Intro to Computing—CSCI-1310

Resources
Assignments
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Mon, Feb 23, 2015 · Lab

Lab 7—Sets & Dictionaries

Objectives

Write a program:

Define functions to use sets
Define functions to use dictionaries

Part 1—Sets

Define a function to take in a DNA string as a parameter. The DNA string consists of a combination of several chemical bases namely A, C, T, G. Write a program to find the unique chemical bases present in the string. Also print out the number of unique chemical bases present.

Hint: Use a `set()` to find the unique chemical bases.

Input

```
DNAString = "CGCAAATTTGCCGGATTTCCTTTGCTGTTCCTGCATGTAGTTTAAACGAGATTGCCAGCACCGGGTATCATTCACCATTTT
```

Output

```
The DNA string has 4 unique elements.
The elements are: {'A', 'G', 'C', 'T'}
```

Name your program Lab7Part1.py

Part 2—Dictionaries

Define two functions named `main()` and `name_lengths()`. The `main()` function should:

Call `name_lengths()`
Pass a list of names to it as a parameter
Capture the result in a variable.
Print out the names and their lengths in the format below.

The `name_lengths()` function should:

Loop through each name in the list and find its length.
Create a dictionary that will store the names as keys and the length of the names as values.
Return the dictionary to the caller.

Hint: You can use `rjust()` and `ljust()` for formatting the output.

Input

```
names = [
    "Romo",
    "McNabb",
    "Brady",
    "Manning",
    "Rodgers",
    "Brees",
    "Kaepernick",
    "Flacco"
]
```

Output

```
******************************
Name                    Length
******************************
Kaepernick                  10
Romo                         4
Brees                        5
Flacco                       6
McNabb                       6
Manning                      7
Brady                        5
Rodgers                      7
```

Your output may list the names in a different order. It's important to understand why.

Name your program Lab7Part2.py

Zip and submit

To get credit for this lab exercise:

Submit your code to Moodle as a zip file named Firstname_Lastname_Lab7.zip
Show the TA your code and run your program.

Classes & objects Classes, functions, and methods