**String Functions**

*A* ***string*** *is a series of characters, delimited by quotation marks*. Here are examples of strings:

"My name is Fred"

"1232 Smyth Road"

"234-2342"

Notice the difference here:

x = "234-2342" # string

print(x)

x = 234-2342 # not a string

print(x)

**Searching for a string inside a string**

You can search a string with the ***in*** statement:

myString = "Arrrrrr!"

if 'r' **in** myString: # is ‘r’ in the string?

print ("yup")

else:

print ("nope")

Instead of using an else statement, you can ask if one string is NOT IN another:

if 'r' **not in** myString:

**Looping Through a String**

For loops are handy for looping through a string. Here's how it looks:

myString = "Hey look! A string!"

for x in myString: # for every letter in myString

print(x) # print it

In this example, the variable x represents each letter. We could use a better variable name than x:

myString = "Hey look! A string!"

for letter in myString: # go through every letter in myString

print(letter) # print it

See if you can understand this code:

math = "\*-+/=" # symbols we want to look for

myString = "3+4=7"

for symbol in math: # go through math symbols

if symbol in myString:

print ("Found this math symbol: ", symbol)

NOTE:

The **in** operator is a very handy shortcut of the search algorithm. However, for this course you must learn the search algorithm from scratch. That is, you must know how to write a program that does a search without the use of the in operator.

**Upper and Lower**

The string class has a number of useful functions that can be applied. The **upper**() and **lower**() functions are useful when getting input from the user. Here is an example:

myString = "Hey look! A string!"

x = myString.upper() # convert to upper case

print (x)

It’s useful to use the upper() function with an input statement, like this:

name = input("What is your name? ")

if name.upper() == "MICHAEL":

print ("Welcome, Michael!")

The point of this code is that the user can enter a word in any case, for example:

>>>What's your name? micHAeL

>>> Welcome, Michael!

**is-Functions**

A string can be tested for all kinds of things using ***is-functions***:

# Checks for letters

myString = "Hello there! How are you?"

print ("the letters are:")

for character in myString:

if character.***isalpha():*** #is the character a letter?

print (character , end = ",")

Other is-functions include ***isdigit(), isalnum(), isspace()***, ***isupper()***, ***islower()***.

**Strip**

Finally, the **strip()** function is used to strip the end of strings. The most common example of its use is to strip the return character (‘**\n**’) off the end of lines that are read from a file. Strip() could also be used to strip punctuation off the end of a word. See chapter 22 at the end for an example. We will use this function later in our data file assignments.

Before you do these assignments, makes sure you know how to:

* print every letter in a string, one at a time (using a for loop)
* print only certain letters in a string (e.g only a specific letter, such as “a”) using a for loop with an if statement inside.

**Exercises**

1. Ask the user to enter a short sentence. Print the sentence with every letter doubled. Only letters should be doubled, everything else is printed once only.

Enter a sentence: <This is great!>

TThhiiss iiss ggrreeaatt!

1. Ask the user for a sentence. Print the sentence back, except with the letter ‘b’ switched with the letter ‘p’ (and vice versa, switch p with b).

Enter a sentence: <Let’s play ball!>

Let’s blay pall!

1. Begin your program with a string called sentence. Print sentence out so that every word ends in “izzle”. For example:

Sentence: This is great

Thisizzle isizzle greatizzle

**keywords: *str, is-functions, isalpha(), isdigit(), isalnum(), isspace, isupper, islower(), in, split(), strip()***