Chapter 4.1: Data Types & Structures

NAME:

Introduction

So far in the programs you have written you have used two to four different data types. The main point of this session is to understand why we have to specify data types in our code. The objectives of this session include:

- Explaining the term data type and being able to use the correct data type in your programs.
- Carry out simple string manipulations.

Use the lecture for this session to help you. The lecture can be found on the google classroom and also on the Computing department website www.nhgscomputing.com

Tasks

1. Complete the table below

Data	Data Type
Letter eg 'A'	Character
Symbol eg '('	Character
Telphone number eg '0770278567362'	String
The answer to the question 'Do you want mayo?'	String if the answer is types yes or no. Boolean
Is the aeroplane above 30000ft?	Boolean or if typing yes or no it's String
The number of marbles John owns.	Integer
The exact time of 100m race.	Real (float in python)
The space bar	String
Bernies percentage score in a test to two decimal places	Real
Is the appointment finished?	Boolean
The number of fish in the tank	Integer
Firstname	String
E-mail address	String
The + sign	Character

2. What does the term Concatenation mean?

A series of interconnected things. Basically a fancy word for joined together

3. Create a program that has the string variable below.

“Ask not what your country can do for you, but what you can do for your country.”

Your program should do the following:

i. Return how long the string is using the **.length** function
ii. Return from characters 5 - 14
iii. Create a loop that will count how many times the letter ‘a’ is in the string.

Print screen your commented code in the box below.

i

```
a Types and Structures/Chapter 4.1 Question 3.py
The quote is:  Ask not what your country can do for you, but what you can do for
 your country.
The length of the quote is: 79
 Here are the characters 5 to 14: ot what y
The letter 'a' is seen this many times: 10
>>>
```

```
quote = "Ask not what your country can do for you, but what you can do for your
print("The quote is: ", quote)

# Length of quote
len(quote)
print("The length of the quote is:", len(quote))

# Characters 5-14
breakingItUp = quote[5:14]
print(" Here are the characters 5 to 14:", breakingItUp)

# How many times the letter 'a' is in the quote
print ("The letter 'a' is seen this many times:", quote.index("a"))
```

Ii Above

Iii Above

To find position of as and As

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```
a Types and Structures\Chapter 4.1 Question 3.py
The quote is:  Ask not what your country can do for you, but what you can do for
 your country.
The length of the quote is: 79
 Here are the characters 5 to 14: ot what y
The letter 'a' is seen this many times: 10
10
[10, 27, 48, 56]
[0]
>>>
```

```
quote = "Ask not what your country can do for you, but what you can do for your
print("The quote is: ", quote)

# Length of quote
len(quote)
print("The length of the quote is:", len(quote))

# Characters 5-14
breakingItUp = quote[5:14]
print(" Here are the characters 5 to 14:", breakingItUp)

# How many times the letter 'a' is in the quote
print ("The letter 'a' is seen this many times:", quote.index("a"))

# Find a
print(quote.find("a"))


s = quote
c = 'a'
print ([pos for pos, char in enumerate(s) if char == c])

# For capital As
s = quote
c = 'A'
print ([pos for pos, char in enumerate(s) if char == c])
```

Resources

https://pythonschool.net/basics/string-operation-and-math-unit-exercises/

https://www.tutorialspoint.com/python/python_strings.htm

https://youtu.be/H-GiO-UXd6Y

https://repl.it/@djugroop/LinedRipeStinkbug DJ Code examples