Assignment-3

List, Tuples and Dictionary

1. Write a Python program to unpack a tuple into several variables.
2. Write a Python program to create a tuple of numbers and print one item.
3. Write a Python program to convert a tuple to a string.
4. Write a Python program to get the 4th element from the last element of a tuple.
5. Write a Python program to create the colon of a tuple.
6. Write a Python program to find the index of an item in a tuple.
7. Write a Python program to remove an item from a tuple.
8. Write a Python program to reverse a tuple.
9. Write a Python program to replace the last value of tuples in a list.

    Sample list: [(10, 20, 40), (40, 50, 60), (70, 80, 90)]

    Expected Output: [(10, 20, 100), (40, 50, 100), (70, 80, 100)]

10. 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']

11. Write a Python program to calculate the product, multiplying all the numbers in a given tuple.

    Original Tuple:

    (4, 3, 2, 2, -1, 18)

    Product - multiplying all the numbers of the said tuple: -864

    Original Tuple:

    (2, 4, 8, 8, 3, 2, 9)

    Product - multiplying all the numbers of the said tuple: 27648

12. Write a Python program to calculate the average value of the numbers in a given tuple of tuples.

    Original Tuple:

    ((10, 10, 10, 12), (30, 45, 56, 45), (81, 80, 39, 32), (1, 2, 3, 4))

    Average value of the numbers of the said tuple of tuples:

    [30.5, 34.25, 27.0, 23.25]

    Original Tuple:

    ((1, 1, -5), (30, -15, 56), (81, -60, -39), (-10, 2, 3))

    Average value of the numbers of the said tuple of tuples:

    [25.5, -18.0, 3.75]

13. Write a Python program to convert a tuple of string values to a tuple of integer values. Go to the editor

Original tuple values:

(('333', '33'), ('1416', '55'))

New tuple values:

((333, 33), (1416, 55))

 Write a Python program to compute the element-wise sum of given tuples.

Original lists:

(1, 2, 3, 4)

(3, 5, 2, 1)

(2, 2, 3, 1)

Element-wise sum of the said tuples:

(6, 9, 8, 6)

14. Write a Python function to remove duplicates from a list while preserving the order.
15. Write a Python a function to find the maximum sum sub-sequence in a list. Return the maximum value.
16. Write a Python function to find the longest common sub-sequence in two lists.
17. Write a Python function to sort a list of dictionaries based on values of a key.
18. Write a Python program to find all the pairs in a list whose sum is equal to a given value.
19. Write a Python program to iterate over dictionaries using for loops.
20. Write a Python program to sum all the items in a dictionary.
21. Write a Python program to multiply all the items in a dictionary.
22. Write a Python program to get the maximum and minimum values of a dictionary.
23. Write a Python program to sort a given dictionary by key.
24. Write a Python program to print all distinct values in a dictionary.

Sample Data : [{"V":"S001"}, {"V": "S002"}, {"VI": "S001"}, {"VI": "S005"}, {"VII":"S005"}, {"V":"S009"},{"VIII":"S007"}]

Expected Output : Unique Values: {'S005', 'S002', 'S007', 'S001', 'S009'}

25. Write a Python program to create and display all combinations of letters, selecting each letter from a different key in a dictionary. Go to the editor

Sample data : {'1':['a','b'], '2':['c','d']}

Expected Output:

ac

ad

bc

bd

26. Write a Python program to combine values in a list of dictionaries. Go to the editor

Sample data: [{'item': 'item1', 'amount': 400}, {'item': 'item2', 'amount': 300}, {'item': 'item1', 'amount': 750}]

Expected Output: Counter({'item1': 1150, 'item2': 300})

27. Write a Python program to get the top three items in a shop. Go to the editor

    Sample data: {'item1': 45.50, 'item2':35, 'item3': 41.30, 'item4':55, 'item5': 24}

    Expected Output:

    item4 55

    item1 45.5

    item3 41.3

28. Write a Python program to sort Counter by value. Go to the editor

    Sample data : {'Math':81, 'Physics':83, 'Chemistry':87}

    Expected data: [('Chemistry', 87), ('Physics', 83), ('Math', 81)]

29. Write a Python program to match key values in two dictionaries. Go to the editor

    Sample dictionary: {'key1': 1, 'key2': 3, 'key3': 2}, {'key1': 1, 'key2': 2}

    Expected output: key1: 1 is present in both x and y

30. Write a Python program to drop empty items from a given dictionary. Go to the editor

    Original Dictionary:

    {'c1': 'Red', 'c2': 'Green', 'c3': None}

    New Dictionary after dropping empty items:

    {'c1': 'Red', 'c2': 'Green'}

31. A Python Dictionary contains List as a value. Write a Python program to update the list values in the said dictionary. Go to the editor

    Original Dictionary:

    {'Math': [88, 89, 90], 'Physics': [92, 94, 89], 'Chemistry': [90, 87, 93]}

    Update the list values of the said dictionary:

    {'Math': [89, 90, 91], 'Physics': [90, 92, 87], 'Chemistry': [90, 87, 93]}