

### Assignment 4\_2021-batch

1. Write a program to flatten a given nested list structure.

Input: [0, 10, [20, 30], 40, 50, [60, 70, 80], [90, 100, 110, 120]]

Output: [0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120]

2. Take two integers R and C (as user input) and initialise a Matrix of dimension  $R \times C$  taking the values from the user using nested lists. Each of the R rows will be stored in lists and all the rows will be individual elements in a list. The individual input elements will be in the range (-999, 999). Print the matrix.

Input:

Enter no. of Rows: 4

Enter no. of Columns: 3

Enter element at Row: 1, Column: 1: 12

Enter element at Row: 1, Column: 2: 4

Enter element at Row: 1, Column: 3: -1

Enter element at Row: 2, Column: 1: 2

Enter element at Row: 2, Column: 2: 33

Enter element at Row: 2, Column: 3: 1

Enter element at Row: 3, Column: 1: -4

Enter element at Row: 3, Column: 2: 2

Enter element at Row: 3, Column: 3: 4

Enter element at Row: 4, Column: 1: 22

Enter element at Row: 4, Column: 2: 1

Enter element at Row: 4, Column: 3: 7

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12  4  -1
 2 33   1
-4   2   4
22   1   7
```

3. Given a list of values, write a program that removes duplicates from the list.

Input: [3, 7, 13, 9, 7, 5, 13, 17, 23, 17, 7, 29]

Output: [3, 7, 13, 9, 5, 17, 23, 29]

Input: ["A", "E", "E", "O", "A"]

Output: ["A", "E", "O"]

You may consider a fixed list defined in the code.

4.1 Take a set of non-zero integers from the user as input until the user enters 0. Store the inputs in a list.

4.2 Compute the average of the input numbers.

**5. 1** Make a list called **numbers** containing all the numbers from 1 to 100.

**5.2** Make another list **squares** that would contain each number from the list **numbers** followed by its square. i.e. squares should look like this: **squares**=[1,1,2,4,3,9,4,16,...,100,10000]

**6.** Take the dictionary called squares = {1: 1, 2: 4, 3: 9, 4: 16, 5: 25}. Using a loop modify squares by adding 4 more items to it 6:36, 7:49, 8:64, 9:81 and print out the modified dictionary. Remove the first key from the modified squares and print out the value associated with the key.

**7.** Take a nested list of the form arra = [[1, 2, 3, 4],[4, 5, 6, 7],[8, 9, 10, 11],[12, 13, 14, 15]]. Write a code to remove the last element of each nested list item (example: 4 from the first list, 7 from the second, etc.) and print the modified nested list.

**8.** Given a dictionary, write a program to find the sum of all values in the dictionary. You can choose the following dictionaries to test your code or make your own. Note that the values associated with the keys should be numbers and cannot be strings.

Input: 'a': 100, 'b':200, 'c':300

Output: 600

Input: 'x': 25, 'y':18, 'z':45

Output: 88

**9.** Consider the following tuple of tuples (t\_o\_t)

t\_o\_t = (('jan', 'feb', 'mar', 'apr', 'may', 'jun', 'jul'), ('sun', 'mon', 'tue', 'wed', 'thu', 'fri', 'sat'))

Using appropriate indexing of the tuple t\_o\_t, extract and print the items 'apr', 'fri' from t\_o\_t.

Then print following items in the given order: jan, ('sun', 'mon', 'tue', 'wed', 'thu', 'fri', 'sat')

**10.** Given a list, convert it into a dictionary by mapping alternate elements as key-value pairs.

If you use the following list as input: lst = [2, 3, 5, 6, 7, 8] for testing the code.

Output: {2: 5, 3: 6, 5: 7, 6: 8}