Assignments

Assignment 1

Question 1 - Convert Celsius to Fahrenheit

Convert temperature in degree Celsius °C to degree Fahrenheit °F

The temperature T in degrees Fahrenheit (°F) is equal to the temperature T in degrees Celsius (°C) times 9/5 plus 32

Example

input = -50, output = -58

input = 0, output = 32

input = 30, output = 86

Question 2 - Check Character type

Check whether an input character is an alphabet, digit or special character. If the input is a string instead of one character, take the first character of the string and evaluate whether it's alphabet, digit or special character.

for example:

input: 3 then output: digit

input: ! then output: special

input: a then output: alphabet

input: ball then output: alphabet

Question 3 - Find the number of days of a month

Find the number of days of a month, given the year and month.

For Example,

year=2018, month=1, output=31

year=2018, month=2, output=28

year=2016, month=2, output=29

Question 4 - Find the factorial of a number

Find the factorial of a number. This is the definition of factorial https://en.wikipedia.org/wiki/Factorial

For example:

input = 5, output = 120

input = 11, output = 39916800

input = 14, output = 87178291200

Assignment 2

Question 1 - Return the second largest integer of the list

You are given a list of integers, return the second largest integer of the list. If the list is having less than 2 integer, return -1

e.g.

input: [1], return -1

input: [1, 2, 3, 4, 5], return 4

input: [20, 30, 40, 50, 60], return 50

input: [1, 3, 4, 4], return 4 (the largest is 4, the 2nd largest is still 4 as there are two 4)

Question 2 - Sum of List of List

The input is a list of list, we want to sum the nested list to form a list of sum. Here's the example

All item in the list of list are integers

Input is: [], output is []

input is: [[],[1,2]], output is [0, 3]

Input is: [[1,1], [2, 2], [3,3]] , output is [2,4,6]

Input is: [[1,2], [2, 3], [3,4]] , output is [3,5,7]

Input is: [[1,2,3], [2, 3,4], [3,4,5],[4,5,6]] , output is [6,9,12,15]

Question 3 - Average of list of Integer

Given a list of integer, return the average. the output data type is float. the input will have at least one integer

input: [1, 1, 1, 1]. output 1.0

input: [1, 2, 3, 4]. output 2.5

input: [10]. output 10.0

input: [3,4,5] output 4.0

Question 4 - List of Word Longer than x character

Given a list of string, return the list with string which are longer than x characters

input: ['apple', 'orange', 'banana', 'watermelon'], 5

output ['orange', 'banana', 'watermelon']

input: ['apple', 'orange', 'banana', 'watermelon'], 6

output ['watermelon']

input: ['apple', 'orange', 'banana', 'watermelon'], 15

output []

input: ['apple', 'orange', 'banana', 'watermelon'], 2

output ['apple', 'orange', 'banana', 'watermelon']

Question 5 - Check common item

Give you two list, return True if they have common item, False if they don't

The item in the list could be integer, boolean, float, string

Input: [1,2,3] and [6,7,8] Output: False

Input: [1,2,3] and [6,7,1] Output: True

Input: [1,2,3] and [6,7,2] Output: True

Question 6 - Remove item with index 0, 4, 5 from list

Given a list, remove item with index 0, 4, 5 from list if there exist an item in that index

Input: [0, 1, 2, 3, 4, 5, 6, 7] Output: [1, 2, 3, 6, 7]

Input: [7, 6, 5, 4, 3, 2, 1, 0] Output: [6, 5, 4, 1, 0]

Input: [0, 1, 2, 3, 4] Output: [1, 2, 3]

Input: [0, 1] Output: [1]

Assignment 3

Question 1 - Sum of values of Dictionary

Given a dictionary, which both key and value are integer. return the sum of all values which the key is > n

Input: {10: 1, 20: 3, 30: 4, 40: 5}, n = 15

Output: 12

Input: {10: 1, 20: 3, 30: 4, 40: 5}, n = 25

Output: 9

Input: {10: 1, 20: 3, 30: 4, 40: 5}, n = 35

Output: 5

Question 2 - list of unique value

Given a dictionary, return a list which contain unique and sorted values of the dictionary

Input: {'a': 100, 'b': 100, 'c': 200, 'd': 300, 'e': 300}

Output: [100, 200, 300]

Input: {'a': 900, 'b': 1000, 'c': 200, 'd': 300, 'e': 300}

Output: [200, 300, 900, 1000]

Question 3 - average of dictionary values

Given a dictionary where values are float, return the average of the values

The input dictionary always has a value

Input: {1:1, 2:2, 3:3, 4:4}

Output: 2.5

Input: {'b':10, 'c':2, 'd':3, 'e':-3}

Output: 3.0

Question 4 - Password Check

Given a password as string, the function will check whether it's valid. If it's valid, then return True. If not, return False.

The rules of validation is as follow:

[This question is difficult]

1) Minimum length is 8 character

2) Maximum length is 16 character

3) At least one character from '$', '#', or '@'

4) At least one number between 0 - 9

5) At least 2 lower case a-z

6) At least 2 uppder case A-Z

7) Not accept any other character beside a-z A-Z 0-9 $ # @

Input: 'password' Output False

Input: 'PAssword1$' Output True

Input: 'pAssword1$' Output False

Input: 'PAss1$' Output False