# **CS 115 - Introduction to Programming in Python**

# **Lab 05**

**Lab Objectives:** Tuples, Lists, Dictionaries

**Notes:**

1. Upload your solutions as **a single .zip file** to the Lab05 assignment for your section on Moodle. You must use the following naming convention: Lab05\_Surname\_FirstName.zip where Surname is your family name and FirstName is your first name.
2. You should only use functionality covered in CS115 in your solution.
3. Include a docstring for your functions.
4. a) Write a function **sameFirstLast()** that takes a sentence of words (each word is separated from the other by a single space and there is a space at the end of the sentence also) and finds and returns a tuple of words which start and end with the same character. Case sensitivity should be ignored.

b) Write a script **(Lab5Q1.py)** to input a sentence and display the words in the tuple returned by the **sameFirstLast** function.

**Sample Run:**

Enter a sentence with a single space in between the words and at the end: That girl swims in the sea

Words which start and end with the same character:

That

swims

1. a) Write a function **longest** which takes a list of strings as a parameter, finds the length of the longest string in the list. All of the words which have the same length as the longest word will be stored in a new list.

b) Write a script **(Lab5Q2.py)** that initializes a list of strings, displays the original list and then displays the new list returned by the **longest** function.

**Sample Run:**

Original List:

['abc', 'qwer', 'ss', 'x123', 'nn', 'at', '4321']

New List:

['qwer', 'x123', '4321']

1. **a)** Write a function **separate** that takes a list of n integer elements and produces a dictionary where the keys are the the integers in the list (duplicate numbers will not be stored) and the values will be tuples of having two integer numbers for the **two halves** of the number in the key.

eg. If the number is even like 8, halves will be 4 and 4,

If the number is odd like 9, halves will be 5 and 4.

**b)** Write a script **(Lab5Q3.py)** to initialize a list of integers and display the dictionary returned by the **separate** function.

**Sample Run:** for list sp

{5: (3, 2), 8: (4, 4), 12: (6, 6), 17: (9, 8)}