppercase d) upper
7) The string "slots" that are filled in by the format method are marked by:
   a) % b) $ c) [] d) {}
8) Which of the following is not a file-reading method in Python?
   a) read b) readline c) readall d) readlines
9) The term for a program that does its input and output with files is
   a) file-oriented b) multi-line c) batch d) lame
10) Before reading or writing to a file, a file object must be created via
   a) open b) create c) File d) Folder

Discussion:

1. Given the initial statements:
s 1 =" spam"
s2 = "ni ! "
Show the result of evaluating each of the following string expressions.
   a) " The Knights who say , " + s2
   b) 3 * s 1 + 2 * s2

c) s 1 [1]
d) s 1 [1 : 3]
e) s 1 [2] + s2 [: 2]
f) s 1 + s2 [-1]
g) s 1 . upper ()
h) s2 . upper ( ) . ljust (4) * 3

2. Given the same initial statements as in the previous problem, show a Python expression that could construct each of the following results by performing string operations on s1 and s2.

a) " NI "
b) "ni ! spamni ! "
c) "Spam Ni ! Spam N1. .I Spam Ni ! "
d) " spam"
e) [" sp " , "m"]
f) " spm"

3. Show the output that would be generated by each of the following program fragments:

a) for ch in " aardvark" :
    print (ch)
b) for w in " Now is the winter of our discontent . . . " . split ( ):
    print (w)
c) for w in "Mississippi " . split("i") :
    print (w , end= " ")
d) msg = " "
   for s in " secret ".split("e"):
    msg = msg + s
    print (msg)
e) msg = " "
   for ch in "secret" :
    msg = msg + chr (ord (ch) + 1)
    print (msg)

4. Show the string that would result from each of the following string formatting operations. If the operation is not legal, explain why.

a) " Looks l ike {1} and {0} for breakfast " . format (" eggs " , " spam")
b) " There is {0} {1} {2} {3}" . format (! , " spam" , 4 , " you")
c) "Hello {0} " . format (" Susan" , " Computewell ")
d) " {0 : 0 . 2f} {0 : 0 . 2f}" . format (2 . 3 , 2 . 3468)
e) " {7 . 5f} {7 . 5f} " . format (2 . 3 , 2 . 3468)
f) "Time left {0 : 02} : {1 : 05 . 2f } " . format (1 , 37 . 374)
g) " {1 : 3} " . format (" 14")

Programming Exercises:

1- An acronym is a word formed by taking the first letters of the words in a phrase and making a word from them. For example, RAM is an acronym for "random access memory." Write a program that allows the user to type in a phrase and then outputs the acronym for that phrase. Note: The acronym should be all uppercase, even if the words in the phrase are not capitalized.

2- Numerologists claim to be able to determine a person's character traits based on the "numeric value" of a name. The value of a name is determined by summing up the values of the letters of the name where "a" is 1 "b" is 2 "c" is 3 up to "z" being 26 For example the name "Zelle" would have the value 26 + 5 + 12 + 12 + 5 = 60 (which happens to be a very auspicious number, by the way). Write a program that calculates the numeric value of a single name provided as input.

3- Write a program/function that counts the number of words in a sentence entered by the user.

4- Write a program/function that calculates the average word length in a sentence entered by the user.
