**HW 7**

**Learning Experience**

Part 1:

The first part of the assignment was a good practice to get an introduction to tuples. The program was about to reverse a tuple in a different output. This assignment is easy if we implement the right function; however, if we want to do the whole algorithm to reverse a tuple, it may take several lines of code and time. First, in order to reverse a tuple, I used the built-in function called sorted() which takes whatever data structure and return a list of those elements in order. But we need this list to be in descending order, so I added the second parameter “reverse=True” to get the desired output. However, the built-in function returns a list, so I converted that list as a tuple with the tuple() initialization , where result is the list to be converted.

Next, the assignment asks to swap the tuple values and order them in ascending and descending. So, in order to do this, I created a new tuple variable that holds a copy of the first tuple , and then swap them with the following code:

A picture containing text, clock

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Once I have them swapped, I use the built-in method sorted() to sort both tuples in ascending and descending respectively

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Part 2:

The second part of the assignment was a challenging coding problem. I remember I did this code problem in java by using HashMap. However, since we have dictionaries, which are similar to HashMap, I used dictionary instead of using tuples. The outcome of this problem is to check if two strings are isomorphic. Isomorphic derives from iso = equal, and morphic = form, which means two strings that have same or equal form in their characters. To illustrate, we have two strings: string1 = “cicle” and string2 = “title”. If we replace ‘c’ to ‘t’ from string1, then we will obtain the word “title” which indeed both are isomorphic. However, the worst case is when they are not isomorphic. To illustrate, string = “foo” and string2 = “bar”. If we replace all ‘f’ to ‘b’ and ‘o’ to ‘a’, then will get the word “baa”. We will need the second ‘o’ from “foo” to be ‘r’, but ‘o’ is already replacing ‘a’ , it cannot replace two characters at the same time. The following code check if two strings are isomorphic:

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First, I checked the length of both strings if they are equals. If they are not equals, so it is not possible to both be isomorphic and return false. They are two cases where both strings cannot be isomorphic. One is when a character is mapping two characters or when two characters are mapping one single character. For both cases, the function will return False. Otherwise, return True. Overall, this was a good coding problem that actually is in *LeetCode* and asked in many coding interviews. I am glad that I was able to solve this problem again and in another programming language.

**Part 1 Test 1**

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**Part 2 Test 1**

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