# **Programming Assignment Unit 7**

Computer Science, University of the People

CS 1101-01 Programming Fundamentals - AY2024-T1

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## Tuples and Loops

For this assignment, we were asked to write a program that initializes and then manipulates a dictionary. The manipulation will take the original dictionary and move the values to be the new dictionary keys and the keys of the old dictionary will become the dictionary values. This will produce an inverted dictionary.

The following is the function that does the actual inversion logic:



The first thing we do in the function is create a dictionary stub that we will populate with the new data as we iterate over our original dictionary. Our first loop iterates over the original dictionary using the ‘items’ function which will provide us with a tuple containing the current key-value pair containing the student and his list of courses. The next step is that we will iterate over the list of courses, and for each iteration of the loop, we will perform the following logic. We are checking to see for each course if we have already created a key for each in our new dictionary. If we haven’t created a key, we create a new one and initialize it with a list containing our current student. If we do already have a key, we will append the current student to the list that already exists in the dictionary.



The next step is to create and initialize a sample dictionary. Then we pass the sample dictionary into our function and store the result in a variable. We can then output our original and inverted dictionaries to the console.

## References

Python 3 Documentation

<https://docs.python.org/3/>

Think Python - How to Think Like a Computer Scientist (2nd Edition, Version 2.4.0)

Chapters 1-11

Source Scripts:

