

## Assignment-2

1. Write a Python program to match key values in two dictionaries.  
Sample dictionary: {'key1': 1, 'key2': 3, 'key3': 2}, {'key1': 1, 'key2': 2}  
Expected output: key1: 1 is present in both x and y.
2. Write a Python program to create a dictionary from two lists without losing duplicate values.  
Sample lists: ['Class-V', 'Class-VI', 'Class-VII', 'Class-VIII'], [1, 2, 2, 3]  
Expected Output: defaultdict(<class 'set'>, {'Class-VII': {2}, 'Class-VI': {2}, 'Class-VIII': {3}, 'Class-V': {1}})
3. Write a Python program to replace dictionary values with their sum.  
Example: Input: {'id': 1, 'subject': 'math', 'V': 70, 'VI': 82},  
                  {'id': 2, 'subject': 'math', 'V': 73, 'VI': 74},  
                  {'id': 3, 'subject': 'math', 'V': 75, 'VI': 86}  
Output: [{'subject': 'math', 'id': 1, 'V+VI': 76.0},  
          {'subject': 'math', 'id': 2, 'V+VI': 73.5},  
          {'subject': 'math', 'id': 3, 'V+VI': 80.5}]
4. Write a Python program to sort a tuple by its float element.  
Sample data: [('item1', '12.20'), ('item2', '15.10'), ('item3', '24.5')]  
Expected Output: [('item3', '24.5'), ('item2', '15.10'), ('item1', '12.20')]
5. Write a Python program to remove an empty tuple(s) from a list of tuples.  
Sample data: [(), (), ('), ('a', 'b'), ('a', 'b', 'c'), ('d')]  
Expected output: [('), ('a', 'b'), ('a', 'b', 'c'), 'd']
6. Write a Python program to convert a list of tuples into a dictionary.  
Example: Input: ((2, "w"),(3, "r"))  
Output: {'w': 2, 'r': 3}
7. Write a Python program to count the elements in a list until an element is a tuple.  
Example: Input: [10,20,30,(10,20),40]  
Output: 3
8. Write a Python program to find maximum and the minimum value in a set.  
Example: Input: ([5, 10, 3, 15, 2, 20])  
Output: Maximum value: 20, Minimum value: 2
9. Write a Python program to create set difference, union, and intersection of sets.  
Example: Input: set(["green", "blue"]), set(["blue", "yellow"])  
Output: Difference: {'blue'}, {'green'}, Union: {'yellow', 'green', 'blue'}  
Intersection: {'blue'}
10. Write a Python program to make a chain of function decorators (bold, italic, underline etc.).  
Example: Input: hello world                      Output: ***hello world***
11. Write a Python program to calculate the harmonic sum of n-1.  
Note: The harmonic sum is the sum of reciprocals of the positive integers.  
Example :  
$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \dots$$
12. Write a Python program of recursion list sum.  
Test Data: [1, 2, [3,4], [5,6]]  
Expected Result: 21
13. Write a Python program for binary search.  
Example: Enter the sorted list of numbers: 3 5 10 12 15 20  
The number to search for: 12  
12 was found at index 3.

14. Write a Python program to sort a list of elements using the bubble sort algorithm.  
Example: *Sample Data*: [14, 46, 43, 27, 57, 41, 45, 21, 70]  
*Expected Result*: [14, 21, 27, 41, 43, 45, 46, 57, 70]
15. Write a Python program to sort a list of elements using the selection sort algorithm.  
Example: *Sample Data*: [14, 46, 43, 27, 57, 41, 45, 21, 70]  
*Expected Result*: [14, 21, 27, 41, 43, 45, 46, 57, 70]
16. Write a Python program to sort a list of elements using the merge sort algorithm.  
Example: Split Sample Data: [14, 46, 43, 27, 57, 41, 45, 21, 70]  
Merge and Sort(*Expected Result*): [14, 21, 27, 41, 43, 45, 46, 57, 70]
17. Write a Python program using functions that asks the user for a long string containing multiple words. Print back to the user the same string, except with the words in backwards order.  
For example, say I type the string: My name is Michele; Then I would see the string: Michele is name My; shown back to me.
18. Define a function reverse() that computes the reversal of a string.  
For example, reverse("I am testing") should return the string "gnitset ma I".
19. Write a Python program to find the available built-in modules.  
Example: math, random, uuid, sys, syslog etc.
20. 12Write a Python program to get the size of an object in bytes by using module "sys".  
Example: Memory size of 'one' = 52 bytes  
Memory size of 'four' = 53 bytes  
Memory size of 'three' = 54 bytes
21. Using the module random and time in python generate a random date between given start and end dates.  
Example: Printing random date between 1/1/2016 and 3/23/2018  
Random Date = 02/25/2016
22. Generate three random password string of length 10 with special characters, letters, and digits by using python modules (random and string).  
Example: First Random String: yrjmcyi^VS  
Second Random String: |}Hd]!^>~l  
Third Random String: 3^a93@x=|Z
23. Write a python code using module "uuid" to generate universally unique secure random string of length 8.  
Example: random string using a UUID module is: 9C8E13FF  
random string using a UUID module is: 9cb3561d
24. Write a python code using module "random" to generate a 100 Lottery tickets and pick two lucky tickets from it as a winner.  
**Note:** You must adhere to the following conditions:
  1. Lottery number must be 10 digits long.
  2. All 100 ticket number must be unique.Example: Creating 100 random lottery tickets  
Lucky 2 lottery tickets are [7184805696, 7380986204]

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